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## **8.2 Ground Operating Instructions**

The company has adequate and sufficient ground support for the operations it carries out.

The Handling & operators that it hires to carry out its operations, are informed available to you, the sections of the "Operations Manual" that contain the procedures that must be followed to provide their services (in Spanish and English), accessing:

**<https://www.clipperjet.es/suppliers/>**

The MO sections are:

- Section 8.2 of the MOA.
- Section 9 of the MOA.
- Section 7 of the MOB of each fleet.

By signing the contract, the Handling company ensures that all personnel attends to the Company's aircraft, has said information and necessary training to comply with our procedures.

On the other hand, through the Company's website, they can access the Security Policy and the procedure established for the notification of events.

Whenever there is any disagreement about the service received from the Handling contracted, the Commander sends the ROV a report, so that it communicates it to the ROT (Responsible for your hiring) to take the corresponding measures.



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### 8.2.1 Fuel management procedures

The Management of each airport, the fuel suppliers, as well as the operators, have their responsibilities regarding the measures that have to be adapted during the loading/unloading of fuel. At this point, the CLIPPER NATIONAL AIR standards for this operation are collected.

The States or the Airport Authority may demand additional requirements, in which case, the Stopover Headquarters will establish the appropriate measures for compliance, informing the Commander, in what affects him.


When the aircraft is assigned and delivered for a service, the loading/unloading operations, even when carried out by personnel outside the Company, will be under the responsibility of the Captain.

It must:

- Check the type of refueling tanker and type of fuel.
- Monitor refueling
- Signature and file proof of refueling.

The approved fuels to be used in each aircraft are listed in its AFM, Section II – Operating Limitations – Fuel Limitations for the C-510 (Page 2-14) and C-S550 (Page 2-9), and, Fuel Limits for the C-525C (Page 2-110-7).

The fuel normally used by the Company is JET A1.

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### **8.2.1.a SAFETY MEASURES DURING THE SUPPLY AND DISCHARGE OF FUEL**

- 1) Portable fire extinguishing equipment must be available, at least, for the initial intervention in the event of fuel ignition. The fire extinguishers that tank vehicles are normally equipped with are considered sufficient to meet this requirement.
- 2) All loading/unloading operations will be carried out outside, never inside the hangars.
- 3) Extreme precautions will be taken when there is a storm during loading/unloading operations, and will be interrupted when lightning occurs in the vicinity of the airport.
- 4) Loading/unloading will be avoided when any part of the landing gear is abnormally overheated; charging/discharging will be interrupted or deferred until the abnormal excess heat has been dissipated.
- 5) Special care must be taken to avoid possible spills, and the engines will not be started until the spilled fuel has been removed.
- 6) Electrical and/or electronic systems, except radar, may be operated as needed during preflight operations.
- 7) Fuel will not be loaded/unloaded or said operation will be interrupted when there is an aircraft with engines running in the immediate vicinity of the area.
- 8) Batteries will not be installed, connected, or removed on the aircraft. Neither should generators be put into operation or disconnected for charging batteries.
- 9) Electric power generators will not be connected.
- 10) Electric tools, drills or similar equipment that can produce sparks will not be used; Nor will electronic or electrical flashes be used to take photographs in the vicinity of the refueling equipment, and in particular, the filling holes or the vents of the aircraft.
- 11) Personnel involved in loading/unloading operations are strictly prohibited from using lighters or matches.
- 12) The presence of open flames or devices capable of producing them is strictly prohibited in places located less than fifteen meters from where any refueling operation is being carried out. In the category of such flames and devices capable of producing them are included among others:
  - i) Lit cigarettes and pipes.
  - ii) Flame heaters.
  - iii) Torches.
  - iv) Torches.



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13) Refueling operations to an aircraft while its engines are running are prohibited.

14) Electrostatic discharge prevention. During fuel loading/unloading operations, with possible electrical potential differences exists the risk of producing discharge sparks. Electrostatic charges that can accumulate on the surface of the aircraft or the tanker vehicle, or both, create hazardous conditions. To avoid this, the tanks, the metal parts of the pipes of the plane, must be connected to each other, as well as the tanks and the plane with land.

15) Among the safety measures during refueling, guidelines and precautions to be taken regarding:

- Fuel supply vehicle approach and positioning:
  - C-5550, C-525 and C510 is positioned by the nose
- Establishment of the refueling security area:
  - It is bounded by cones
- Earth cable connection sequence:
  - It is carried out by the tanker operator.
  - Whenever the hose is in contact with the aircraft, the ground bypass must be on.
- Existence of fire extinguishers.
- The Commander is responsible for supervising the fuel supply, paying special attention to verifying the specific quantity to be refueled.
- Ground cable disconnection sequence.
- Departure of the refueling vehicle



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**8.2.1.b REFUELING AND DISCHARGING FUEL WHEN PASSENGERS ARE EMBARKING, ON BOARD OR DISEMBARKING.**

The Company contemplates the case of refueling or unloading fuel with the passage installed on board due to the interest in reducing the duration of the transit time on land or for the comfort of the passengers.

The States, with few exceptions, allow passengers to remain on board the aircraft, while fuel loading/unloading is being carried out, and may establish particular regulations in addition to those listed below, which must be complied with

In those airports where such practice is allowed, regardless of the specific regulations of each one of them, the following will be observed:

- (1) One of the pilots must remain in the cabin with the passengers to guarantee the application of the procedures related to firefighting, communication with them and control of the tower and the direction of a possible evacuation;
- (2) Two-way communication, by the airplane's internal communication system or by other appropriate means, will be established and maintained between ground personnel supervising fueling and qualified personnel on board the airplane;
- (3) crew, personnel, and passengers must be advised that fueling or unloading is to take place;
- (4) fasten seat belt signs must be turned off;
- (5) The smoking ban signs must be on, as well as the interior lights that allow the emergency exits and their opening device to be recognized.
- (6) Passengers must be instructed to unfasten seat belts and refrain from smoking;
- (7) if the presence of fuel gases is detected in the airplane or if any other danger arises during fueling/unloading, the operation must be stopped immediately;
- (8) The area below the exits provided for emergency evacuation must be kept clear on the ground. Evacuation routes must be free of FOD,
- (9) The Pilot on board must prepare a possible evacuation through the main door.
- (10) Passengers with reduced capacity during loading/unloading. As long as there are no legal impediments and there is sufficient personnel to ensure their evacuation, the Commander, in agreement with handling, may authorize their stay on board, even when the rest of the passengers are disembarked.
- (11) In the event of a flight with a patient on a stretcher, the CM1 will ask the doctors to prepare the patient for a possible evacuation.



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On the other hand, and in accordance with the rules identified in Order TMA/692/2020, of July 15, Article 40, the operation will be carried out:

- a. Only with aviation kerosene.
- b. At the request of the air operator or its representative, prior notification to the aerodrome manager, and which is coordinated between a representative of the operator carrier and the onboard operator.

The aerodrome manager will suspend the operation when there is a drop in the category of the firefighting service (SEI) below the required depending on the category of the aircraft.

In accordance with Order TMA/692/2020, Article 39 in putting on board, the operators commissioning shall ensure that:

- a. The commissioning on board will not start if there are no fire extinguishing means available proper fires.
- b. The movement and approach of supply vehicles and personnel is carried out in accordance with the procedures established by the aerodrome manager and subject to the following rules:
  1. The approach to the aircraft will be made only when it is immobilized and with chocks in place, the engines stopped, the propellers stopped and anti-collision lights off.
  - twoThe vehicle must come to a complete stop before reaching the aircraft, outside the equipment restriction area.
- c. The fuel will be put on board with the supply vehicle immobilized and positioned in the open air, so that it does not hinder access to the aircraft of the rescue and firefighting vehicles; No obstruct the emergency exits, nor the evacuation of the aircraft, as well as those other departures that the air operator may specifically indicate. Also, if the supply vehicle is a refueling unit, its Positioning should ensure that there is a quick exit route in case of emergency.
- d. With regard to the loading operation:
  1. Before starting the operation, the connection of the power cable will be made ground between the onboard equipment and the aircraft, and no will disconnect until finished.
  - twoIt will not start until verifying the grade of fuel used by the aircraft.
  3. If done with *dispenser*, it will not start if in the hydrant outlet (*pit*) there is product, water or dripping in the valve, which could affect safety or cause pollution.



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and Boarding shall not be initiated or suspended, as the case may be, if during the  
It produces fuel spill, fire, affection by jet of  
motors (*jet blast*); if the blocking of the output of the unit occurs  
refueler; If the result of the fuel quality tests is not  
satisfying; de-icing tasks are carried out; a bomb warning is given in the  
aircraft or electrical storms in the vicinity of the airport; whether  
detects a breach in the control measures of the sources of ignition or  
the interruption of the airport firefighting service occurs,  
as well as in any other situation that affects the safety of the operation  
certain and immediate.

According to Order TMA/692/2020, Article 42 on fuel extraction  
(defueling):

1. In the unloading of fuel from an aircraft, the  
compliance with the provisions of article 39 above and section 2.  
two The product can only be extracted from a supply vehicle,  
a tank or container or to a road transport tanker or, in  
in the event that the fuel is contaminated, to a waste truck.
3. In addition to the provisions of sections 1 and 2, in the case of downloading  
fuel of an aircraft with passengers on board, embarking or  
disembarking, the loading operator who carries out the extraction  
will guarantee compliance with the requirements established in article 40.



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**8.2.1.c PRECAUTIONS THAT MUST BE TAKEN INTO ACCOUNT TO AVOID THE MIXING OF FUELS.**

The crew must:

- Coordinate with the supplier the specific type of fuel required.
- Verify the type of fuel supplied on the delivery note.
- Check the refueling receipt before signing.
- The responsibility of these precautionary measures is the pilot who is supervising the refueling and leaves a record by signing the delivery note.



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### 8.2.2 Aircraft, passenger and cargo security operational procedures

The Company will hire the corresponding handling at each airport that will be in charge of identifying the hold baggage and will ensure that it has passed the security control before being loaded on the plane.

Passengers or part of them may not be admitted on board, or remain in transit stops, if there is not at least one technical crew member on board who must:

- Have electricity supply on the plane
- Have the means to initiate an evacuation
- Know your responsibilities on board as specified in your Operations manual
- Know at all times the position of the service and cargo vehicles at or near the exits

The following operational procedures will be followed: 1. Approach and positioning of equipment

- In the approach and departure of the aircraft, they will circulate at the speed of a person walking (8 km/h).
- In conditions of low visibility, the driver of the vehicle or equipment will be guided by another person who will guide him to his approach to the aircraft using standard visual signals.
- Unattended vehicles and ramp equipment located near the aircraft will have their engines off, in neutral, and with the parking brake applied.

#### 2. Placement of chocks.

They will be placed by a member of the crew or handling before disembarking to passengers and provided that the aircraft has completely stopped its engines.


On the ladders, two chocks will be placed on the nose wheel, one in front and one behind, and depending on the slope of the car park, another on a train wheel main, to avoid the displacement of the plane.

They will always be placed so that they touch the wheels, first in the front train and later in the main train, **the three in all**.

On base or in adverse weather conditions, two chocks will be placed on each wheel, one in front and one behind, to increase the immobility of the plane. **Six in all.**

The chocks can only be removed with the authorization of the Commander.

**FAILURE TO FOLLOW THIS PROCEDURE MAY CAUSE THE PLANE TO ROLL OUT OF CONTROL CREATING RISKS TO THE ASSISTANCE STAFF AND THIRD PARTIES**

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### 3. Placement of cones.

Once the engines have stopped and the chocks have been placed, the dimensioning cones will be placed. These cones serve the purpose of delimiting the circulation areas around the parked aircraft and will be removed once the aircraft is ready for start-up.

A cone will be placed towards the nose, to the right of the starting gate, and another near the tip of the left wing, to facilitate the entry and exit of the passage.

### 4.FOD

The handling personnel, under the supervision of the Captain, will ensure that the runway surface is clean of objects that could cause damage to the aircraft or its engines before departure.

Before the arrival, the Tower Control assigns the parking and the Handling staff must notify you if the runway is not in a clean condition to receive the aircraft.

### 5. Accident prevention.

- The vehicles necessary for the operations will not approach the aircraft until they have received authorization from the person in charge of handling.
- Doors will not be opened or closed until authorized by the Commander.
- The handling contracted by the Company will have a coordinator who will be responsible for the operation of ground assistance. The Company has previously sent a copy of the procedures to be used in the ground handling operation of its aircraft.



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**8.2.2.a. SPECIAL PASSENGERS INCLUDING CHILDREN/INFANTS, SICK PASSENGERS AND PEOPLE WITH REDUCED MOBILITY**

**a.1. Minors**

For transportation purposes, a minor is considered to be a person who has not reached TWELVE years of age on the date of the flight and who is more than seven days old.

**INFANT:** Less than on the date of the flight has not met the **TWO** year old. Travels **without occupying a seat** accompanied by a person over 18 years of age.

**CHILD:** Minor who, having reached two years of age, has not turned TWELVE on the date of the flight. He travels occupying a seat.

**a.1.1. Oxygen masks per plane, and flotation devices on board**

1) The C-S550 has two additional masks, the C-510 one **and the C 525C three**, are used to supply oxygen to the baby (infant), which transports the adult and are installed on the roof of the cabin.

**two)** Life jackets on board. Whenever you have to fly over water, the supply of vests on board must contain the necessary number of vests suitable for the children who are going to fly.

**a.1.2. Occupancy of seats by minors**

**a.1.2.1. Babies (infant)**

Babies do not occupy space. The adult in charge of the baby during the flight, whenever the use of a seatbelt is mandatory, after tying it, will hold the baby with their arms on their knees.

The baby is not allowed to be held by the same belt as the person accompanying him.

In the C-S550 two babies can be transported and in the C-510 only one **and in the C 525C three.**


**a.1.2.2 Seat occupancy by two children (SOD)**

The occupation of a seat by more than one person is not allowed, unless one of them is an adult and the other a baby.

In order to comply with the regulations governing the distribution of oxygen in the event of cabin decompression, the grouping of an adult and an infant is authorized only in a row of seats where an additional mask is available.

**a.1.3. unaccompanied minors**

The Company does not accept this type of transport

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**a.2. People with Reduced Mobility or Passengers with Reduced Capacity** It's all temporary

- That, due to their special physical or mental conditions, they need more individual attention than is normally provided to another passenger, during the trip, during a possible emergency evacuation and/or on the ground. These special psychophysical conditions are noticed due to requests or statements made by passengers and/or their families or by a medical authority or because they have been observed and notified by the personnel of the Airline Companies or associated persons of the Industry (Agents, etc. .)

**Note:** Among the passengers cited above are those who have serious difficulties receiving or understanding emergency instructions.

- That he could suffer a worsening in his state of health, due to the completion of an air trip.

Passengers with reduced capacity, due to their mobility, can be classified as:

- Ambulatory: Able to get on, off or move around inside the plane without help or with little help from any other person, such as deaf, blind or mentally handicapped.
- Non-ambulatory: Not able to get on, off or move around the plane without help.

**a.2.1. valid companion**

This is the name given to the person over 18 years of age, in full use of their faculties, who goes with the passenger with reduced capacity, in order to provide him with the help he may require during the trip.

They will be informed of the security procedures, the position of the emergency exits and the route to be followed in the event of an evacuation, information that will be provided to them on board.


Companions of ambulatory passengers, even blind, may be under 18 years of age.

A guide dog is considered a valid companion for a blind or deaf person traveling alone.

**a.2.2. Companies specializing in the assistance and transport of the sick and injured (EATEH)**

They are the ones that carry out the transport in CLIPPER NATIONAL AIR planes with their own professional staff with their medical support teams on board. CLIPPER NATIONAL AIR will establish cooperation agreements with these companies.

- The personnel of these companies will have proof of their identity and authority to transport the sick/injured on CLIPPER aircraft.

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- NATIONAL AIR, which must be shown to the crew, this accreditation being sufficient for the transportation of said passengers. (INCAD will not be required.)
- The competent services of the Company will have taken the necessary measures to equip the aircraft with the devices and mechanisms that may be necessary for this type of transport, without any reduction in the safety of passengers and aircraft.

As an annex to CLIPPER NATIONAL AIR's contract with these companies, a catalog of each and every one of the auxiliary medical equipment that the company plans to use in its regular activity is included. It will expressly contain the authorization of CLIPPER NATIONAL AIR for said equipment before its use or transport in the cabin or hold. This procedure must be passed by the new equipment that will be necessary in the future. The devices will have a label that will include your name, its period of validity and authorization from CLIPPER NATIONAL AIR.

**a.2.3. Transport Authorization**

When medical authorization is required to travel, it can only be granted by doctors authorized by the Company if the limitations of the maximum number of passengers are met, other security regulations and the required formalities are completed.

The authorization of the Medical Service is the only valid means to admit on board a passenger who requires medical authorization to travel.

The ROT will contain the name of the passenger, the flight number, date and route, as well as the complementary means (stretcher, oxygen, etc.) and type of companion, if necessary.

Previously, the passenger or a representative will have completed the documents and requirements demanded by the Medical Service, which in view of these issues the authorization or not.


**a.2.4. Medicinal Oxygen (Therapeutic)**

The transport of medical oxygen requires the authorization of the Medical Service. Only oxygen cylinders supplied by CLIPPER NATIONAL AIR will be accepted. Passenger's own bottles will not be allowed on board for use in the cabin.

The stretchers have their own certified oxygen service and will be the only ones allowed on board the Company's aircraft.

**a.2.5. Acceptance**

These rules and instructions will apply to transportation on CLIPPER NATIONAL AIR flights exclusively. If an itinerary also includes journeys on other airlines, the acceptance conditions may differ, especially with regard to provision of equipment and/or extra charges. The requirements for acceptance to the flight will vary according to the status of the passenger. (See point A.2.7).

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### **a.2.6. passenger classes**

Passengers with reduced capacity are divided for the purposes of aeronautical communications, into different classes. These classes are indicated in messages from airlines using the AIRIMP code with codes such as:

MEDA: Medical Case, those that require authorization. STCR:

Passenger: Passenger on stretcher.

WCHR: Wheelchair – R, by ramp. The passenger can board/descend by stairs and getting to/from your seat in the passenger cabin, but you need a wheelchair for long distances to/from the plane; that is, to move by ramp, telescopic walkways or planters.

WCHS: Wheelchair-S, by steps. The passenger cannot board or descend steps, but can move to/from your seat in the passenger cabin; requires a wheelchair to get to/from the plane or planters and has to be carried up or down steps.

WCHC: Wheelchair –C, up to cabin seat. The passenger cannot move himself; he requires a wheelchair to get to/from the plane/planter and has to be carried up and down steps to/from his seat in the passenger cabin.

BLND: Blind passenger. It can be accompanied by a guide dog.

DEAF: Deaf passenger. It can be accompanied by a guide dog.





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**a.2.7. Passenger categories and requirements demanded by the Medical Service  
a.2.7.1. Non-medical cases. Passengers who do not require authorization for their transportation and only need special assistance on the ground and/or by the crew during an emergency evacuation or during the flight.**

Cat.	Description (1)	Code airimp	authori- zation medical	Lim. max by type avo	Lim. No. Without accompaniment	accompany- nating required do	assign Assien. Wait- cials	Lim. Clusters
A-1	Passengers with fractures, dislocations, sprains, etc., in a lower or upper limb, with or without a plaster cast and that does not prevent them from moving freely and mentally disabled persons capable of understanding the instructions.	-	NO	NO	NO	NO	NO	NO
A-2	Passengers who need wheelchairs for long distances. Seniors, convalescent etc.	WCHR	NO	NO	NO	NO	NO	NO
A-3	Passengers who need wheelchairs to access/descend by steps: Passenger hemiplegics. Passengers with amputation, mutilation or defect of one of their limbs inferiors that can walk by themselves, but that They need the help of canes or crutches. Passengers who cannot flex one of their lower limbs (in plaster or not).	WCHR	NO	NO	NO	OTHERWISE (4)	NO	NO
A-4	Passengers who need wheelchairs to move to/from the aircraft seat: Paraplegic or quadriplegic passengers. Passengers with amputation of both lower limbs, without prostheses. Passengers who cannot support both members but can flex the knees (casts bilateral, sprains, etc).	WCHR	NO	NO	NO	OTHERWISE (4)	NO	NO
TO 5	Pregnant mothers in normal health. According to IATA recommendation, it is not advisable to travel by plane to pregnant passengers during the 7 days prior to the expected date of delivery and during the 7 days after the delivery, if complications of delivery can be expected (2).	-	NO	NO	NO	NO	NO	NO

Cat.	Description (1)	Code airimp	authori- zation medical	Lim. max by type avo	Lim. No. Without accompaniment	accompa- nanting required do	assign Assien. Wait- cials	Lim. Clusters
A-6	Deaf, dumb or deaf-mute passengers.	DEAF	NO	NO	NO	OTHERWISE (4)	NO	NO
A-7	blind passengers	BLND	NO	YES	YES	OTHERWISE (4)	NO	NO
A-8	Mentally handicapped people, who have difficulties to understand and follow the instructions during a possible evacuation of emergency.	-	NO	NO	NO	OTHERWISE (4)	NO	NO

(1) Special circumstances may determine your classification in a different category than the one that initially corresponded to you. In case of doubt, the authorized Physicians will be consulted, who will decide in which category the passenger must be included and what requirements must be fulfilled.

(2) The trip will not be recommended according to IATA regulations, for healthy or premature newborns, less than seven days old.

#### a.2.7.2. Medical Cases: Passengers who require special attention, both on land and on board

Cat.	Description (1)	incad (two)	Authorize - tion medical (two)	Lim. max By type Ave.	Lim. Num. Without accompaniment	accom- diaper Required (3)	assign Assien. Wait- cials	Lim. groups
B-1	Passengers who need oxygen supply	YES	YES	YES	-	YES	NO	YES
B-2	Passengers who CANNOT travel seated and need to do so on a stretcher.	YES	YES	YES	-	YES	YES	YES
B-3	Premature children. The incubator will be necessarily of type autonomous.	YES	YES	YES	-	YES	NO	YES
B-4	disabled passengers psychics unable to understand the instructions and follow them.	YES	YES	YES	-	YES	OTHERWISE	YES
B-5	Passengers not included in other groups, with non-contagious diseases, acute or chronic, medical or surgical, which due to their characteristics in the At the time of the flight they can be admitted on board in the opinion of the authorized doctors, because it is not foreseeable that the transport could cause aggravation or death.	YES	YES	YES	-	YES	OTHERWISE	YES

(1) In case of doubt, the authorized doctors will be consulted, who will decide in which category the passenger must be included and what requirements must be met.

(2) The type of companion will be the one prescribed by the authorized doctors.

**a.2.7.3. Cases that cannot be accepted on the fly**

They are those people who, due to their physical or mental state, may cause discomfort to the rest of the passengers, or are in such a serious state that they may cause a complication or death.

In general they will not be accepted on the flight. In case of doubt, it will be the authorized doctors who will decide whether or not to accept the flight and the requirements. The following cases are distinguished.

cat	DESCRIPTION
C-1	Persons whose odors, serious disfigurements, or other unpleasant characteristics are so infrequent that they can cause uneasiness or disturbance to other passengers.
C-2	People with contagious diseases.
C-3	People whose behavior may be dangerous for other passengers.  <b>Note:</b> If it is considered necessary, the intervention of the Authorities will be required, in order to endorse the action of CLIPPER NATIONAL AIR in the event of any subsequent claim.
C-4	People in such a serious state that the trip could cause a complication or death.
C-5	Any passenger with reduced capacity of categories A and B who does not meet the requirements demanded in them and can be detected by the personnel in charge of boarding, public relations or check-in at the airport itself, or by the crew when accessing the board.
C-6	People under the obvious influence of alcohol, drugs or narcotics.

**Note:** In the event that the aforementioned persons insist on traveling and/or there is any doubt regarding their acceptability, the authorized physicians must decide on their acceptance and the requirements demanded of them.

aircraft type	total maximum number
all fleets	two



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**a.2.8.2. Maximum number of individual passengers**

**Traveling WITHOUT a companion**

Passengers in categories A-3/A-4/A-6/A-7 and A-8 may travel unaccompanied in a number that does not exceed those indicated in the following table:

aircraft type	Maximum number
all fleets	1

**Required companions**

When the number of passengers of categories A indicated in the previous point is exceeded, the existence of companions will be necessary in accordance with the following:

- (a) For passengers in categories A-3/A-4/A-8, one companion will be required for each passenger.

The Company, or if necessary the Commander, may require, due to the weight of the passenger or other circumstances, that there be two accompanying persons, in order to allow an easier evacuation.


- (b) For passengers in categories A-6 and A-7 (deaf or blind), one person for every two passengers.

The guide dog is considered a valid companion for a blind or deaf person.

For all B categories, a companion will always be necessary for each passenger.

**stretcher passengers**

The number of stretcher passengers on board is limited to TWO for the CESSNA 550 and ONE for the CESSNA 510.

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### **a.2.9. Criteria for assigning seats to passengers in seats**

In the seats with access to the emergency door, a passenger who can help in the possible evacuation must be seated and they must never be seated:

- (a) Passengers with a physical or mental disability that prevents them from moving quickly.
- (b) Passengers with vision or hearing problems that prevent them from quickly assimilating written or verbal instructions.
- (c) Passengers who, due to their age or illness, cannot move quickly.
- (d) Passengers who, due to their obesity, have difficulty moving or going through the door.
- (e) Children, regardless of whether they are accompanied.
- (f) Deported passengers, not admitted at destination or in custody.
- (g) Passengers with animals.

### **a.2.10. Seat assignment for stretcher passengers**

The seats to be occupied by the stretcher and those affected by it will be blocked.

The seats blocked and not occupied by the stretcher will be assigned to the companions of the passenger on the stretcher.

### **a.2.11. passenger handling**


In all cases in which passengers have to be transported on a stretcher/wheelchair, as well as in cases in which passengers with reduced capacity cannot embark/disembark without assistance, the necessary help will be provided by the contracted handling staff. . Boarding will not be considered completed until the passenger is accommodated by said personnel in the seat previously assigned, they will collaborate in locating the seat and in the best installation on board the passenger.

In cases where the seat assignment is obviously not correct, the Commander may alter it.

In the case of passengers with reduced capacity who can embark/disembark without assistance, the crew will accommodate them on board in the previously assigned seats.

#### **a.2.11.1. Actions to take at airports**

Handling will attend to everything related to the transport of passengers with reduced capacity, from the moment they have been accepted until they leave the destination airport.

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## Source Scale

### Ground Operations:

It will verify that all the requirements, limitations (maximum number accepted) and formalities have been processed and fulfilled.

It will verify that the passenger can travel in accordance with the previously agreed conditions.

It will verify that the passengers/groups of passengers with reduced capacity are accompanied by the notified person or persons and carry the specified equipment/medications. Otherwise, it will not authorize the transport.

If there is no requirement, the possibility of meeting it at the time or until the departure of the flight will be analyzed. When the time frame or the circumstances do not make it possible, the passenger cannot be accepted to the flight.

It will assign/block the necessary seats. He will inform the Commander (Load Sheet or other form). The appropriate information will be passed to the Cabin. Will board the passenger/passengers with reduced capacity in advance of the remaining passengers. It will send the appropriate message to the scale or scales affected.

Whenever possible, in the case of a passenger traveling with their own folding wheelchair, they may remain in it, already duly labeled, until they reach the plane and there it will be stowed in the hold.

Guide dogs specially trained as guides for the blind or deaf will be accepted for transportation when accompanying their owners at no additional charge.

Physicians belonging to a company specialized in the transport of patients, if they travel alone to meet said patient, or on the return flight once their mission is over, may transport bulky and delicate medical equipment in the cabin, with the exception of the oxygen.

### transit scale

Handling will have the appropriate personnel and equipment ready to disembark if necessary.


If the passenger needs or wishes to remain on board during a transit stopover, given the difficulty of moving on their own, the Commander may authorize it, as long as they allow it:

- The safety standards given by the Company.
- The provisions of the local authorities on this matter.
- The rules on fuel load with passengers on board.
- Other circumstances.

### a.2.11.2. Deviation in the flight itinerary

#### Transit stopover or destination

If during the flight the plane suffers any deviation from the planned itinerary, the intermediate or destination scale, where the plane should have landed, will IMMEDIATELY send the appropriate message to the alternative airport.

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In case of diversion or interruption of the service, the Company will provide the necessary assistance for this type of passengers, but will not be obliged to assume maintenance and lodging expenses that derive from their condition of incapacitated and that exceed those of the remaining passengers.

**Crew**

In the case of a flight diverted to an alternative airport in which CLIPPER NATIONAL AIR has signed an assistance agreement for said airport, the Commander may, depending on the content of the aforementioned agreement, contact the Assistant Company and request from it as many financial aids as possible. type of health care or assistance is required, such as doctors, ambulance services, hospitalization, etc.


As for unforeseen and unpaid charges, therefore, at source, that may occur, the rules established by our Company will be taken into account.

**a.2.11.3. Destination airport**

The destination scale will be notified, by means of a message, of the arrival of the passenger with reduced capacity and will have planned the necessary services in advance.

These passengers will be disembarked last.

Unloading operations will be carried out by the personnel in charge for this purpose, using the same means and equipment already described for loading operations. Once the passenger has disembarked, they will be accompanied to the arrival hall or customs, helping them to collect their luggage and in the subsequent search for a means of transport.

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**a.2.12. Special or specifically chartered flights for the transport of injured or victims of catastrophic events**

In these cases there are no limitations, and the specific instructions received in these circumstances must be followed.

**a.2.13. Rules of conduct on board - Normal Operation**

Passengers with reduced capacity will be specially assisted by the crew as far as it is compatible with their flight duties.

**location on board**

It is important that the canes (rigid or telescopic) and crutches used by passengers with reduced capacity are stowed in an adequate place. It has been shown that the use of these elements during the emergency evacuation has hindered the exit of the users, instead of speeding it up. On the other hand, there is the possibility that the accidental fall of these elements in a corridor could completely obstruct or block it.

**Instructions before takeoff**

In general, passengers with reduced capacity do not present problems in this regard. The instructions and demonstrations are also valid for these passengers; Those who, due to their characteristics, require it, will be instructed individually, taking into account their particular circumstances.

The crew will be in charge of giving the companions of groups of passengers with reduced capacity, the following instructions:

It will point out the location of the nearest emergency exit. He will point out the situation of the rafts and life jackets. Give each companion a "Safety Instructions" brochure.

He will ask the companions to study them and ask for any additional information they need.

The forms will be collected and kept in their place, in order to avoid their loss.

**a.2.14 Emergency operation**

**Evacuation**

(a) Individual Disabled Passengers.

In the event of an emergency, the evacuation of passengers with reduced capacity will be carried out in the safest and most expeditious way possible, without this implying a delay or slower evacuation of the remaining passengers.





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**a.2.15. Passengers affected by incidents/accidents on the ground**

If, once the flight has been accepted, any passenger suffers illness, accident, injuries, wounds or aggravation of their illness, for the initiation of the transport or its continuation, the following procedure will be followed.

**a.2.15.1. The passenger appears fit for the flight and wants to start the flight**


Handling will consult with the airport Medical Service and will submit the case to the Commander for consideration.

**a.2.15.2. The passenger does not appear fit to travel**

Handling will consult with the airport Medical Service and will submit the case to the Commander for consideration.

**a.2.15.3. Injuries or accidents produced on board**

In the event that a passenger who had accepted transportation under the passenger/sick/handicapped regime, becomes aggravated while on board the aircraft in flight, the Commander may decide to land at the nearest suitable airport based on the severity of the event.

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### **a.3 CARRIAGE OF PASSENGERS NOT ADMITTED AT DESTINATION, DEPORTEES AND PERSONS IN CUSTODY**

These passengers are mainly included in the following groups:

- not admitted
- deported
- Sentenced, Prisoners and Subject to Extradition The rules to follow with these travelers are detailed below, taking into account that they are **always subject to those of the country ordering the departure of the passenger.**

#### **a.3.1 Passenger Not Admitted (Inadmissible Passenger, INAD)**

In accordance with IATA Resolution 701, they are passengers of a different nationality than that of the arrival airport, who are not admitted by the competent Authority. The usual reasons for non-admission are:

- Defects in the ticket documentation
- Decision of the Immigration Authorities that consider the passenger unacceptable.

If any of the Company's passengers is not accepted at the destination, they will return to the departure airport on the same plane.


This non-admission will be communicated to the Commander.

#### **a.3.2 Deportees (Deportees, DEPO)**

According to IATA Resolution 701, it is a person who has been legally admitted to a country by its authorities or who has entered the country illegally, and who is subsequently formally ordered to leave by said authorities.

#### **a.3.3 Transport limitations**

Given the characteristics of the aircraft used by the Company, unless ordered by the competent Authority, deported, convicted, prisoners and/or extradited passengers will not be admitted on board due to the potential danger they pose.

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### 8.2.2.b PERMITTED SIZE AND WEIGHT OF HAND BAGGAGE


- **Classification and definition.**

The dimensions of the package will not exceed 50x40x20 cm in such a way that no package whose length + width + height exceeds 110 cm and a weight of 6 kilograms.

In no case will the location of the luggage in the cabin hinder access to the emergency exits or the crew's vision of the passage. **H.H**

- Limitation by number of pieces, weight and size of these. Passengers can carry one piece of luggage with the measures described above, a handbag and warm clothes
- Hand luggage that exceeds the accepted measurements: the handling staff will initially be responsible for controlling the size of the hand luggage. Subsequently, the crew will check again that there is no package on board that exceeds the measures described above.
- Packages that exceed these measurements or weights will be shipped in the hold.
- As aircraft do not have pressurized cargo holds, pets (dogs and cats) must be transported in the passenger cabin in the company of their owners. They must be more than 3 months old, have a veterinary passport, identification system and if they weigh more than 8 Kg they must be moved inside a cage.

Any type of small pet that meets the above requirements and is harmless may be acceptable.

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### 8.2.2.c LOADING AND SECURING ITEMS ON THE AIRCRAFT

The cargo compartments of the Company's aircraft are not accessible to the crew during the flight, they are not pressurized and they do not have any cabin warning system (except the C-525 that have a smoke detector with notice to cabin).


#### c.1. Passenger cabin.

To ensure that hand luggage and packages are correctly placed, the following measures must be taken into account:

- Each element transported in the cabin must be placed only in a place that is capable of retaining it;
- Luggage will not be placed under the seats.
- No items should be placed in toilets or next to bulkheads.
- Baggage and packages will not be placed where they may impede access to emergency equipment; Y
- The Co-pilot before takeoff and landing will ensure that the baggage is placed where it does not impede an evacuation or may cause injury (due to a fall or other movement).

#### c.2. Wineries.

- Care must be taken with the doors during loading and unloading operations.
- Precautions must be taken when handling bulky or heavy merchandise inside the warehouse to avoid damage to the floor.
- When liquids are spilled in the warehouses, it will be reported immediately to avoid damage to the floor or electrical wiring.
- Any package labeled as dangerous goods will be taken down immediately.
- Proceed with caution when a package in poor condition is detected. These packages will not be transported, as they are a possible source of damage.
- The runway surface will be free of objects that could cause damage to the aircraft or its engines.
- Before the departure of the aircraft, a visual inspection will be carried out to ensure that all service and cargo doors, as well as all panels, are closed, brocaded and free of FOD.

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**8.2.2.d. POSITION OF THE GROUND EQUIPMENT**

The mobile teams that normally approach the aircraft are:


- passenger van
- Butler van
- Handling Van
- GPU
- waste tank and
- push-back

The responsibility for its management falls on the handling that attends the aircraft.

Ground mobile equipment, operated only by Company personnel or appropriately trained handling agents, will not approach the aircraft until all engines have stopped (anti-collision lights off) and chocks are on, or authorized by the Commander. The speed of these teams will always be reduced. In the event that an engine should remain operating, the mobile equipment will approach the aircraft from the side with the engine stopped. In any case, the flight crew and ground personnel will previously agree on the action to follow.

A distance must always be left between the ground equipment and the aircraft to avoid possible damage caused by displacement of any surface of the aircraft, during the loading/unloading/refueling process, etc.

The ground crew should not invade the areas dedicated to aircraft taxiing and passenger boarding/disembarking.

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### 8.2.2.e AIRCRAFT DOOR OPERATION

The opening and closing of the passenger cabin door will be carried out after authorization from the Commander.

Both the passenger door and the cargo door may not be opened until the engines are stopped and the chocks are in place, and these same conditions must be met, with the cargo door, before starting the engines.

The passenger door may remain open, with the right engine running, to allow cabin conditioning. Once the passage on board will be closed, before starting the left engine.

They are run by the crew from inside. In an emergency they can be opened from the outside.

The doors of all the Company's aircraft are handled in the same way: **To open:** Turn lever clockwise and push out

**To close:** Close the door and turn the lever counterclockwise.

Tank vehicles will be positioned so that:

- i) Do not obstruct access to the aircraft for rescue and/or firefighting vehicles.
- ii) Keep your exit clear in case you have to move away quickly in an emergency. Loading/unloading will be interrupted when a vehicle obstructs the rapid evacuation routes of tank vehicles.
- iii) Do not obstruct the evacuation of the aircraft in case of fire on board.
- iv) The engines of said vehicles are not below the planes of the aircraft.

The vehicles used for the different operations other than fuel loading/unloading, will comply with the provisions of the previous point. They will be located in such a way that they do not impede the operation of the fire-fighting vehicles, nor the exit of the tanks.

The gas exhausts of all vehicles that have to work in the loading/unloading area must be carefully maintained to eliminate causes that could produce sparks or flames that could ignite the fuel or its vapours.

The ground and/or on-board auxiliary power units (APU) will be connected and started before the beginning of the supply and will not be stopped or disconnected until the loading/unloading has been completed.



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**8.2.2.f SAFETY ON THE RAMP, INCLUDING FIRE PREVENTION, AND JET AND SUCTION AREAS**

All personnel who carry out their work on the ramp must wear a reflective vest and exercise extreme caution with the mobile equipment that moves along it.

When the ground team is heading to or leaving the aircraft, they must not be driven at a speed greater than the walking speed of a person.

Before moving a ground team, an inspection will be carried out around the plane and it will be verified that it is free of FOD's.

When locating equipment, special care will be taken to ensure adequate clearance from vehicles, aircraft, or other equipment.

When vision in critical areas is limited, a person will guide the operation.

Standard hand signals will be used to guide the ground crew.

The guide will position himself in such a way that he can accurately judge the available space, be visible and able to communicate signals at all times to the vehicle operator.

He will stop immediately if he loses visual contact with the guide.

The motorized team must check brakes before entering the restricted area and again before reaching the side of the aircraft.

Vehicles with rubber protection bumpers will not compress them against the fuselage of the aircraft, to prevent damage to it.

All equipment, except that required for the start, will be positioned behind the restraint line prior to initiating the aircraft pushback.

In an open departure area, the team will be positioned in such a way that there is enough space for the movement of the aircraft.

**f.1. PREVENTION AGAINST FIRE IN COMBUSTION RISK AREAS AND IN REFUELING AREAS.**

Fire prevention is more important than fire fighting. The following considerations will be taken into account to prevent and protect against fire:

- The accumulation of rubbish will not be allowed, unless it is in containers appropriate.
- Any suspicion or knowledge of the existence of the fire will be reported immediately.
- Any failure in the electrical wiring will be reported immediately.
- Smoking is not permitted on the ramps or in any vehicle located on the ramps.
  
- The location of fire-fighting equipment, fire alarms, emergency switches, etc. must be known by the staff.
- Access to fire-fighting equipment, fire alarms, emergency switches, etc. it will not be obstructed.
- If a fire is observed in a parked aircraft, the people inside will be notified immediately and they will be evacuated.



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- While the fire is under control, if there is any doubt about the safety of the personnel, any fire extinguisher from a ground crew or the fire extinguishers available on the aircraft may be used.
- If possible, the aircraft doors should be closed.
- If the fire occurs in any ground support team for the aircraft, it will be fought using the fire extinguishers on the ramp or those of the ground team itself. As soon as possible, the ground team will be removed from the vicinity of the aircraft.
- No ground crew will operate in the vicinity of a fuel spill.
- The personnel must know the types of equipment available for fire fighting, and will be trained in its use.

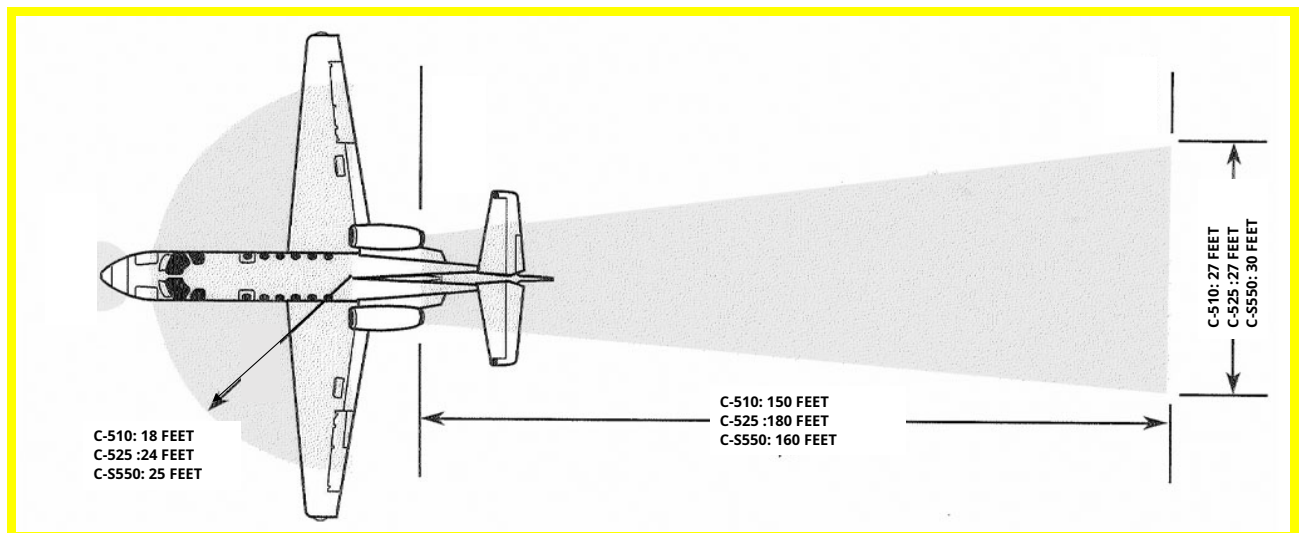
**f.2. PRECAUTIONS IN JET AND SUCTION AREAS**

On the ramp with the engines running, precautions will be taken by the ground personnel in the zone of influence of the reactors. The following safety distances will be maintained:


C-510: OM Figure 1-4 (Page 1-4)

C-525C: OM Figure 1-5 (Page 1-6)

C-S550: AMM Figure 501 (Page 71-01-02)





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**8.2.2.g. PROCEDURES FOR STARTING, RAMP DEPARTURE, AND ARRIVAL, INCLUDING BACKUP AND TOWING OPERATIONS**

The auxiliary power unit or ground group will be used as a source of power on the ground before start-up.

If said units are out of service, the aircraft engines will be started with battery as established in Section 3 of the AFM and in the QRH (Starting with battery)

**g.1. Start up.**

Starting the engines can be dangerous for ground personnel and objects near the aircraft.

The commander will take into consideration the time of departure, the slot and other related factors, to start the start-up.

Before launch, the Commander will ensure that the aircraft clamps are on board and that the launch area is clear.

**g.2. Ramp exit procedure.**

Before starting the filming, it will be necessary to have the corresponding authorization from the Control Tower and in addition, the ground personnel must give the area free and clear.

The Commander will notify Handling that it is ready to start, with a brakes on signal and Beacon On.

Handling personnel remove the brakes and once the plane is started, the GPU team. It checks the clear zone and gives a signal that the plane is ready to roll.

When starting taxiing, the captain must judge the situation around the aircraft, especially near other aircraft and objects, using an adequate taxiing speed and power that does not cause excessive noise; particularly when starting taxiing from the parking lot.


The commander is responsible for ensuring that the aircraft does not make contact with any object while maneuvering under engine power.

The "plane clear" signal must be given by the ground personnel before starting the taxi.

The taxi lights will be activated once the "airplane clear" signal is obtained, before releasing the brakes and starting the taxi.

It is very important that all members of the flight crew pay attention to taxiing, especially when conditions are adverse, for example: low visibility, unknown airport, etc. The reading of the checklists will not start, or continue while conditions exist that require special attention.

When there is doubt about the position at the airport, the aircraft will be stopped immediately and ATC or runway control will be informed.

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Signs on the surface must be strictly followed. Stop lights must not be exceeded.

The taxi lines vary from one place to another and do not always guarantee to be free of obstacles. They will be used with caution as a guide to place the aircraft.

The commander, when guided by signs posted on the ramps, is responsible for maneuvering the aircraft.

**External Means Pushback and Towing Procedures** When it is necessary to push back, proceed as follows:

- 1) The personnel that attend to the towing, with the aircraft braked or with the main landing gear wheel chocks in place to prevent the aircraft from rolling back, insert the ramp of the equipment under the nose wheel and secure it by means of a retainer.
- 2) Warns the Commander "shocks out and take off the brakes"
- 3) Moves the plane to the exit point, stops it and advises it to apply brakes before removing the ramp from the nose wheel and taking the trailer away.

### **Airplane Taxiing Authority**

CLIPPER NATIONAL AIR aircraft will taxi through the movement zone of an aerodrome always handled by members of the flight crew, unless the person at the controls:

- 1) has been duly authorized by CLIPPER NATIONAL AIR or an agent designated by it and is competent to:
  - i) roll the plane
  - ii) use the radiotelephone and
- 2) has been instructed in the general layout of the aerodrome, taxiways, signs, markings, lights, air traffic control instructions, phraseology and procedures, and can follow the practical rules for the safe movement of airplanes on the aerodrome.


### **g.3. Arrival procedures.**

With the plane stopped, the engines and the beacon off, the Commander makes a chock signal. The Handling personnel place them and make the signal for the Commander to release the brakes and order the opening of the doors.

The number of chocks and their placement appear in point 8.2.2 of this section.

### **g.4. parked plane**

When an aircraft is parked, the main gear wheels will have chocks in place.

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#### 8.2.2.h. MINOR MAINTENANCE OF AIRCRAFT

The Commander must request the Handling that assists him, the services he needs, such as:

- Defrost / Antifreeze
- Maintenance Attention
- Gas
- catering
- Oxygen
- Cleaning, etc.

These services will be supervised by a member of the crew and billed by the handling, within the framework contract that you have with the Company and that contemplates this possibility.

#### 8.2.2.i DOCUMENTS AND FORMS FOR AIRCRAFT HANDLING

##### Generalities

The reports, forms, and in general, all the documentation, will be written in pen (with very clear handwriting, preferably capital letters) and, when mandatory, will be signed.

Unless otherwise specified, the date will be that of the day whose start time it belongs to, and the GMT time

Each stage of a series of flights is considered as an individual flight.

The following documents and forms are required to carry out ground operations:

- **loading sheet.** It is provided by flight dispatch, its data must coincide with that of the PVO and it must be approved by the Pilot in command.
- The cargo and passenger information is included in the «GenDec» that is sent to the handling services included in the operation and to the flight dispatcher who uses your data to prepare the load sheet that is sent to the crew, together with all the flight documentation.

The number of passengers, their mass and/or the weight of the cargo indicated in the «GenDec», must coincide with the data indicated in the load sheet.

- **Information to the crew.** In the “Pilot info” there is all the data of the service that they are going to carry out, jumps and scheduled times, passengers, special loads if any, hotels, fuel, etc.
- **fuel sheet,** is carried out by the person responsible for the supply. The Commander, with his signature on the delivery note, records his verification. The Commander will keep the receipt that he will include in the flight envelope.



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- **Medical assistance report.** It is signed by the doctor responsible for patient care on medicalized flights.
- **security lists** Once the passengers and cargo have been unloaded, the corresponding personnel will complete the lists described in the security procedures.

**8.2.2.j. SPECIAL LOADS AND CLASSIFICATION OF CARGO COMPARTMENTS.**

The information on the transfer of the special cargo is received by the Commander through the «Flight Info» and its data from the «GenDec» that he receives with the flight documentation.

**special loads**

**PERISHABLE merchandise**

Any merchandise that must be transported without delay is perishable because, otherwise, it loses its usefulness, and therefore its value, because it has to be delivered within a certain period, or because it could deteriorate due to changes in temperature and humidity and of the passage of time

Examples of perishable goods are:

- Groceries such as: meat, fish, fruit and vegetables, flowers,...

**human remains**

The Company will agree to transport human remains (HUM) provided that the following restrictions are met:

1. Except for cremated human remains, they must be contained in an interior lead or zinc coffin hermetically sealed within a wooden coffin.  
The wooden coffin must be protected by an outer canvas packaging so that its contents are not obvious.
2. The cremated remains must be contained in funerary urns protected against breakage with the appropriate packaging.
3. They must be handled with respect and kept covered during loading/unloading.
4. They will not be transported in the same warehouse as any perishable merchandise.
5. The captain will be informed through his flight «info» and the Gen Dec, of the presence of human remains, their weight and their exact location in the aircraft.



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Human remains will not be accepted unless proper documentation is attached to the casket or casket.

**Compatibility between perishable goods and human remains**

The following table shows the various perishable goods or human remains that can be loaded together in the hold, and those that cannot.

<u>Type</u>	MEAT	SEAFOOD	FRUIT & VEGETABLES	FLOWERS	HUM
MEAT	✓	✓	✓	✓	✗
SEA FOOD	✓	✓	✓	✓	✗
FRUIT & VEGETABLES	✓	✓	✓	✗	✗
FLOWERS	✓	✓	✗	✓	✗
HUM	✗	✗	✗	✗	✓

**NON-Perishable Merchandise**

It is non-perishable, all merchandise that does not run the risk of losing its usefulness or value in case of being transported with delay

**Aircraft spare parts, company material and mail(non-dangerous goods)**

CO-MAIL = Company email


CO-MAT = Company Material

Company mail and material means internal shipments of mail and material, such as documents, inventory, maintenance parts, cleaning supplies, or other items, that must be delivered to the company itself or to the company contracted to perform a particular service. (eg: cleaning company).

Both internal mail and Company material transported on company aircraft will be subject to security controls before being shipped.

The Company must ensure that any co-mail or co-mat shipment made on its behalf by a contracted company is examined before being loaded onto the aircraft.

All requests for the transportation of aircraft parts must come from the Company's maintenance department. The transport of CO-Mail and spare parts is allowed on aircraft, subject to space and weight restrictions.

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The Gen Dec will be completed, including the relevant information, and will be sent to the contracted Handling at the departure airport.

You must provide a description of the part, its dimensions and weight, as well as a non-dangerous goods declaration.

Maintenance will ensure that the spare parts have been taken to the aircraft, that they have been properly protected and that a “spare part” tag has been added to them.

**Post mail**

The Company accepts and transports commercial mail or packages

**Wheelchair**

Given the size of the hold and the door, only folding wheelchairs can be transported.

**Live Animals (AVIS)**

Animals can go in the passenger cabin as long as they do not disturb the rest of the passengers

In any case, they must be insured and carry the corresponding documentation issued by the cargo agent.

Animals (dogs and cats) must be transported in the company of their owners. They must be more than 3 months old, have a veterinary passport and an identification system. Live animals will have to go in a cage and their maximum weight is 8 Kg. They will be considered wet goods and the floor of the cage will be covered with absorbent material. No more than 2 animals may be transported in the cabin.

**Refrigerators with organs for transplant.**

These refrigerators must go in the passenger cabin as the cargo compartments are not pressurized. The surgical team will be transported in them. They are specially chartered flights



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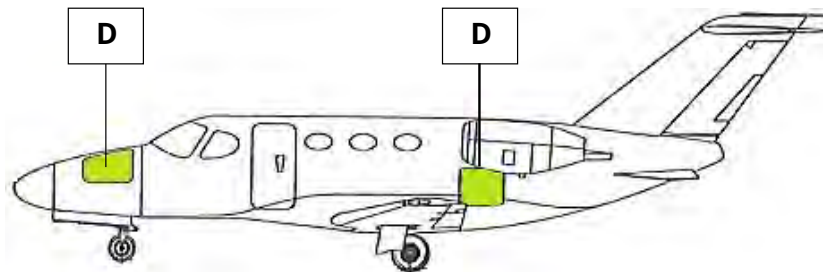
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**j.1. Classification of cargo compartments**

Cargo compartments are classified according to their accessibility during the flight, the possibility of being isolated with regard to ventilation and the type of fire extinguishing system that may originate inside.

**CESSNA 510**

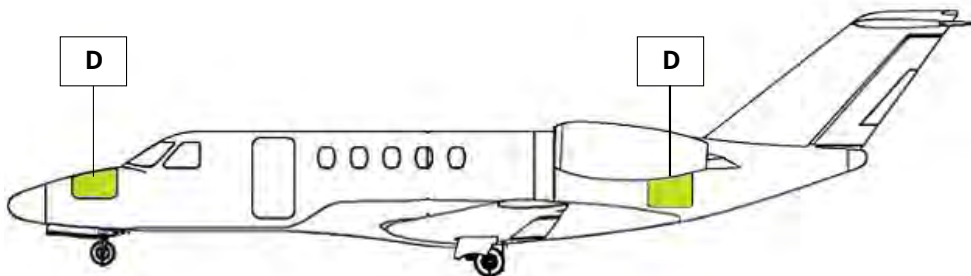
has two cargo compartments or Class "D" baggage, are not accessible from the cockpit, they are not pressurized or ventilated, nor do they have warnings of fire.



The load data in weight, volume and resistance of the soil appear in the OM Chapter 1.

**CESSNA 525-C**

Has two Class "D" cargo or baggage compartments, are not accessible from the cockpit, are not pressurized or ventilated, and have notices of fire.



The load data in weight, volume and resistance of the soil appear in Section VI of the AFM, pages 6-110-20 and are the following:

**NOSE:** It has a capacity for 400 pounds, in an area of 15 cubic feet. **TAIL CONE:** It has a capacity for 600 pounds, in a 50 cubic foot area.



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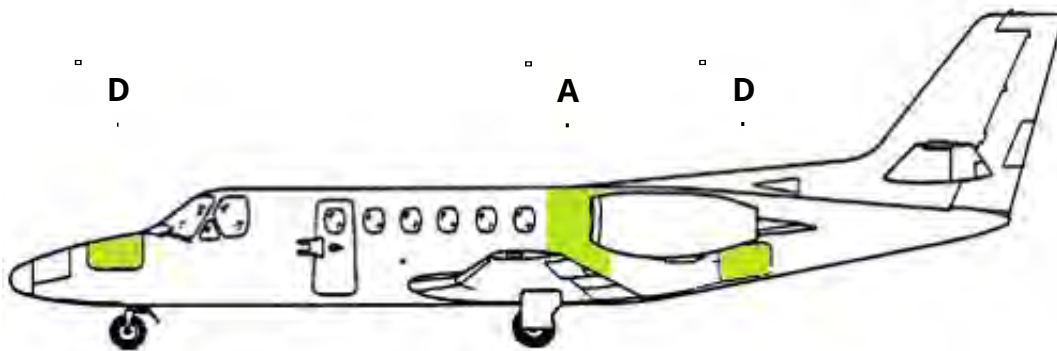
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**CESSNA 570s**

It has three cargo compartments of baggage, two Class "D", are not accessible from the cockpit, they are not pressurized or ventilated, nor do they have warnings of fire and one of class «A» in which the presence of fire could be discovered by any member of the crew from his position and that has an easy accessibility to any part of it in flight.



As listed in WB Manual 1-60-00 page 1, it has three cargo compartments rated at 120 pounds per square foot.

The first NOSE has a capacity for 3 cubic 30 pounds in an area 15.40 feet

The second AFTER CABIN has a capacity of cubic. 600 pounds in a 36 foot area

The third TAIL CONE has a capacity of 00 pounds in a cubic area. 25 feet


Given the dimensions of the cargo hold, only folding chairs can be transported.

**8.2.2.k. MULTIPLE OCCUPANCY OF AIRCRAFT SEATS.**

Multiple occupancy of aircraft seats by both passengers and crew is prohibited.

Multiple seat occupancy is only allowed when one of the occupants is an adult and the other a baby.



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**8.2.3 Boarding Denial Procedures**

The company will not allow any person to enter under the influence of alcohol or drugs, in such a way that it could affect the safety of the aircraft or its occupants.

Before embarking on the flight, the Commander is empowered to prevent the boarding of passengers who are under the influence of alcohol, drugs, etc., and those who could be dangerous or annoying for the rest of the passenger. The Captain may seek advice from the airport health personnel before making such a decision.

These points will not be applicable to patients undergoing medical care and who have their discharge statement and/or the corresponding medical company.



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### **8.2.4 Elimination and prevention of ice on land.**

The applicable procedures will be those established in the AFM and/or OM of each type of aircraft for Special Operations and Cold Weather Operations.

Considerations to take into account in the evaluation of aircraft icing:

- 1) It is necessary to have a clear idea of the adverse effects of roughness on the outer surface of the aircraft on the performance of the aircraft.
- 2) It is not advisable to request de-icing services without knowing the procedures and products used in them.
- 3) It is necessary to know the most critical areas of the aircraft in terms of icing, to be duly treated, in order to avoid possible deterioration in de-icing operations and to be duly examined in pre-flight inspections.
- 4) If deemed appropriate, additional pre-flight inspections should not be hesitated.
- 5) There are several variables that affect the effectiveness of antifreeze liquids.
- 6) The time of effectiveness of antifreeze liquids cannot be determined with absolute accuracy, since there are many variables that affect such time.
- 7) The antifreeze treatment must be carried out as close as possible to the moment of takeoff.
- 8) Engines should not be started if there are ice fragments on the surface that could be ingested.
- 9) Certain operations can produce recirculation of ice crystals, snow or a mixture of water and ice.
- 10) The operation of some equipment in the proximity of the aircraft may facilitate the accumulation of snow or ice in critical areas.
- 11) It is recommended to examine the possible accumulation of ice on the profiles during running-in.
- 12) Immediately before beginning the takeoff, a final visual inspection must be made from the cockpit. Do not initiate takeoff if the cleanliness of the aircraft cannot be ensured.



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**Definitions:**

**Anti-ice:** the process of protecting the aircraft to prevent contamination due to existing or expected weather, usually through the application of anti-icing liquids on uncontaminated aircraft surfaces.

**Conditions conducive to the formation of ice on the ground of aircraft:**

freezing fog, freezing precipitation, frost, rain, or high humidity (on wings cold soaked), hail, ice pellets, snow or a mixture of rain and snow, etc.

**Pre-takeoff check:** the flight crew should supervise

continuously weather conditions after de-icing treatment / antifreeze, to assess whether the maintenance time applied is still the appropriate. Inside the HOT of the aircraft and before takeoff, the crew of flight should check the wings of the aircraft or representative surfaces of the aircraft for frozen contaminants.

**Pollution:** Any type of frozen or semi-frozen moisture such as frost, snow, sleet or ice .

**Control of contamination:** a check of the aircraft for contamination to determine the need to apply de-icing.

**Pollution control prior to takeoff:** a contamination control of the treated surfaces, carried out when the HOT has been exceeded or if there is any doubt regarding the continuation of the antifreeze treatment applied. It is normally done externally, just before the start of the take-off roll.

**Thaw:** the process of removing frozen contamination from the surfaces of aircraft, typically through the application of de-icing fluids .

**Defrost/Anti-ice:** Combination of de-icing and anti-icing procedures, carried out in one or two stages.

**Cold Soaked Surface Frost (CSSF):** frost developed on cold-soaked aircraft surfaces by sublimation of moisture in the air. This effect can occur at ambient temperatures above 0°C.

Cold soaked aircraft surfaces are more common on aircraft that have recently landed. The external surfaces of fuel tanks (for example, wing skins) are typical areas of CSSF formation (known in this case as cold soaked fuel frost (CSFF)), due to the thermal inertia of the very fuel. cold that remains in the tanks

after landing.



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**transparent ice:** a layer of ice, usually clear and smooth, but with some air pockets. It forms on exposed objects, whose temperatures are at, below or slightly above freezing temperature, due to the icing of drizzle, droplets or super cooled raindrops. The ice transparent is very difficult to detect visually.

**Antifreeze liquid:** includes, but is not limited to, the following:

1. Typically Type II, III, or IV fluid (neat or diluted), applied unheated (\*);  
two Mixture of Type I fluid and water heated to a minimum of 60°C on the nose.

(\*): When performing de-icing and anti-icing in a single process, Type II and Type IV fluids are typically applied diluted and heated.

3. Liquid type II, III or IV (neat or diluted). De-icing fluid is normally applied heated to ensure maximum efficiency and its freezing point should be at or below outside air temperature (OAT).

**Ground Ice Detection System (GIDS):** a system used during the ground operations, to inform the personnel involved in the operation and/or flight crew, about the presence of frost, ice, snow or sleet on the aircraft surfaces

**Liquid Water Equivalent (LWE) System:** An automated weather measurement system that determines the LWE precipitation rate under freezing or freezing precipitation conditions. The system provides the flight crew with continuously updated information on the ability to protect fluids in different weather conditions.

**Lowest Operating Use Temperature (LOUT):** The lowest temperature at which a fluid has been tested and certified to be acceptable according to the appropriate aerodynamic acceptance test, while maintaining a set point buffer. freezing not less than:

1. 10°C for a Type I fluid; or 7°C for two type II, III, or IV fluids.

**Maximum effectiveness time (Hold Over Time):** the period of time during which an anti-icing fluid provides protection against frozen contamination to treated aircraft surfaces. It depends, among other variables, on the type and intensity of precipitation, OAT, wind, the particular fluid (or Fluid Type), aircraft design, and aircraft configuration during treatment.

**Post-treatment verification, thawing or thawing/anti-icing:** an external check of the aircraft after treatment has been completed by qualified personnel and from suitably elevated vantage points (for example, from the de-icing/anti-icing equipment itself or other elevated equipment), to ensure that the aircraft is free from frost, ice, snow or mud.



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**ANTI-FROST CODES**

At the end of the antifreeze treatment, a qualified personnel provides the code anti-icing to the flight crew as follows:

«the type of fluid / the name of the fluid (except for Type I) / concentration (except for Type I) / local time at start of antifreeze / date (optional) / declaration 'post-thaw/anti-icing check completed' (if the check was completed) check).

Example:

"TYPE II / MANUFACTURER, BRAND X / 75% / 1335 / 15FEB20 / CHECK POST-DEFICE / ANTI-ICE COMPLETE".

When a two-step defrost / anti-ice operation has been performed, the code antifreeze must be determined by the second pass fluid.



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**A) TRADE NAMES**

The most used in de-icing and anti-icing tasks, depending on the type of fluid, are: **Type I**

:


- Hoechst: Safewing DG I and Safewing MP I.
- Kilfrost: DF.
- BASF: Aerex 102.

**Type II and III:**

- Hoechst: Safewing MP II.
- Kilfrost: ABC-3.
- UCAR: AAF ULTRA.

**Type IV:**

- Hoechst: Safewing MP IV.
- UCAR: AAF ULTRA PLUS.

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**B) CHARACTERISTICS**

**Type I fluid.**

It has a high glycol content and a very low viscosity, since it does not contain thickeners, which means that its anti-icing capacity is very limited.

It is mainly used to remove ice, snow or slush from the surface of the aircraft before departure, by spraying it, alone or mixed with water, at a temperature between 70 and 80 degrees Celsius and at a distance of about three meters.

It does not alter the performance of the aircraft, and if the atmospheric conditions allow a Holdover that covers the time between the application of the fluid and the expected takeoff time, its use is the preferred option (See Annex II to the MOA).

**Fluid Type II, III and IV.**

They are normally used as anti-ice to ensure that the aircraft remains clean from its de-icing until the scheduled time of take-off.

Atmospheric conditions and the expected time between thawing and takeoff determine the type of fluid and its concentration (Refer to the Holdover tables in Annex II to the MOA).

They are cold sprayed onto the aircraft surface about three minutes after cleaning and are not compatible with each other and cannot be mixed.

Its high viscosity reduces the performance of the aircraft and requires its revision and cleaning, normally every three applications.

If Type I Fluid is not available, they can be used to defrost following the same procedure.

When precipitation or freezing conditions are present, or are likely to occur in the take-off phase, the surfaces of the aircraft must be treated with anti-ice of according to GM2.CAT.OP.MPA 250 (b)(3).

The de-icing and anti-icing procedure can be carried out in a single step or in two, depending on weather conditions, availability of ground equipment, the types of existing fluids and the protection time that is needed according to the holdover tables.

One-step procedure means that de-icing and anti-icing are performed at the same time. same time, using a mixture of de-icing/anti-icing fluid with water heated to a minimum of 60°C.





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Mix concentration (Fluid/Water) % vol	Lower temperature limit for application (OAT)
50/50	- 3°C
75/25	- 14°C
100/0	- 25°C

The two-step procedure separates the two functions, defrosting is performed first using hot water alone or mixed with fluid, as in the previous case, since Then, finishing the defrosting, a mixture of anti-icing fluid is sprayed with or no water on aircraft surfaces.

This second step must be carried out within a period not exceeding 3 minutes, before the liquid from the first step can freeze.

The fluid used for anti-ice will depend on the necessary protection time of the airplane and the existing meteorological conditions (Holdover Tables).

All restrictions published by the fluid and fluid manufacturer must be adhered to. plane, to avoid the formation of residues.



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**C. EFFECTS ON AIRCRAFT PERFORMANCE**

The Pilot in Command will not commence the takeoff unless the external surfaces are clean of any deposits that may adversely affect the performance and/or control of the aircraft.

**TAKEOFF PERFORMANCE – TYPE II, TYPE III, AND TYPE IV FLUIDS**

Established in Section VII of the AFM of each aircraft:

**MODEL C-S550**

*Takeoff performance is degraded when Type II, Type III, or Type IV anti-ice fluid is the airplane.*

*The fluid that remains on the airplane during takeoff causes the elevator forces at rotation to be increased and the takeoff distance to be increased.*

*It is recommended takeoffs use the Flaps TO (7th) position and takeoff field length be increased as follows when Type II, Type III, or Type IV anti-ice fluid has been applied to the airplane.*

*Determine the normal Flaps TO (7°) takeoff field length and apply adjustments to speed and field length required by runway gradients or runway contamination. Multiply the resulting takeoff field length by the appropriate factor from the following table to determine the takeoff field length when Type II, Type III, or Type IV anti-ice fluid are the airplane.*

<b>FLAPS TO TAKEOFF FIELD LENGTH</b>	<b>FACTOR</b>
<i>Dry Runway</i>	<b>1.15</b>
<i>wet runway</i>	<b>1.15</b>
<i>Contaminated Runway</i>	<b>1.15</b>

**CAUTION**

- *Anticipate a heavier as normal elevator forced at rotation. Even with the increased pull force, the airplane may rotate slower than normal. The elevator forces will return to normal shortly after liftoff.*

*The 1.15 correction factor is approximate. Actual conditions may require distances greater than those determined.*



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**MODEL C-510**

*Takeoff and climb performance is degraded when Types II, III, and IV fluids are on the airplane. The fluid that remains on the airplane after takeoff causes the elevator forces at rotation to be increased, takeoff distance to be increased, and climb performance to be decreased.*

*The following procedures are recommended when departing with anti-ice fluid on the airplane.*

1. Use flaps up.
2. Anticipate a heavier as normal elevator forced at rotation.
3. Determine the normal Flaps Up takeoff field length, and apply any adjustments to speed and field length required by runway gradients or runway contamination from the basic FAA Approved Airplane Flight Manual. Multiply the takeoff field length by 1.25.
4. Decrease the First or Second Segment Takeoff Net Climb Gradient by the appropriate delta from the tables below.

*For weights greater than or equal to 7500 lbs:*

<b>Takeoff Net Climb Gradient Adjustment - Type II, III, or IV Fluid</b>					
<i>Climb Segment</i>	<i>Wind</i>				
	<i>- 10 kts</i>	<i>0 kts</i>	<i>10 kts</i>	<i>20 kts</i>	<i>30 kts</i>
<i>first-segment</i>	- 1.8	- 2.1	- 2.1	- 2.3	- 2.5
<i>Second Segment</i>	- 1.8	- 2.0	- 2.1	- 2.2	- 2.3

*For weights less so 7500 lbs:*

<b>Takeoff Net Climb Gradient Adjustment - Type II, III, or IV Fluid</b>					
<i>Climb Segment</i>	<i>Wind</i>				
	<i>- 10 kts</i>	<i>0 kts</i>	<i>10 kts</i>	<i>20 kts</i>	<i>30 kts</i>
<i>first-segment</i>	- 2.2	- 2.4	- 2.6	- 2.7	- 2.9
<i>Second Segment</i>	- 2.0	- 2.3	- 2.4	- 2.6	- 2.7

5. Multiply the Single-Engine Takeoff Flight Path Distances by 1.3.

**NOTE**

*Flaps 15° takeoff with Types II, III, or IV fluid applied are prohibited per limitation in Section II.*



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**MODEL C-525 C.**

Precautions in accordance with the provisions of Section VII of the AFM (Page 7-210-1,2,3 and 4)

**De-icing/anti-icing operations on land.**

Icing can occur whenever there is high humidity with temperatures +10°C or less. Type I de-icing fluids and Type II anti-icing fluids, Type III or Type IV can be used sequentially to ensure de-icing and anti-icing of critical airframe components.

Note: It is recommended that flight crews re-familiarize themselves each season with the following publications for expanded flight procedures: de-icing and anti-icing:

- Cessna Maintenance Manual, Chapter 12.

**De-icing/anti-icing procedures (fluids type I, type II, type III and type IV).**

**ONE STEP DEFROST**(Refer to point B of this section):

Type I fluid is used to remove ice, slush, and snow from aircraft and to provide minimal frost protection. (Refer to the Holdover tables of the Annex II to the MOA).

**DEFROST/ANTI-ICE IN TWO STEPS**(Refer to point B of this section):

It can be used to ensure that the aircraft remains clean after deicing. Type II, Type III, or Type IV fluids are used to provide increased protection against ice.

**CAUTION**

Type I, Type II, Type III and Type IV fluids are not compatible and cannot be mixed. Also, most manufacturers prohibit mixing brands within one type.

Line personnel must be supervised by the crew to ensure the proper application of de-icing or anti-icing fluids.

See Annex II of MOA Point «B» C-525C.

Make sure the plane is always sprayed from the front. spray from the rear can force fluid into aerodynamic areas where it is possible to do not drain from the plane.

**NOTE**

The first area to be treated with the deicer/anti-icer should be easily visible from the cockpit/cockpit and should be used to provide an estimate conservative view of unseen areas of the aircraft before beginning the takeoff taxi.



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The protection times of the Holdover tables of Annex II to the MOA are only estimates and vary depending on many factors, such as temperature, type of precipitation, the rate of precipitation, the wind and the surface temperature of the aircraft. The times start when the last application starts.

Refer to GM3.CAT.OP.MPA.250(a)(3).

**CAUTION**

The Company is responsible for ensuring the updating of the Holdover tables. The tables are for use in planning the outing only and must be used in conjunction with with pre-takeoff pollution control procedures.

**NOTE**

Tables do not apply to fluids other than SAE or ISO Type I, Type II, Type III or Type IV FPD.

The responsibility for its application rests with the Company.

The freezing point of the Type I fluid mixture must be at least 10°C (18°F) below the current OAT. The freezing point of the Type II fluid mixture, Type III and Type IV must be at least 7°C (13°F) below the current OAT.

**SPRAY TECHNIQUE- FLUID TYPE I.**

Type I fluid must be sprayed into the aircraft in a manner that minimizes loss of heat on the plane. If spraying is carried out with the engines running, the Engines should be idling with all "Engine Bleed" off. If possible, the Fluid should be sprayed in a solid cone pattern of large, coarse droplets at a temperature from 70°C to 80°C at the nozzle. The fluid should be sprayed as close possible from aircraft surfaces, three meters minimum if a high pressure nozzle is used. Pressure. See Annex II of MOA Point. "B" for essential areas to be treated with defrost/anti-ice.

**Pre-takeoff contamination check: training conditions of ice.**

When icing conditions exist, in addition to touch verification required in Section II of the AFM, Takeoff and Landing Operating Limits, the crew must perform a visual contamination check within 5 minutes prior to takeoff, preferably just before taxiing to the active runway. I know should check visible areas of the aircraft, such as the wing, to make sure there are no have ice, sleet, or snow, and that de-icing/anti-icing fluids remain protecting the plane.



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**Takeoff performance - Type II, Type III and Type IV fluids.**

Refer to GM2.CAT.OP.MPA.250 (c).

Takeoff performance is degraded when Type II, Type III, and Type IV fluids are on the plane. The fluid that remains on the airplane during takeoff causes the elevator forces at rotation to be increased and takeoff distance to be increased.

Takeoff is limited to flaps 0° configuration, per Section II, Takeoff and Landing Operational Limits when Type II, Type III, or Type IV anti-ice fluid has been applied to the airplane.

The following procedures are required when departing with anti-ice fluid on the aircraft:

1. Use 0° flaps.

two Determine the normal Flaps 0° takeoff field length, and apply any adjustments to speed and field length required by runway gradients or runway pollution. Multiply the resulting takeoff field length by 1.15.

**CAUTION**

Anticipate a heavier than normal elevator force at rotation. Up to 75 lbs. pull force may be required. Even with the increased pull force, the airplane may rotate slower than normal. The elevator forces will return to normal shortly after liftoff.

**POST-FLIGHT INSPECTION - TYPE II, TYPE III AND TYPE IV FLUIDS.**

Cessna recommends that all operators using Type II, Type III, or Type IV antifreeze fluids perform regular visual inspections for antifreeze fluid residue.

(Refer to GM2.CAT.OP.MPA 250(h).

The visual inspection should include:

1. Along the rear wing spar area with flaps extended.
2. Around the perimeter of the spoiler surface.
3. The gaps around the riser and the riser adjustment tab.
4. The spaces around the rudder and rudder trim tab. Initially, these inspections should be performed after a maximum of three applications of Type II, Type III, or Type IV fluid. If the aircraft is washed or Type I de-icing fluid is used, the frequency of inspection may be reduced. The operator should determine the frequency of inspections based on the results of residue inspections, the frequency of de-icing/anti-icing operations, as well as the frequency of aircraft washing.



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**D. TIME OF EFFECTIVENESS.**

It is the estimated time during which an anti-icing fluid will prevent the formation of frost or ice and the accumulation of snow on the protected surfaces of an aircraft, depending on the type of fluid used, its concentration, the external ambient temperature and the conditions existing weather and precipitation conditions.

These times are established in the Holdover tables found in Annex II to the MOA and are renewed annually, reflecting the advances and improvements in the fluids used.

**E. PRECAUTIONS DURING USE.**

These fluids are toxic, avoid breathing them during application and contact with eyes or skin.

Do not spray directly towards pitot and static, windows, air conditioning intakes and cockpit windshields.

**F. AIRCRAFT DEFICE / ANTI-ICE PROCEDURES.**

- 1) Carefully plan shoreline thawing activities with reference to the recommended tables above to ensure that appropriate materials and equipment are available based on forecast weather conditions and that responsibilities are assigned and understood. This should include an assurance from the service provider that, where the Pilot-in-Command cannot verify, the provider meets satisfactory quality standards in terms of procedures and facilities used.
- 2) Ensure that the fluid concentrations used will provide adequate holdover time.
- 3) Organize the de-icing and anti-icing processes so that the final treatments are carried out as close to the departure time as possible.
- 4) Arrange for the aircraft to position itself as close as possible to the point of departure with passengers on board, prior to the final anti-icing operation to reduce the time between de-icing/anti-icing and takeoff.
- 5) Organize that the areas that can be seen from the cabin are de-iced first, so that during the inspection before take-off the crew can be sure that other areas of the aircraft are clean, since what de-ices first is will usually also freeze first.



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- 6) Check that the motors have freedom of movement by turning them manually. If friction is found, blow hot air through the motor core until freedom of movement is obtained. **DO NOT ATTEMPT TO START THE ENGINE- CATASTROPHIC DAMAGE COULD RESULT.**


The areas where aircraft must be de-iced and anti-iced are found in Annex II to the MOA.

**Pre-flight inspection.**

The pre-flight inspection should be carried out after ground thaw as close to departure time as possible. It must be meticulously checked that there is no ice or snow residue on the aircraft, paying particular attention to the following areas:

- Leading, trailing and surface edges of planes.
- stabilizers
- control surfaces
- Spoilers and airbrakes
- Crystals
- landing gear and doors
- Brakes
- Air inlets and drains
- Engines checking that they rotate freely and APU
- Pitots, antennas and statics.
- Fuel tank ventilation
- Pressurization control valves
- Inlet and outlet of cooling air to the air conditioning packs.



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**G. COMMUNICATIONS WITH THE GROUND STAFF PERFORMING THE TREATMENT.**

**Yo. Before treatment.**


The crew must confirm, with the personnel that will carry out the de-icing/anti-icing, the types of fluid used to achieve the expected holdover times and their application in all the areas indicated in Section 7 of the AFM of each aircraft (Refer to Annex II to MOA).

**ii. After treatment.**

Once the treatment is finished, the crew must receive, from the personnel who carried it out, confirmation that it has been carried out and that the aircraft is free of contamination.

**iii. Notification process finished.**

Once the process is finished, the crew will receive a notice from the ground personnel, of the withdrawal of the personnel who carried it out and of the equipment used.

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**H. TECHNICAL LOG.**

The Pilot-in-command must confirm that each time the de-icing has been carried out, the de-icing/anti-icing form has been completed and there is an appropriate and signed entry in the technical log, and that, in particular, the the start time, fluid type and concentration used for the ice protection operation. If there is a later delay in departure, or worsening weather conditions, you should use this information in conjunction with the previous tables to get a realistic idea of whether the entire process needs to be repeated.

The provider of the de-icing - anti-icing service must ensure that the information on the type of fluid and concentration of the mixture used, as well as the start time of the operation, is not provided to the crew until it has been duly assured by personnel qualified that the operation has been carried out properly through a post-application inspection.

It is not allowed to apply a second layer of anti-ice fluid on top of the previous application when the protection time is running out, it is always mandatory to carry out a complete de-icing operation before an application of anti-ice protection in case of operation in two steps, or repeat the complete defrost-anti-freeze process in the case of one-step operation.



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HOLDOVER TABLES AND ZONES  
DEFROST/ANTI-ICE

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**A) HOLDOVER TABLES**

Winter 2021-2022

FAA Holdover Time Guidelines

**TABLE 2: HOLDOVER TIMES FOR SAE TYPE I FLUID ON CRITICAL AIRCRAFT SURFACES  
COMPOSED PREDOMINANTLY OF ALUMINUM**

Outside Air Temperature <sup>1,2</sup>	Freezing Fog, Freezing Mist <sup>3</sup> , or Ice Crystals	Very Light Snow, Snow Grains or Snow Pellets <sup>4,5</sup>	Light Snow, Snow Grains or Snow Pellets <sup>4,5</sup>	Moderate Snow, Snow Grains or Snow Pellets <sup>4</sup>	Freezing Drizzle <sup>6</sup>	Light Freezing Rain	Rain on Cold-Soaked Wing <sup>7</sup>	Other <sup>8</sup>
-3 °C and above (27 °F and above)	0:11 - 0:17	0:18 - 0:22	0:11 - 0:18	0:06 - 0:11	0:09 - 0:13	0:02 - 0:05	0:02 - 0:05	<b>CAUTION:</b> No holdover time guidelines exist
below -3 to -6 °C (below 27 to 21 °F)	0:08 - 0:13	0:14 - 0:17	0:08 - 0:14	0:05 - 0:08	0:05 - 0:09	0:02 - 0:05		
below -6 to -10 °C (below 21 to 14 °F)	0:06 - 0:10	0:11 - 0:13	0:06 - 0:11	0:04 - 0:06	0:04 - 0:07	0:02 - 0:05		
below -10 °C (below 14 °F)	0:05 - 0:09	0:07 - 0:08	0:04 - 0:07	0:02 - 0:04				

**NOTES**

- Type I fluid / water mixture must be selected so that the freezing point of the mixture is at least 10 °C (18 °F) below outside air temperature.
- Ensure that the lowest operational use temperature (LOUT) is respected.
- Freezing mist is best confirmed by observation. It is never reported by METAR however it can occur when mist is present at 0 °C (32 °F) and below.
- To determine snowfall intensity, the Snowfall Intensities as a Function of Prevailing Visibility table (Table 50) is required.
- Use light freezing rain holdover times in conditions of very light or light snow mixed with light rain or drizzle.
- Includes light, moderate and heavy freezing drizzle. Use light freezing rain holdover times if positive identification of freezing drizzle is not possible.
- No holdover time guidelines exist for this condition for 0 °C (32 °F) and below.
- Heavy snow, ice pellets, moderate and heavy freezing rain, small hail and hail.

**CAUTIONS**

- The responsibility for the application of these data remains with the user.
- The time of protection will be shortened in heavy weather conditions. Heavy precipitation rates or high moisture content, high wind velocity, or jet blast may reduce holdover time below the lowest time stated in the range. Holdover time may be reduced when aircraft skin temperature is lower than outside air temperature.
- Fluids used during ground de/anti-icing do not provide in-flight icing protection.
- This table is for departure planning only and should be used in conjunction with pretakeoff check procedures.



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HOLDOVER TABLES AND ZONES  
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TABLE 4: GENERIC HOLDOVER TIMES FOR SAE TYPE II FLUIDS

Outside Air Temperature <sup>1</sup>	Fluid Concentration Fluid/Water By % Volume	Freezing Fog, Freezing Mist <sup>2</sup> , or Ice Crystals	Snow, Snow Grains or Snow Pellets <sup>3,4</sup>	Freezing Drizzle <sup>5</sup>	Light Freezing Rain	Rain on Cold-Soaked Wing <sup>6</sup>	Other <sup>7</sup>
-3 °C and above (27 °F and above)	100/0	0:55 - 1:50	0:25 - 0:50	0:30 - 1:00	0:20 - 0:35	0:07 - 0:45	<b>CAUTION:</b> No holdover time guidelines exist
	75/25	0:25 - 0:55	0:15 - 0:25	0:15 - 0:40	0:10 - 0:20	0:04 - 0:25	
	50/50	0:15 - 0:25	0:05 - 0:10	0:08 - 0:15	0:06 - 0:09		
below -3 to -8 °C (below 27 to 18 °F)	100/0	0:30 - 0:45	0:20 - 0:35	0:20 - 0:45	0:15 - 0:20		
	75/25	0:25 - 0:50	0:10 - 0:20	0:15 - 0:25	0:08 - 0:15		
below -8 to -14 °C (below 18 to 7 °F)	100/0	0:30 - 0:45	0:15 - 0:30	0:20 - 0:45 <sup>8</sup>	0:15 - 0:20 <sup>8</sup>		
	75/25	0:25 - 0:50	0:08 - 0:20	0:15 - 0:25 <sup>8</sup>	0:08 - 0:15 <sup>8</sup>		
below -14 to -18 °C (below 7 to 0 °F)	100/0	0:15 - 0:20	0:02 - 0:07				
	100/0	0:15 - 0:20	0:01 - 0:03				
below -18 to -25 °C <sup>9</sup> (below 0 to -13 °F)	100/0	0:15 - 0:20					
	100/0	0:15 - 0:20	0:00 - 0:01				

NOTES

- 1 Ensure that the lowest operational use temperature (LOUT) is respected. Consider use of Type I fluid when Type II fluid cannot be used.
- 2 Freezing mist is best confirmed by observation. It is never reported by METAR however it can occur when mist is present at 0 °C (32 °F) and below.
- 3 To determine snowfall intensity, the Snowfall Intensities as a Function of Prevailing Visibility table (Table 50) is required.
- 4 Use light freezing rain holdover times in conditions of very light or light snow mixed with light rain or drizzle.
- 5 Includes light, moderate and heavy freezing drizzle. Use light freezing rain holdover times if positive identification of freezing drizzle is not possible.
- 6 No holdover time guidelines exist for this condition for 0 °C (32 °F) and below.
- 7 Heavy snow, ice pellets, moderate and heavy freezing rain, small hail and hail.
- 8 No holdover time guidelines exist for this condition below -10 °C (14 °F).
- 9 If the LOUT is unknown, no holdover time guidelines exist below -25 °C (-13 °F).

CAUTIONS

- The responsibility for the application of these data remains with the user.
- The time of protection will be shortened in heavy weather conditions. Heavy precipitation rates or high moisture content, high wind velocity, or jet blast may reduce holdover time below the lowest time stated in the range. Holdover time may be reduced when aircraft skin temperature is lower than outside air temperature.
- Fluids used during ground de/anti-icing do not provide in-flight icing protection.
- This table is for departure planning only and should be used in conjunction with pretakeoff check procedures.



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HOLDOVER TABLES AND ZONES  
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TABLE 19: GENERIC HOLDOVER TIMES FOR SAE TYPE IV FLUIDS

Outside Air Temperature <sup>1</sup>	Fluid Concentration Fluid/Water By % Volume	Freezing Fog, Freezing Mist <sup>2</sup> , or Ice Crystals	Very Light Snow, Snow Grains or Snow Pellets <sup>3,4</sup>	Light Snow, Snow Grains or Snow Pellets <sup>3,4</sup>	Moderate Snow, Snow Grains or Snow Pellets <sup>3</sup>	Freezing Drizzle <sup>5</sup>	Light Freezing Rain	Rain on Cold-Soaked Wing <sup>6</sup>	Other <sup>7</sup>
-3 °C and above (27 °F and above)	100/0	1:15 - 2:40	1:55 - 2:20	1:00 - 1:55	0:30 - 1:00	0:40 - 1:10	0:20 - 0:35	0:08 - 1:05	CAUTION: No holdover time guidelines exist
	75/25	1:25 - 2:40	2:05 - 2:25	1:15 - 2:05	0:40 - 1:15	0:50 - 1:20	0:30 - 0:45	0:09 - 1:15	
below -3 to -8 °C (below 27 to 18 °F)	50/50	0:30 - 0:55	1:00 - 1:10	0:25 - 1:00	0:10 - 0:25	0:15 - 0:40	0:09 - 0:20		
	100/0	0:20 - 1:35	1:45 - 2:05	0:55 - 1:45	0:25 - 0:55	0:25 - 1:10	0:20 - 0:25		
below -8 to -14 °C (below 18 to 7 °F)	75/25	0:30 - 1:20	1:50 - 2:10	1:00 - 1:50	0:30 - 1:00	0:20 - 1:05	0:15 - 0:25		
	100/0	0:20 - 1:35	1:20 - 1:40	0:45 - 1:20	0:25 - 0:45	0:25 - 1:10 <sup>8</sup>	0:20 - 0:25 <sup>9</sup>		
below -14 to -18 °C (below 7 to 0 °F)	75/25	0:30 - 1:20	1:40 - 2:00	0:45 - 1:40	0:20 - 0:45	0:20 - 1:05 <sup>8</sup>	0:15 - 0:25 <sup>9</sup>		
	100/0	0:20 - 0:35	0:30 - 0:45	0:09 - 0:30	0:02 - 0:09				
below -18 to -25 °C <sup>9</sup> (below 0 to -13 °F)	100/0	0:20 - 0:35	0:10 - 0:20	0:03 - 0:10	0:01 - 0:03				
	below -25 °C to LOU <sup>9</sup> (below -13 °F to LOU <sup>9</sup> )	0:20 - 0:35	0:07 - 0:10	0:02 - 0:07	0:00 - 0:02				

NOTES

- 1 Ensure that the lowest operational use temperature (LOUT) is respected. Consider use of Type I fluid when Type IV fluid cannot be used.
- 2 Freezing mist is best confirmed by observation. It is never reported by METAR however it can occur when mist is present at 0 °C (32 °F) and below.
- 3 To determine snowfall intensity, the Snowfall Intensities as a Function of Prevailing Visibility table (Table 50) is required.
- 4 Use light freezing rain holdover times in conditions of very light or light snow mixed with light rain or drizzle.
- 5 Includes light, moderate and heavy freezing drizzle. Use light freezing rain holdover times if positive identification of freezing drizzle is not possible.
- 6 No holdover time guidelines exist for this condition for 0 °C (32 °F) and below.
- 7 Heavy snow, ice pellets, moderate and heavy freezing rain, small hail and hail (Table 48 provides allowance times for Type IV EG fluids and Table 49 provides allowance times for Type IV PG fluids in ice pellets and small hail. If the glycol type is unknown, the allowance times for SAE Type IV PG fluids should be used).
- 8 No holdover time guidelines exist for this condition below -10 °C (14 °F).
- 9 If the LOU is unknown, no holdover time guidelines exist below -23.5 °C (-10 °F).

CAUTIONS

- The responsibility for the application of these data remains with the user.
- The time of protection will be shortened in heavy weather conditions. Heavy precipitation rates or high moisture content, high wind velocity, or jet blast may reduce holdover time below the lowest time stated in the range. Holdover time may be reduced when aircraft skin temperature is lower than outside air temperature.
- Fluids used during ground de/anti-icing do not provide in-flight icing protection.
- This table is for departure planning only and should be used in conjunction with pretakeoff check procedures.



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**B) THAW/ANTI-ICE ZONES**

**CESSNA 510**

**TEMPORARY FAA APPROVED AIRPLANE FLIGHT MANUAL CHANGE  
AIRPLANE DEICING**

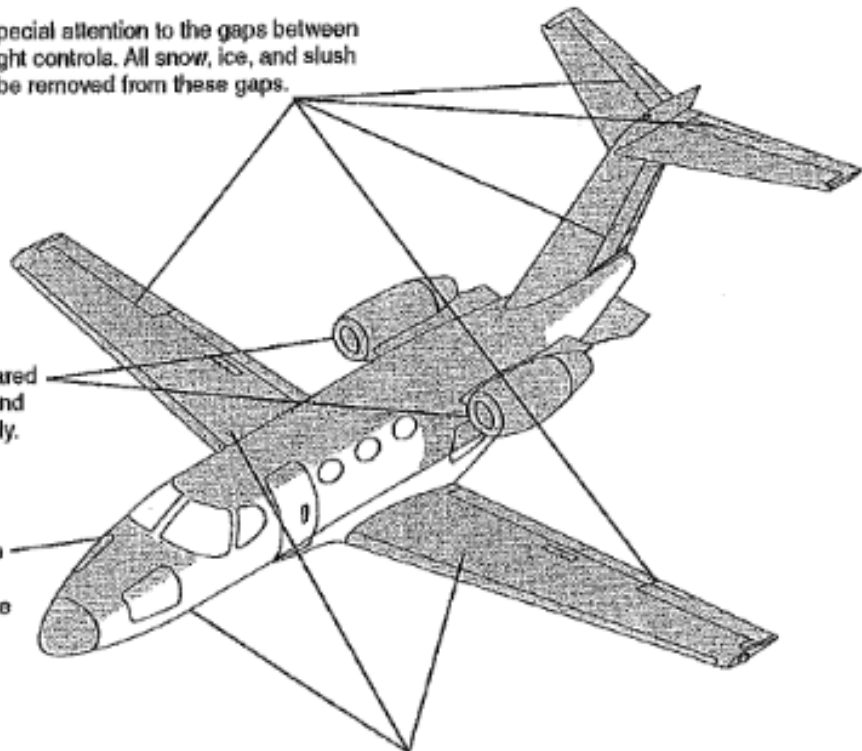
<b>MINIMUM DIRECT SPRAY AREAS</b>	
• BRAKES	• STALL WARNING VANE
• ENGINE INLETS	• STATIC PORTS
• ENGINE EXHAUST	• WINDSHIELD
• PITOT HEADS	• WINDOWS (CABIN)
• RAM AIR INLETS	

A72165

Pay special attention to the gaps between the flight controls. All snow, ice, and slush must be removed from these gaps.

Engine inlets cleared of all snow, ice, and slush by hand only.

Remove snow, ice and slush from Stall Warning Vane by hand only.



Landing gear doors and wheel wells must be free of snow, ice and slush.

**NOTE**

Shaded areas indicate essential areas to be deiced.



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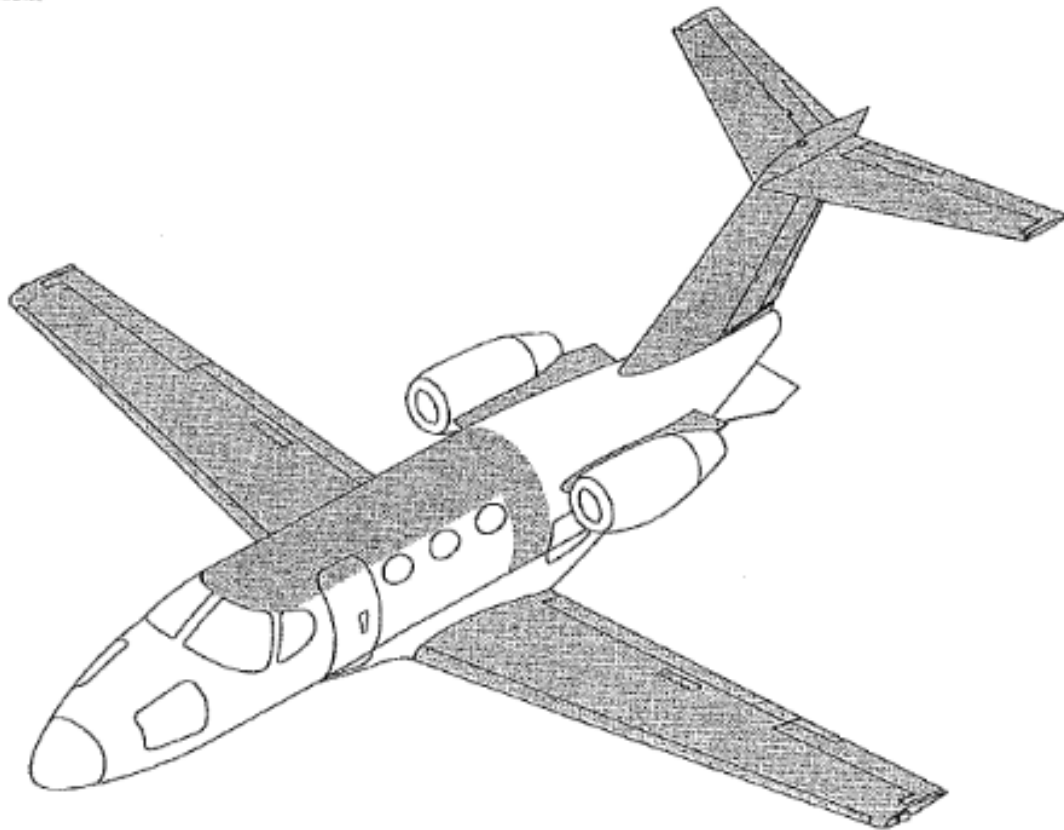
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**TEMPORARY FAA APPROVED AIRPLANE FLIGHT MANUAL CHANGE  
AIRPLANE ANTI-ICING**

**MINIMUM DIRECT SPRAY AREAS**

- BRAKES
- ENGINE INLETS
- ENGINE EXHAUST
- PITOT HEADS
- RAM AIR INLETS
- STALL WARNING VANE
- STATIC PORTS
- WINDSHIELD
- WINDOWS (CABIN)

A72100



**NOTE**

The shaded areas indicate areas where anti-ice fluid is applied. Upper fuselage is anti-iced to preclude ice formation that could be ingested into engine inlets.





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**CESSNA S-550**

## **AIRPLANE DEICING**

**SHADED AREAS INDICATE ESSENTIAL AREAS TO BE DEICED**

**NOTE**

**AVOID DIRECT SPRAYING OF DEICING FLUID ON/IN THE FOLLOWING AREAS:**

**ENGINE INLETS  
ENGINE EXHAUST  
RAM AIR INLETS**

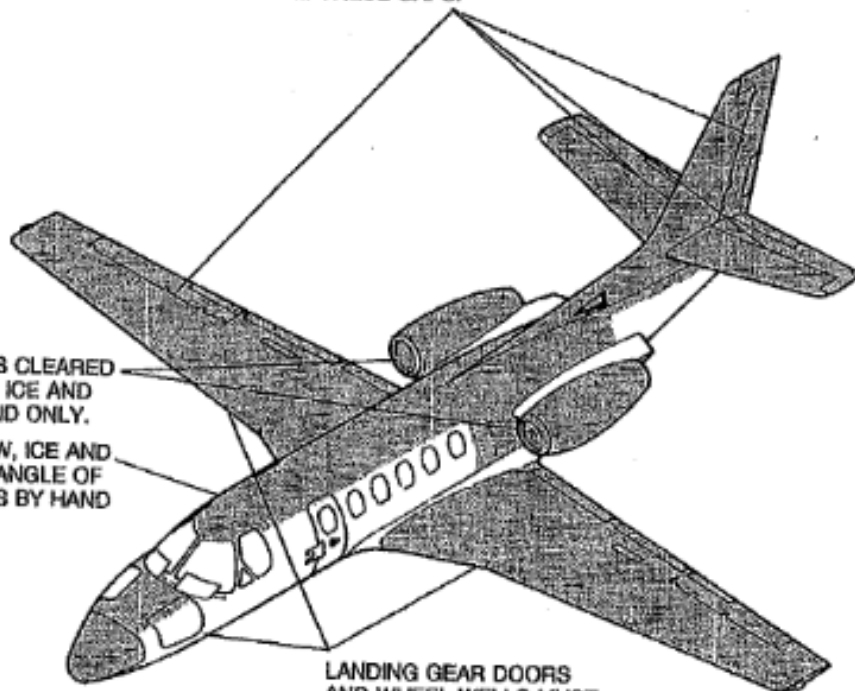
**BRAKES  
WINDSHIELD  
CABIN WINDOWS**

**PITOT HEADS  
STATIC PORTS  
AOA VANES**

**PAY SPECIAL ATTENTION TO THE GAPS  
BETWEEN THE FLIGHT CONTROLS. ALL  
SNOW, ICE AND SLUSH MUST  
BE REMOVED FROM THESE GAPS.**

**ENGINE INLETS CLEARED  
OF ALL SNOW, ICE AND  
SLUSH BY HAND ONLY.**

**REMOVE SNOW, ICE AND  
SLUSH FROM ANGLE OF  
ATTACK VANES BY HAND  
ONLY.**



**LANDING GEAR DOORS  
AND WHEEL WELLS MUST  
BE FREE OF SNOW, ICE AND  
SLUSH.**

65102014



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## **AIRPLANE ANTI-ICING**

**SHADED AREAS INDICATE ESSENTIAL AREAS TO BE ANTI-ICED**

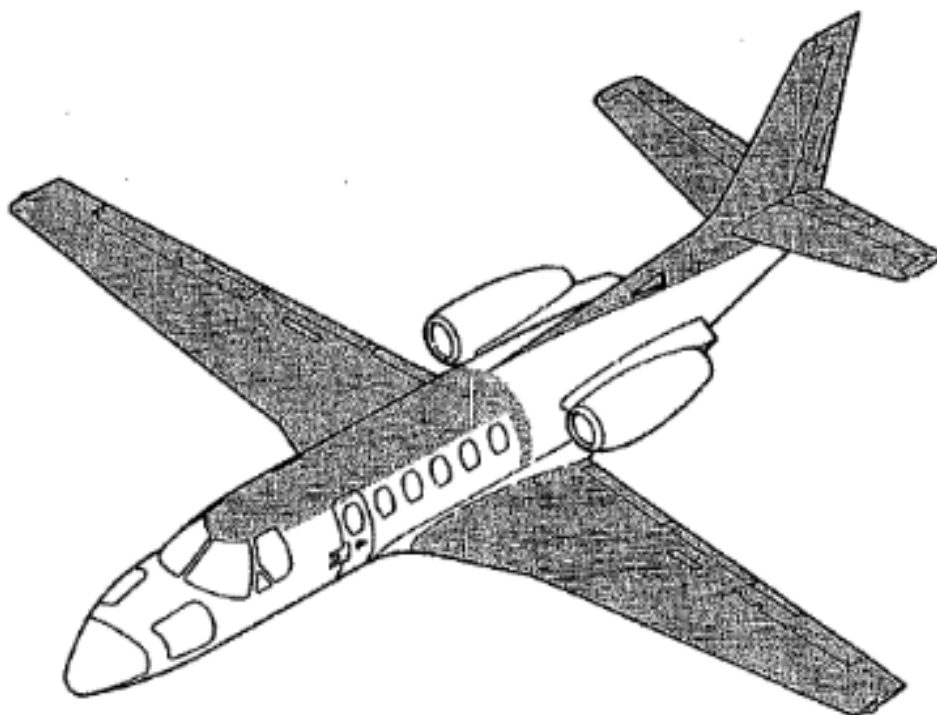
**NOTE**

**AVOID DIRECT SPRAYING OF ANTI-ICING FLUID ON THE FOLLOWING AREAS:**

**ENGINE INLETS  
ENGINE EXHAUST  
RAM AIR INLETS**

**BRAKES  
WINDSHIELD  
CABIN WINDOWS**

**PITOT HEADS  
STATIC PORTS  
AOA VANES**





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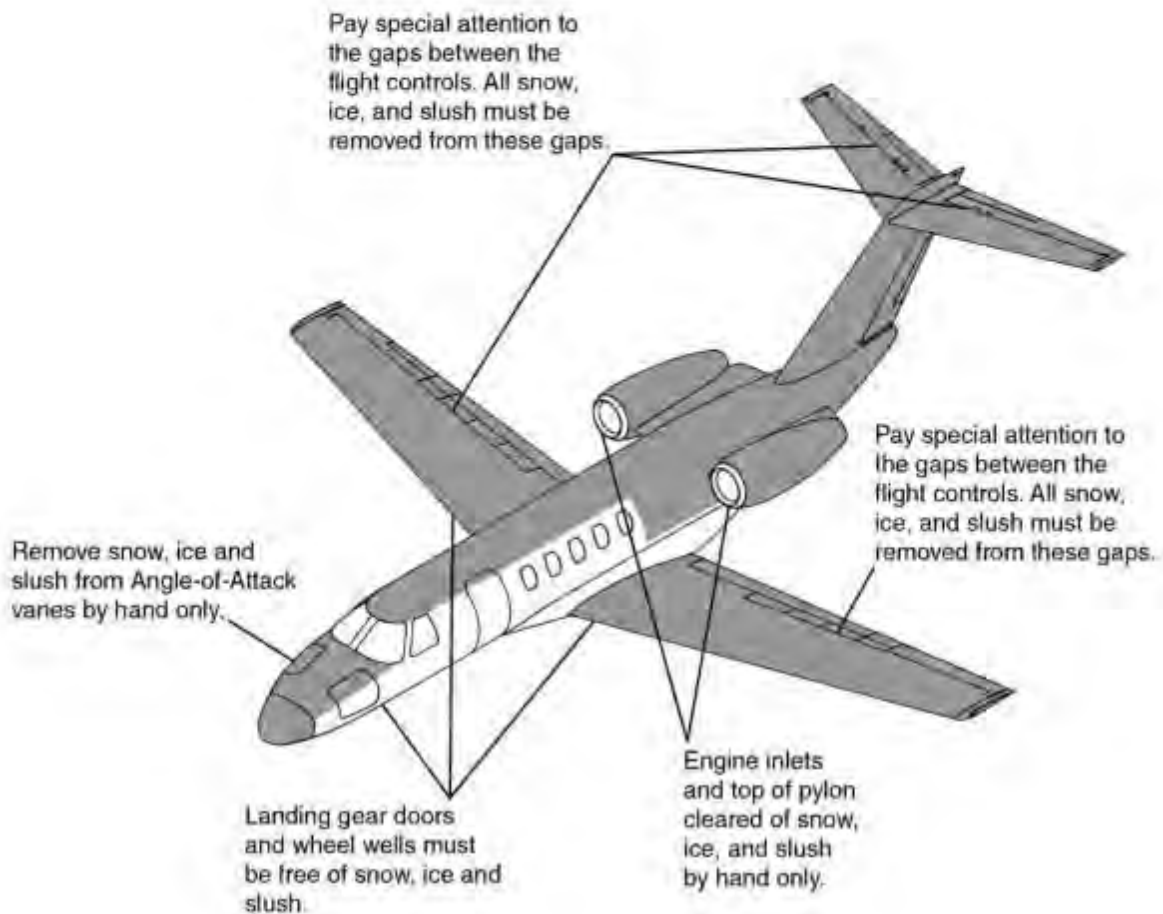
**CESSNA 525C**

**AIRPLANE DEICING**

A80064

Minimum Direct

Spray Areas: Engine Inlets and Exhaust,  
Engine Pylons, Ram Air Inlets,  
Brakes, Pitot Heads  
Static Ports, Windshield,  
Cabin Windows, and AOA Vanes.





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## **AIRPLANE ANTI-ICING**

A8008E

Minimum Direct  
Spray Areas: Engine Inlets and Exhaust,  
Engine Pylons, Ram Air Inlets,  
Brakes, Pitot Heads  
Static Ports, Windshield,  
Cabin Windows, and AOA Vanes.

