Ground Handling Manual

Purpose:

The Ground Handling Manual (GHM) provides written guidance for Agencies involved in the Ground Handling and Turnaround Operations for AirTanker aircraft and defines the policies and procedures to be adopted.

Scope:

This document details the actual procedures that Ground Handling Agents are required to comply with when handling AirTanker aircraft. This document does not deal with all eventualities and Ground Handling Agents are to use their skill and knowledge if a procedure is not specifically defined.

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Record of Amendments

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12.1	15-Mar-21	Amd Amd Amd Amd Amd Amd	Removal of EASA/EU references Minor changes to Chapter 7 Updates to Chapter 6 on release of IATA DGRs 62nd ed. Removal of detail from Chapter 2 with references to Chapter 7 Inclusion of carriage of ashes Removal of requirement for Nil NOTOC	Various Various Various Various Page 97 Page 154
13	28-Feb-23	Rev	Complete reorganisation in-line with IATA Ground Operations Manual ed. 11/12	All
13.1	30-Sep-23	Amd	Amendments to Chapter 8 in-line with regulation	Pages 216, 241
13.2	28-Jun-24	Amd Amd Amd Amd	Amendments to Table 8 to reflect IATA DGRs Corrections to contact details in Chapter 11 Insertion of non-standard arrival procedure for Inop APU Update to Manual LIR example	Page 218, 221 Pages 259, 262, 263 Pages 74 – 79 Page 193
13.3	20-Dec-24	Amd	Amendments following issue 66 of IATA DGRs Inclusion of cargo in-plane system door opening/closing.	Pages 239 – 241 Pages 48, 106

13.4	21-Feb-25	Amd	Minor changes to DG Marks for lithium and sodium ion batteries	Pages 231-232
13.5	29-Sep-25	Amd	Removal of references to Emotional Support Animals, plus additions to the approval process for assistance dogs	Page 22
		Amd	Additions to detail of Operational Towing	Page 158
		Amd	Changes to Aircraft Dimension diagrams and Cabin Seating configurations	Pages 175-185
		Amd	Prohibition of batteries without clear watt-hour markings	Page 225
		Amd	Addition of Assistance Dog Approval Proforma	Appendix 14
		Amd	Amendment to definitions	Pages 276-281

In the Type column above, 'Rev' indicates a revision, or major change resulting in a change to issue number units and 'Amd' indicates an amendment, or minor change resulting in a change to issue number decimals.

Each amendment or revision will result in the reissue of the complete document with the effect that all pages will always reflect the same revision / amendment level. The revision and amendment levels are collectively expressed as the issue number of the document.

Distribution - External:

All external copies are electronic copies via company webpage www.airtanker.co.uk/ghm

Ground Handling Agents (on appointment)
MoD Ground Handling Contracts (HQ Air)

Distribution - AirTanker:

All internal copies are electronic copies via company webpage www.airtanker.co.uk/ghm

Head of Ground Operations
Dispatch Manager
Dangerous Goods Manager
Operations Security Manager

Operations Compliance Manager
Line Maintenance Manager

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0 Introduction

Information Owner: Aviation Services Manager

0.1 Purpose and Scope

The AirTanker Ground Handling Manual (GHM) is derived and structured from the IATA Ground Operations Manual (IGOM). The IGOM defines ground handling procedures for airlines and ground handling agents (GHAs) to ensure ground operations activities are safely, efficiently and consistently accomplished. The Airbus Aircraft Maintenance Manual (AMM) contains the maintenance instructions necessary to ensure the continued airworthiness of AirTanker and Voyager aircraft. They also provide servicing sections that give specific information required to service aircraft on ramps or in maintenance hangars. Procedures in the AMM are drafted considering aircraft in a maintenance configuration whereas this manual deals with operational conditions on the ramp. As such, the procedures may differ from one to the other.

The procedures detailed in this GHM reflect the minimum standards identified and agreed to by the aviation industry, as well as providing further guidance for GHAs relating to Airbus A330-200 and A330-MRTT aircraft.

The GHM is produced in accordance with the requirements of ORO.GEN.200. Reference for guidance may also be found within AirTanker Company Operations Manual (COM) and Voyager Operations Manual (VOM), available to limited audiences via Aviation Services (details below).

The effectiveness of the procedures will be measured through periodic inspections of contracted activities by the AirTanker Aviation Services Team in accordance with ORO.GEN.205 and by the AirTanker Compliance department in accordance with ORO.GEN.200(a)6.

0.2 Applicability

This GHM is to be used by GHAs as a core set of ground operations procedures in the conduct of ground handling functions for AirTanker / Voyager aircraft. It also applies to staff entering the aircraft for purposes such as catering, cleaning or supervision, but specifically excludes aircraft maintenance tasks. While all relevant factors have been taken into consideration and these procedures reflect standard industry practice, some additional information may be required if a regulatory authority mandates procedures other than those in IGOM, then these shall be followed.

The GHM is a controlled document and is issued to airport GHAs to enable safe operation and handling of AirTanker / Voyager aircraft. Refer to Section 5 for an overview of the AirTanker Safety Management System (SMS) and the Management System. Contracted activities are managed in accordance with GM1 ORO.GEN.205 and GM2 ORO.GEN.205.

Unless specifically stated, procedures in this manual are applicable to both AirTanker and Voyager aircraft. Use of ‘AirTanker aircraft’ throughout this manual is to be assumed to relate to both AirTanker *and* Voyager aircraft.

0.3 System of Numbering the GHM

The GHM is organised as follows:

Record of Ammendments

0. Introduction

1. Passenger Handling Procedures

2. Baggage Handling Procedures

3. Aircraft General Safety and Servicing Operations

4. Aircraft Turnaround

5. Load Control

6. Airside Safety Operational Oversight

7. Cargo Handling Procedures

8. Dangerous Goods Handling Procedures

9. Bird and Wildlife Control

10. Security

11. Crisis Management / Emergency Procedures

12. Aircraft De / Anti-icing Procedures and Winter Operations

0.4 Manual Revisions

0.4.1 Policy

The GHM will be published as an electronic copy only and accessed via the company website (www.airtanker.co.uk/ghm).

The GHM will be reviewed every six months. Any amendments will be incorporated and an amended version of the GHM will be uploaded to replace the current online version. Users will be notified of the amendment status and also of the nature of any changes. Changes will be annotated in the record of amendments directing the reader to the applicable pages of the manual.

Notification of amendment status will be issued by email with a request for acceptance by recipients. Any proposed changes should be emailed to aviationservices@uk.airtanker.co.uk.

Printed copies of the GHM are discouraged and will be considered as uncontrolled. It is the responsibility of all GHAs to ensure that they have the latest edition of this manual and any associated supplements.

0.4.2 Ground Operations Safety Notices

In the event of a safety incident or regulatory change that occurs between editions of the GHM, there may be a requirement for AirTanker to release a Ground Safety Notice (AS.OGA.037). Such notices will be distributed via email with a request for acceptance by recipients and stored at the same hyperlink as the GHM, with an indication as to their validity www.airtanker.co.uk/ghm.

0.5 Standard Format

0.5.1 Item Numbering

All listed items are represented with the following sequence:

(a) Item
(b) Item

1. Sub-item

2. Sub-item
    (i) Sub Sub-item
    (ii) Sub Sub-item

0.5.2 Caution and Warning

These are presented in separate boxes as follows:

Caution:

Representing a general caution.

Warning:

Warning of a potential danger to personnel.

0.5.3 AirTanker Differences

Differences or higher standards to those in the IGOM are written in blue and indicated with an AirTanker logo in the margin as below:

AirTanker differences.

0.6 References

Some references to IATA and other industry manuals or standards are made in the GHM. These are found in each relevant chapter or paragraph.

0.7 AirTanker Contact information

The following are contactable via the numbers/emails shown in the table below and where stated, on a 24 hour basis:

Title	Contact	24 hr
Aviation Services Manager	+44 (0)1993 873000 Email: aviationservices@uk.airtanker.co.uk	No
Duty Operations Manager	+44 (0)1993 873236 Email: DutyOpsManager@uk.airtanker.co.uk	Yes
Duty Dispatch Co-ordinator	+44 (0)1993 873222/873223 Email: DispatchCoord@uk.airtanker.co.uk	Yes
Operations Fax	+44 (0)1993 873004	Yes

Table 1. AirTanker Contact Information

0.8 AirTanker Safety Policy

0.8.1 Health & Safety in the Workplace

In implementing a safe working environment, together with safe work equipment and safe methods of work, AirTanker expects all ground handlers to undertake the following:

(a) provide adequate control of the health and safety risks arising from their work activities;

(b) consult with their employees on matters affecting their health and safety;

(c) provide and maintain safe plant and equipment;

(d) ensure safe handling and use of substances;

(e) provide information, instruction, and supervision for employees;

(f) ensure all their employees are competent to do their tasks, and to give them adequate training;

(g) prevent accidents and cases of work related ill health;

(h) maintain safe and healthy working conditions; and

(i) review and amend their policy, as necessary, at regular intervals.

0.8.2 Personal Protection Equipment

All staff employed in the vicinity of aircraft or machinery should be issued with PPE (Personal Protection Equipment) as required for their role. Personnel shall use their PPE as and when necessary as detailed by their company procedures and training. Personnel are forbidden to enter the ramp or any of its associated areas without the relevant safety clothing and equipment as defined by the local airport regulations. Further guidance can be found in IATA AHM462 Section 4.2.

0.8.3 Incident Reporting and Escalation

All accidents, near misses, security breaches and other serious incidents shall be reported as soon as it is safe to do so to the AirTanker Operations Control Centre (OCC).

The GHAs shall submit a Safety Report as soon as possible, detailing the key facts in relation to the event, and submission of a Safety Report shall NOT be delayed to allow completion of the full investigation (see Chapter 6).

Additionally, significant events shall be notified to the AirTanker Duty Operations Manager (DOM) as detailed below. To ensure the DOM is aware of the event as soon as possible, such notification shall be via phone/voicemail or text message, with additional email follow-up as appropriate.

Significant events are defined as any Ground Operations event resulting in:

(a) personal injury to passenger or staff member;

(b) ground damage to aircraft;

(c) significant damage to ground equipment (e.g. airside ground collision); or

(d) any other event considered to have the potential for negative publicity.

0.8.4 Completion of Ground Handling Occurrence Reports

See Chapter 6.

0.9 Communications

0.9.1 SITA Messaging

BZNOWXH is to be used for all messages. Any urgent messages should be backed up by a telephone call to the OCC on one of the following numbers:

Duty Ops Manager: +44 (0)1993 873 236

Duty Ops Controller: +44 (0)1993 873 231

0.9.2 Movement Messages

Movement messages are to be sent no later than 15 minutes after the aircraft has departed.

0.9.3 Delay Messages

Where possible the Dispatcher or GHA should advise the OCC of delays as soon as practicable.

0.9.4 Aircraft Maintenance

Any queries relating to the maintenance of the AirTanker A330-MRTT aircraft should be directed in the first instance to the Maintenance Control Engineers located in the OCC on +44 (0)1993 873237.

0.9.5 Flight Numbers

The Voyager (Military) aircraft use the RRR (ASCOT) call sign and either MADRAS or TARTAN for any air-to-air refuelling activities.

The civil A330 uses the TOW (TOWLINE) call sign. When operating on behalf of a third party carrier under damp lease agreements, the lessee's call sign will be used.

1 Passenger Handling Procedures

Information owner: Aviation Services Manager

Applicable to: Civil, leased operations on behalf of other carriers

***NOTE:** Passenger handling procedures for leased-out operations on behalf of other carriers will be in-line with the lessee's Ground Operations procedures. Where any regulatory non-compliant procedures are identified at the pre-operations assessment stage, AirTanker Ground Operations management will risk assess such differences and implement mitigations before the operation commences.*

Applicable to: Core operations (ZZ-reg aircraft, South Atlantic Air bridge, and military charters on civil aircraft)

1.1 General

It is the responsibility of the handling agent to ensure that all passengers are processed in a highly proficient and courteous manner at all times. It is important that passengers are informed of the processes required of them from the moment they arrive at check-in until boarding the aircraft. A key element to the smooth processing of passengers is the passing of information at all times, particularly if the flight is subject to a delay. Passengers need to be informed initially of any delay and kept informed on a regular basis even if nothing has changed.

1.2 Check-In

The following procedure for check-in is a guideline only and will need to be tailored to suit an individual flight or location.

1.2.1 Documentation

Check-In staff at the departure airfield shall check the following documentation:

(a) passenger ticket or flight confirmation (if issued);

(b) passport (and visas if required);

(c) any other documentation as required under national regulations for departure/destination countries;

(d) any other documentation deemed necessary by the Ministry of Defence at date of departure such as NATO travel Order and Medical and vaccination certificates.

1.2.2 Baggage

Check-In staff are to ensure that the individual baggage allowance for both check-in and cabin baggage are adhered to at all times. The baggage allowance entitlement for passengers is detailed at 2.2 of this manual. If passengers are over their entitlement then the handling agent is to advise the passenger accordingly and assist them to try and rectify the matter.

All checked-in baggage shall be clearly labelled with the final destination marked by either a computerised baggage label or a manually produced baggage label. Passengers are to be given details of the baggage tag identification numbers.

1.2.3 Dangerous Goods

Check-in staff are to be trained in accordance with IATA DGRs and Chapter 8 of this manual and are required to make passengers aware of hidden dangerous goods as per 8.5.4 as well as receiving an acknowledgement from the passenger that they have been presented with the information. In addition, signage is to be displayed at check-in desks as per 8.5.3.

Agents shall also be aware of commonly carried items items and question passengers where there is suspicion of their carriage (eg camping equipment, hunters, soldiers on/returning from exercise).

1.2.4 Boarding cards

All passengers are to be issued with boarding cards which shall have the following minimum details:

(a) Name of passenger;

(b) Flight number;

(c) Destination;

(d) Time of aircraft departure;

(e) Latest reporting time for the passenger to be present at the departure gate; and

(f) Departure gate number.

(g) Seat number *(where allocated seating applies e.g. South Atlantic Air bridge)*

1.3 Special Category Passengers

Special category passengers are classed as passengers that are required to have specific handling measures to be in place in addition to the normal handling procedures. Such passengers are categorised into groups depending on their type. The following paragraphs give a brief explanation of those passengers and the requirements that are to be met by the handling agent.

1.3.1 Very Important Passengers (VIPs)

As the majority of passengers on AirTanker flights are military, some passengers will be allocated VIP status according to their military rank. For each individual flight, AirTanker will inform the handling agent of any VIP passengers on board and will advise them of the processes required depending on the location. However the following is a general guideline of how VIPs are to be handled where possible:

(a) The VIP is to be met on arrival and checked-in separately so as to avoid any lengthy queuing.

(b) The passenger's baggage is to be segregated and labelled with VIP baggage labels and loaded separately to the aircraft so it can be offloaded speedily at the destination.

(c) The passenger is to be offered the use of the VIP lounge after check-in which should be a suitable lounge separate to the main departure lounge.

(d) The VIP is to be boarded to the aircraft after all the other passengers. If the aircraft is free seating, the handling agent shall ensure that suitable seats on board the aircraft have been segregated.

1.3.2 Compassionate Cases

Some passengers on AirTanker flights will be travelling under compassionate reasons and therefore be categorised accordingly. For each individual flight, AirTanker will advise the handling agent of any compassionate passengers on board and advise them of the processes depending on the location and circumstances. Whilst no special handling requirements are essential, it is important to understand that the passenger may be in some distress depending on their circumstances and are to be dealt with as sensitively as required. The passenger's baggage is to be segregated and loaded separately to the aircraft so it can be offloaded speedily at the destination.

1.3.3 Deportees (DEPO)

Any passenger who is not acceptable to the State of his or her chosen destination may be regarded by that State as a deportee and required by Immigration Officials to be:

(a) Escorted to the aircraft to ensure departure;

(b) Escorted through to another country;

(c) Requested to leave but not otherwise interfered with;

(d) Refused entry on arrival but permitted to return to his or her departure station or to another station of his/her choice; or

(e) Made to continue his or her journey on the same aircraft.

In these circumstances an order to remove the passenger may be served on AirTanker, normally the Commander. Commanders retain the right to refuse to carry deportees / inadmissible passengers where, in their opinion, the safety of the aircraft, passengers or crew is being put at risk.

NOTE: *The Commander shall be prepared to fully justify their refusal.*

The Commander shall be informed on all occasions when a deportee is on board and should be provided with as much information as possible. The deportee or inadmissible passenger shall be identified to the Commander and the Purser on boarding. A form of authority may not always be provided. When one is, it shall be handed in on completion of the flight. In addition to these procedures, the handling agent is to copy the AirTanker OCC in their communications when they receive pre-warning that a deportee is to be carried. This copy is then given to the Commander.

The passport, ticket and any other travel documents of such passengers shall be retained by the Purser during the flight. The documents should be handed over to the handling agent on arrival and should only be returned to the passenger at the Immigration Control desk.

If the deportee is not travelling under escort, the Commander shall ensure that the deportee is not permitted to disembark at any point within the territory of the deporting country contrary to the Order. If the aircraft cannot depart and passengers have to be off-loaded, or if the aircraft lands at another aerodrome in the deporting country, the Commander shall request an escort for the deportee. A Dispatcher or member of the passenger handling staff is sufficient for this purpose.

The Commander's responsibility ends when the aircraft has left the deporting country's area of control. If the deportee is under restraint, then the rules related to prisoners apply, otherwise, in all other respects, deportees shall be treated as normal passengers.

1.3.4 Unaccompanied Children (UNMINS)

***NOTE**: CAT.OP.MPA.155 defines children a as persons of an age of two years and above but who are less than 12 years of age. Except for the purposes of standard mass values for passengers, AirTanker Services defines children as persons of an age of two years and above but who are less than 16 years of age.*

The minimum age of a person who is permitted to travel unaccompanied on an AirTanker / Voyager aircraft is 16 years of age. All children under 16 years of age shall be accompanied by an adult aged 16 years or older. Children not accompanied by an adult are not permitted to travel on AirTanker / Voyager aircraft.

1.3.5 Support and Supernumerary Crew

On most AirTanker flights, support or supernumerary crew will be carried on board. These are personnel who will be manifested as passengers yet perform a role in support of the operating crew. Such examples are Ground Engineers, Aeromedical Evacuation Escorts and Aircraft Loading Teams. AirTanker will notify the handling agent who these passengers are and will identify the process required for check-in depending on the location. However, it is important to note that these passengers may report directly to the aircraft with the operating crew and may bypass the check-in desks. The AirTanker or RAF dispatcher will confirm with the handling agent when they have reported so that they can be accounted for once check-in has been closed.

1.3.6 Defence Couriers

Defence Couriers are passengers employed by the Ministry of Defence to escort Diplomatic mail on RAF flights. They will check-in as normal, however they will then be required to report directly to the aircraft in order to oversee the loading of the mail.

1.3.7 Persons in Custody

On some AirTanker flights, there may be a need for a passenger to be escorted (usually by two personnel per detainee) as they have been detained in custody. The escort will have already been assigned and AirTanker will advise the handling agent. These passengers will not require any special check-in requirements however they will require pre-boarding/pre-seating away from an emergency exit and, if the flight is not full, away from other passengers.

Escorting officers may carry restraints but no firearms.

1.3.8 Unit Moves

On some AirTanker aircraft, the flight or task may be classed as a unit move. This is when a large amount of personnel from the armed forces are travelling as a formed unit. Arrangements will have been made for the unit to have already been processed and checked-in before arriving at the departure airfield. The hold baggage will be dispatched directly to the aircraft for loading and the passengers are to be processed directly into the final departure lounge. Such procedures may vary depending on the location and local security measures required.

1.3.9 Passengers with Disabilities

1.3.9.1 General

Passengers with Disabilities (PWD) is a term originating from the UN Convention on the Rights of Persons with Disabilities (CRPD) and ICAO Annex 9 Chapter 8H. PWDs includes passengers with reduced mobility and passengers with non-visible disabilities which can be temporary or permanent conditions.

Cabin Crew shall be advised of all passengers classified as PWD. Such notification will normally be received from the Dispatcher or equivalent, although local variations may apply.

(a) The ability to provide assistance to PWDs will vary according to:

1. Individual's needs.

2. Aircraft configuration.

(b) For PWDs requiring/requesting assistance:

1. Ask the passenger what assistance they require and how they can be helped.

2. Assign a seat in their ticketed cabin which accommodates the passenger's needs, in consultation with the passengers, and ensure that they are not allocated or occupy seats where their presence could impede the emergency evacuation. If the PWD is travelling with a Personal Care Attendant and/or Safety Assistant, they shall be given seats immediately adjacent to or across the aisle from the passenger they are assisting see 1.3.9.4.

3. Advise the passenger of what services and assistance are available based on their needs.

4. Advise the passenger of available airline equipment (i.e. on-board wheelchairs, accessible lavatories etc.)

5. Ensure accurate SSR codes and any other relevant information are recorded in the DCS and PNR.

6. PWDs should be allowed to pre-board.

7. Whenever feasible, PWDs using a wheelchair (manual or powered) or other mobility aid, should be permitted to use their personal mobility aid throughout the airport until they reach the aircraft and receive it back near the aircraft upon arrival. When in transit, if time permits between flights, they should be offered their personal mobility device for the period until they are required to be stowed again for carriage. Inform the stations of transfer/arrival accordingly to allow the handling of the mobility aid.

1.3.9.2 Assistance Codes for Passengers with Disabilities

PWDs may require services and assistance to facilitate their travel experience. Codes known as Special Service Requests (SSR) are used to communicate passenger preferences, procedural items, medical cases and assistance required by passengers. These are identified in airline messages by A4A-IATA Reservations Interline Procedures (AIRIMP) codes.

(a) Codes to identify a type of disability:

1. BLND (Blind Passenger) – specify if accompanied by a service/assistance dog.

2. DEAF (Deaf Passenger) – specify if accompanied by a service/assistance dog.

3. DPNA (Disabled Passenger Needing Assistance) – passenger with cognitive or invisible disabilities needing assistance (specify details).

(b) Codes to identify assistive services provided to the passenger:

1. MAAS – Meet and Assist (specify details).

2. WCHR (Wheelchair-R for Ramp) – passenger can ascend/descend steps and make own way to/from cabin seat but requires wheelchair for distance to/from aircraft i.e. across ramp, finger dock or to mobile lounge as applicable. When service animal is accompanying passenger, specify animal type in free text of SSR item.

3. WCHS (Wheelchair-S for Steps) – passenger cannot ascend/descend steps, but is able to make own way to/from cabin seat; requires wheelchair for distance to/from aircraft or mobile lounge and shall be carried up/down steps. When service animal is accompanying passenger, specify animal type in free text of SSR item.

4. WCHC (Wheelchair-C for Cabin Seat) – passenger completely immobile; requires wheelchair to/from aircraft/mobile lounge and shall be carried up/down steps and to/from cabin seat. When service animal is accompanying passenger, specify type of animal in free text of SSR item.

NOTES: *Specify if the passenger is travelling with own wheelchair and use one of the following applicable SSR codes which describe the wheelchair:*

1. WCBD – Dry or Gel battery operated wheelchair/mobility aid (non-spillable/dry cell battery)

2. WCMP – Manual power wheelchair/mobility aid

3. WCLB – Lithium battery operated wheelchair/mobility aid

4. WCBW – Wet cell battery wheelchair/mobility aid

If the passenger is requesting a wheelchair on board, use SSR code WCOB.

(c) Codes to identify animals accompanying a passenger with disabilities:

1. When service animal is accompanying a passenger, specify the type of animal in free text of SSR item.

2. ESAN – passengers are not permitted to travel on AirTanker / Voyager aircraft with Emotional Support Animals, except for operations with leasing-in airlines by prior agreement. See 1.3.10.2

3. SVAN – for passengers travelling with a service animal in the cabin (specify details) – by prior agreement.

(d) Codes to identify equipment accompanying the passenger:

1. OXYG (Oxygen) – for passengers travelling either seated or on a stretcher, needing oxygen during the flight (only to be used in conjunction with SSR code MEDA).

2. STCR (Stretcher Passenger)

3. AOXY (Airline Supplied Oxygen) – for passengers travelling either seated or on a stretcher, needing oxygen during the flight (only to be used in conjunction with SSR code MEDA) by prior agreement.

4. POXY (Passenger's Own Oxygen) – for passengers travelling either seated or on a stretcher, needing oxygen during the flight (only to be used in conjunction with SSR code MEDA). Subject to airline agreement and government regulations.

5. PPOC (Personal Portable Oxygen Concentrator – only by agreement.

6. WCOB (Wheelchair-O for On board) – provided by airline by agreement, with 48 hrs notice.

1.3.9.3 Passengers Travelling with Wheelchairs/Electric Mobility Aids

AirTanker accepts that passengers with disabilities (PWDs) may have a requirement to take wheelchairs/electric mobility aids with them. Wheelchairs not classed as an electric mobility aid may be carried without restriction, subject to the nominated ground handler's requirements.

Electric mobility aids shall not be treated as wheelchairs as loading, weight, handling and dangerous goods restrictions may apply. In these cases refer to 8.5.5 for carriage requirements.

1.3.9.4 Seat Assignment

(a) PWDs, as well as their personal care attendant and/or safety assistant shall be assigned seats that will facilitate boarding and disembarkation and will minimise inconvenience to the passenger and maximise scope for cabin crew assistance.

(b) As a rule, ensure that PWDs are not allocated or occupy seats where their presence could:

1. Impede the emergency evacuation of the aircraft.

2. Impede crews in the performance of their duties.

3. Obstruct access to emergency equipment.

1.3.9.5 Maximum Number of PWDs and Assistance Requirement

(a) In circumstances wherethe number of PWDs forms a significant proportion of the total number of passengers on board, the number of PWDs shall not exceed the number of able-bodied persons capable of assisting during an emergency.

1.3.10 Passengers Travelling with Service/Assistance Dogs

Applicable to: G-VYGJ, G-VYGK, G-VYGL, G-VYGM only

Caution:

In all cases, AirTanker may refuse the carriage of animals that are too large or heavy to be accommodated in the aircraft cabin, pose a direct threat to the health and safety of others, or cause significant disruption to cabin service.

1.3.10.1 Assistance Dogs

A recognised assistance dog is one that has been trained to assist a disabled person by an organisation that is a member of Assistance Dogs International (ADI) and/or the International Guide Dog Federation (IGDF). This includes guide dogs trained to provide mobility assistance to a blind or partially sighted person. Assistance dogs could be of any breed and size from a large Labrador to a miniature Yorkshire Terrier.

1.3.10.1.1 Assistance Dog Formal Identification

An assistance dog trained by a member organisation of ADI and/or the IGDF will have formal identification. The Assistance Dogs (UK) branded ID book (see Figure 1) has been designed to support assistance dog owners with access to goods, facilities and services, as defined in the UK Equality Act 2010. Most UK owners of assistance dogs who have been trained by ADI or IGDF will

have been issued with this book. This is sufficient documentary evidence of a dog being trained by one of these organisations. Other documentary evidence may have to be obtained from assistance dog owners who do not elect to have this form of ID, but have dogs trained by these organisations.

Figure 1 Assistance Dog (UK) branded ID book

1.3.10.1.2 Approval for Carriage of an Assistance Dog on an AirTanker Aircraft

Assistance dog owners that have formal identification or other documentary evidence demonstrating that their dogs have been trained by organisations that are members of ADI and/or IGDF are permitted to be carried on an AirTanker aircraft in the passenger compartment. Any dog not meeting the above criteria, or any other animal, shall be treated as a pet and other arrangements shall be made for its carriage.

Evidence of training to the above standards is required to be sent to AirTanker before approval will be granted. Approval is to be sought from either aviationservices@uk.airtanker.co.uk or via the contracted leasing airline, by prior arrangement with AirTanker at least 48hrs before the flight.

Caution:

In the case that more than 4 assistance dogs have been requested, for the sake of Cabin safety and passenger amenity, AirTanker OCC should be consulted and authority is to be sought from the Head of Flight Operations.

1.3.10.1.3 Cabin Safety Procedures and Considerations

(a) The dog and its owner should be pre-boarded to allow the necessary pre-flight preparations and they ***shall not be seated in a row adjacent to an emergency exit***.

(b) A suitable harness, which should be provided by the owner and then attached to the owner's seat belt, should be utilised to provide the dog with an effective level of restraint during take-off, landing and during turbulence. In the cruise it is acceptable for the dog to be subject to less constraint sufficient to enable it to achieve a comfortable position. This should take into account the potential problems of trip-hazards associated with passengers using the aisles and cross-aisles. Larger dogs should be accommodated on the cabin floor at the owner's feet but smaller, lighter dogs may be carried on the owner's lap, suitably restrained with the harness as outlined above.

NOTE: *There is one type of dog harness that attaches to a seat belt buckle, requiring an empty seat to be provided next to the passenger, which is preferable for larger breeds. There may be other devices available with alternative attachment points that would also provide adequate restraint. Any arrangement that adequately secures the assistance dog is acceptable.*

Because of the training that assistance dogs receive and the fact that they are selected for their temperament, it is unlikely that such a dog would be adversely affected by a cabin emergency to such an extent that the safety of other passengers would be compromised.

1.3.11 Infants

Applicable to: Core operations (ZZ-reg aircraft, South Atlantic Air bridge, and military charters on civil aircraft)

1.3.11.1 Classification

Passengers that are aged under the age of two are classed as infants. In the case of 'military purpose' flights only i.e. Voyager and South Atlantic Airbridge, infants are to be assigned a seat.

1.3.11.2 Child Safety Seats

All infants and children are to be properly secured in their seats for take-off, landing and at other times during flight when the aircraft captain deems it necessary. The following conditions are applied:

(a) Passengers aged less than three years old, but not less than two years old are to be secured in their seats by safety belts or secured in a suitable car type safety seat supplied by the passenger;

(b) Passengers under the age of two are to be secured in their seats in a suitable car type safety seat supplied by the passenger;

(c) Where no suitable safety seat is available, or in the case of civil, charter operations, an infant under the age of two years old is to be held on the parents lap and secured by use of a lap-seat extension belt. **The aircraft holds a maximum of 22 lap-seat extension belts.**

AirTanker or the handling Movements organisation will advise the handling agent of how many infants are travelling and of any individual requirements in terms of child seats.

1.4 Passenger Boarding/Seat Classes/Seating

Applicable to: Core operations (ZZ-reg aircraft, South Atlantic Air bridge, and military charters on civil aircraft)

1.4.1 Boarding

AirTanker designates doors L1 and L2 on the port side of the aircraft for use by passengers where twin air bridges are available, and door L2 when a single air bridge is available.

Where passenger stairs are provided, L2 and L4 are the preferred doors.

At the home base, head counts are not required unless specifically requested by either the Dispatcher or DAMO.

1.4.2 Seat Classes

On all AirTanker aircraft, unless otherwise advised, all seats are in a single class configuration with a seat pitch of 34 inches as per 5.8.

1.4.3 Seating

The principle of boarding passengers to the aircraft for AirTanker flights will be free seating. All passengers will be allocated a seat by the cabin crew on boarding the aircraft. A priority of boarding will be established by the AirTanker Dispatcher, or Ground Handling Agent equivalent person, having liaised with the aircraft Purser for each individual flight. However the following is a guideline to the priority of boarding:

(a) VIPS (unless a seat has already been reserved and they will be boarded last);

1. Families and children;
2. Commissioned Officers and civilians;
3. Senior Non-Commissioned Officers;
4. All remaining passengers.

NOTE: *Depending on the type of operation (e.g. South Atlantic Airbridge, Leased-out flight), seats may be allocated. In these circumstances, seat allocation will be determined by the arrangements pre-agreed between AirTanker and the appropriate authority.*

1.4.4 Allocation of Seats

Allocation of pasengers to seats can be achieved by the following methods:

Commercial Operations: Fully automated, mass and balance linked.

Commercial Operations (ACMI Ad-Hoc): Fully automated, mass and balance linked (dependant on contract length). If not refer to free-seating policy.

NOTE: *For leased-out flights, different seating arrangements will apply. The Ground Handling Agent is to be aware of such arrangements through a briefing from the leasing operator.*

Military Operations: The Load Data Sheet (LDS) will determine the optimum passenger distribution in relation to aircraft C of G.

Military Operations (South Atlantic Airbridge): All passengers are pre-seated prior to check-in taking into account aircraft C of G.

Free Seating: May be adopted at any time during the departure process. Specific note shall be taken with regards to aircraft C of G.

Further details are contained in Chapter 5 & 5.20 (Annex A to Chapter 5).

1.5 Air Transport Security

Security measures to protect aircraft on all AirTanker operations are to be carried out on all passengers and their baggage. This is in line with the UK National Aviation Security Programme (NASP) and/or Air Publication (AP) 1990 for aircraft subject to UK military tasking. These measures are to be carried out at Check-in and Departure Lounge processing.

1.5.1 Passenger Check-In

All check-in staff are to carry out security measures on all passengers at the initial check-in point. The passengers are to be positively identified against the manifest by checking passports and other travel documentation. Baggage is to be positively identified and check-in staff are to be fully satisfied that the passenger has confirmed the following:

(a) The baggage belongs to the passenger checking it in;

(b) The individual checking-in the baggage has packed it personally and knows what has been packed in the baggage;

(c) The baggage has been in the control of the passenger from the time of packing until check-in;

(d) The baggage does not contain any prohibited items.

1.5.2 Departure Lounge Processing

After check-in, passengers are to proceed to the final departure lounge, either directly after check-in or when called forward. The passengers are to undergo further security checks by stipulated security staff. At RAF airheads this will be carried out by trained RAF Police personnel under the instructions of AP 1990. At civilian airports this will be undertaken by authorised terminal security staff under the instructions of the National regulators.

1.6 Dangerous Goods in Passenger Baggage/On Persons

Dangerous goods shall not be carried by passengers. However some items may be permitted for carriage in checked or carry-on baggage or on the person in accordance with the latest issue of IATA DGRs; see 8.5.5.

1.7 Sharps

Due to the nature of military operations, sharps (knives) may be required to be carried. Under no circumstances are sharps to be left with passengers to board the aircraft. Sharps **shall** be removed from the passenger(s) and placed in the special to type container and loaded to the lower hold (H5). Sharps shall not be stowed in the main passenger cabin. Where sharps shall be carried for medical purposes e.g. insulin needles, there is no provision for crew to dispose of such items. Passengers are responsible for disposal of their own personal medical sharps.

1.8 Smoking Policy

In the interests of passenger comfort and safety, smoking, which includes the use of e-cigarettes and vaping, is strictly prohibited on all AirTanker aircraft.

1.9 Passenger No-Show Procedures

The majority of military passengers travelling on board AirTanker aircraft are required to travel as part of their job or duty. It is therefore important for the Ministry Of Defence to know when passengers have failed to report for an aircraft. The handling agent is required to produce a list of passengers that have failed to report once a flight has been closed. This list is to be forwarded to the AirTanker Dispatcher.

1.10 Advanced Passenger Information (API)

When required, the MoD is responsible for coordinating and submitting the API. AirTanker support staff will coordinate the crew information.

2 Baggage Handling Procedures

Information owner: Aviation Services Manager

2.1 Safe Baggage Handling

Applicable to: All operations

It is important that all staff members are aware of the risks associated with baggage handling, are properly trained and follow the guidance below as a minimum to ensure their health and safety:

(a) Handling Techniques

1. Baggage handling operations require staff members to manually handle equipment and baggage, such as pushing and pulling non-motorised GSE e.g. baggage carts, loading heavy bags, ULDs etc.

2. Baggage staff members should be aware of the best lifting techniques to be utilised at all times to reduce the risk of injury while handling baggage.

3. Refer to AHM 462 4.5.3 *or other local guidance* for handling techniques and principles of manual handling.

(b) Baggage staff members should not lift more than their physical capabilities to avoid injuries.

(c) Ensure appropriate care is taken regarding health and safety to ensure personnel do not sustain injuries while handling baggage. Where available, make use of assistive devices for moving heavy loads.

(d) Ensure appropriate PPE is available and used.

(e) Ensure baggage is handled in an appropriate manner e.g. positioned rather than thrown onto the belts.

(f) When using baggage carts or dollies use the safety precautions as per 4.5.3.1.

(g) Verify the coupling/uncoupling of baggage carts, dollies and/or trailers. Ensure nobody is working between or nearby prior to moving.

Warning:

Be extra careful of hands, fingers and feet when moving and connecting baggage carts or dollies to the tractor or another GSE. Always use the handle and never the tow ring. Seek assistance if required.

Take care to ensure long hair is tied back to prevent catching in equipment e.g. belt loaders.

Applicable to: Civil, leased operations on behalf of other carriers.

***NOTE:** Baggage handling procedures for leased-out operations on behalf of other carriers will be in-line with the lessee's Ground Operations procedures. Where any regulatory non-compliant procedures are identified at the pre-operations assessment stage, AirTanker Ground Operations management will risk assess such differences and implement mitigations before the operation commences.*

2.2 Baggage Allowance

Applicable to: Core operations (ZZ-reg aircraft, South Atlantic Air bridge, and military charters on civil aircraft).

The baggage allowance for passengers travelling on AirTanker flights vary depending on where the passenger is travelling and under what circumstance. Below is a guideline to give handling agents the ability to plan, however each individual flight will be discussed with the handling agent and the AirTanker Dispatch Coordinator. In addition, the maximum weight for any single item of baggage should not exceed 32 kgs.

(a) Military passenger travelling on an operation or exercise – 55 kgs;

(b) Military passenger travelling on business – 27 kgs;

(c) Military passenger not travelling on business – 20 kgs;

(d) Civilian passenger – 27 kgs.

2.3 Carriage of Sporting Weapons/Shotguns and Ammunition

Applicable to: Core operations (ZZ-reg aircraft, South Atlantic Air bridge, and military charters on civil aircraft).

The following section details the carriage of sporting weapons and ammunition on AirTanker aircraft.

2.3.1 Sporting Weapons and Shotguns

Privately owned sporting weapons and shotguns are permitted to be carried as part of the accompanied baggage of passengers travelling on AirTanker aircraft subject to the following conditions. The remarks below concerning firearms certificates, Import and export licenses etc will be generally applicable:

(a) They are not to be packed in unaccompanied baggage or carried about the person;

(b) The owner is responsible for obtaining a valid firearms/shotgun certificate and/or export/import licence, for production to the customs authorities and check-in staff at the departure and arrival airfields;

(c) Firearms are to be packed for carriage in a suitable correctly labelled container e.g. canvas bag or shotgun case, and are to be unloaded and, if possible, in a dismantled condition;

(d) Firearms and shotguns are to be declared and presented separately to the check-in staff from all other baggage, at the departure airfield;

(e) The firearm or shotgun is to be segregated at check-in and stowed separately on board the aircraft;

(f) The weight of the firearms carried is to be within the owners total accompanied baggage allowance;

(g) The owner is responsible for arranging the disposal of any weapon if carriage by air is refused due to non-compliance with the above conditions;

(h) All items are to be correctly labelled with the owners name and destination address.

2.3.2 Ammunition for Sporting Weapons and Shotguns

A small amount of ammunition or shotgun cartridges (see Table 8) for privately owned sporting weapons and shotguns are permitted to be carried as part of the accompanied baggage of passengers on board AirTanker aircraft, subject to the following conditions. These are regulations in accordance with the IATA Dangerous Goods Regulations contained in Chapter 8 of this manual:

(a) The ammunition shall be for personal use only;

(b) Allowances for more than one passenger shall not be combined into one or more packages;

(c) They are not to be packed in unaccompanied baggage or carried about the person;

(d) The ammunition shall be packed in a suitable container, preferably the manufacturers packaging;

(e) The ammunition is to be declared and presented separately to the check-in staff from all other baggage, at the departure airfield;

(f) The ammunition is to be segregated at check-in and stowed separately on board the aircraft;

(g) The weight of the ammunition carried is to be within the owners total accompanied baggage allowance;

(h) The owner is responsible for arranging the disposal of any ammunition if carriage by air is refused due to non-compliance with the above conditions.

2.4 Special Baggage Handling

Handling of wheelchairs and Mobility aids are to be carried in accordance with 1.3.9, with acceptance of electric mobility aids subject to the IATA Dangerous Goods Regulations (DGRs) Table 2.3.A. Refer to Table 8.

2.5 Handling Live Animals

See 7.3.7 for details on the carriage of live animals (AVIH).

2.6 Cabin Baggage

All cabin baggage carried by passengers on board AirTanker flights shall not exceed the following weight and dimensions:

(a) Weight – 9 kgs

(b) Height – 56 cm

(c) Width – 45 cm

(d) Depth – 20 cm

2.6.1 Outsized Cabin Baggage

On some AirTanker flights, particularly when carrying passengers travelling as unit moves on operations or exercises, some passengers may carry hand baggage that is outside the weight and dimensions that are described above. When this happens, the outsize hand baggage is to be identified and will be loaded to the aircraft hold. The ground handling agent is to arrange for a Unit load Device (ULD) to be suitably positioned so that the baggage can be loaded to the ULD. The ULD is then to be weighed and the weight and location of the ULD on the aircraft passed to the Dispatcher so the Load sheet can be completed accurately.

2.6.2 Pets in the Cabin (PETC)

Applicable to: Civil, leased-out operations into/out of non-UK airports only

Caution:

Flights into/out of the UK: Except for service dogs all other live animals can only be transported as booked cargo and shall never be accepted as checked baggage or in cabin.

In all cases, AirTanker may refuse the carriage of animals that pose a direct threat to the health and safety of others, or cause significant disruption of cabin service.

Animals can be carried as baggage in the passenger cabin (PETC) or in the hold of the aircraft (AVIH) or as cargo after permission by the lessee airline (see 7.3.7).

The following rules apply for transportation of all PETC and AVIH:

(a) The passenger belonging to the animal shall be travelling on the same flight.

(b) Pets shall only be accepted for transportation provided that the passenger holds all required documentation (e.g. valid health certificate and vaccination certification) for entry of all countries of transit and destination. Cats and dogs travelling in/to/within the European Union need a passport and be identified by tattoo or chip.

(c) Reservation of the pet shall be made in advance.

(d) If the breed of a dog is questionable, check documentation for the name of the breed and refer to the conditions of Carriage of Animals available at www.airtanker.co.uk/ghm.

(e) Pets transported in the cabin shall stay in the soft bag/kennel (including its head) when and during the entire flight. The soft bag/kennel will be placed in front of the seat. It is not possible to put the kennel on the seat even if an extra seat was bought.

(f) If customer is travelling with an emotional and/or service animal an extra seat shall be booked if PETC is transported additionally.

(g) Only small cats and dogs with a ***maximum weight of 8 kg including container*** may be transported in the passenger cabin, other animals shall be transported as cargo. Excepted are service or emotional support dogs (see 1.3.10).

(h) Special dog breeds e.g. snub-nosed dogs, so-called fighting dogs or fierce dogs, will not be accepted for transportation. Refer to www.airtanker.co.uk/ghm for detailed information.

Caution:

The limit of the number of PETC allowed on AirTanker leased-out flights is 4.

3 Aircraft General Safety and Servicing Operations

Information Owner: Aviation Services Manager

3.1 Ramp Safety in Aircraft Handling

Applicable to: All operations

3.1.1 Introduction

Ramp safety rules and procedures promote safe ground handling. Therefore, the minimum safety rules and procedures defined in this section shall always be applied and understood by all personnel working on the ramp.

Aircraft damage can endanger passengers, employees and aircraft. Disruptions may also negatively impact safe airline operations. Even a slight scratch or dent on an aircraft may result in a serious accident.

If you see or cause any aircraft damage, you shall report it. Refer to Chapter 6 regarding reporting of aircraft damage.

3.1.2 General Ramp Safety

3.1.2.1 Engine Danger Areas

There is a particular risk of injury or damage in areas affected by aircraft engine intakes and exhausts. The risk is further increased if for any reason an aircraft stops and then applies the additional thrust required to 'break away' and continue the manoeuvre.

(a) Vehicles and personnel shall remain clear of aircraft danger areas when aircraft engines are running and/or the anti-collision lights are on.

(b) In order to prevent incidents and accidents caused by aircraft engines, you shall never position yourself or equipment in the following critical areas before or during aircraft departure and arrival:

1. Engine Intake Area.

2. Engine Blast Area.

(c) Make sure the engine intake area is clear at all times when engines are running or the engine start is about to begin.

(d) It is forbidden to pass through the blast area while the engines are running.

Warning:

Ground personnel and/or loose equipment shall stay clear of the intake and blast areas.

3.1.2.2 Engine Danger Area Diagrams

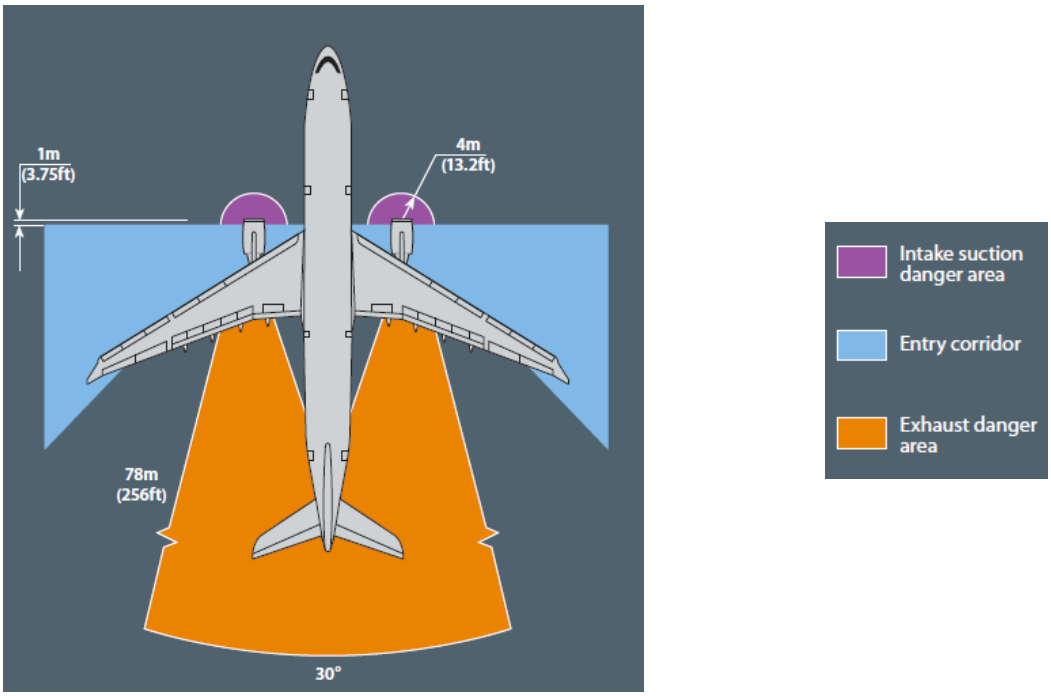


Figure 2 Idle Engine Danger Areas

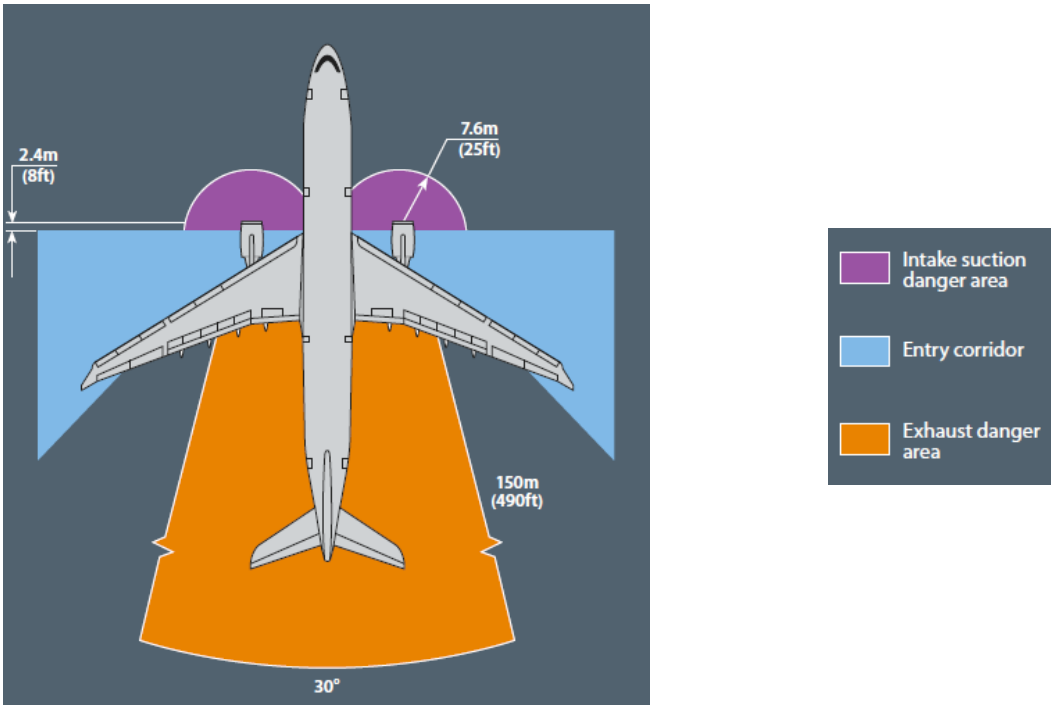


Figure 3 Engine Breakaway Power Danger Area

3.1.2.3 Equipment Restraint Area & Equipment Restraint Line

(a) The Equipment Restraint Area (ERA) is defined as the area of the apron in which an aircraft is parked during ground operations. It may be indicated by a painted line. If no markings exist, local procedures shall establish safe parking areas, etc. The illustration below provides an example of the markings used at some locations.

(b) The ERA shall be free of personnel not involved in the aircraft arrival, obstructions, equipment and foreign object debris (FOD) before and during aircraft arrival and departure.

Caution:

For safety reasons, spillage should be cleaned immediately to reduce the risk of personnel falling or risk of fire in case of flammable substance spillage.

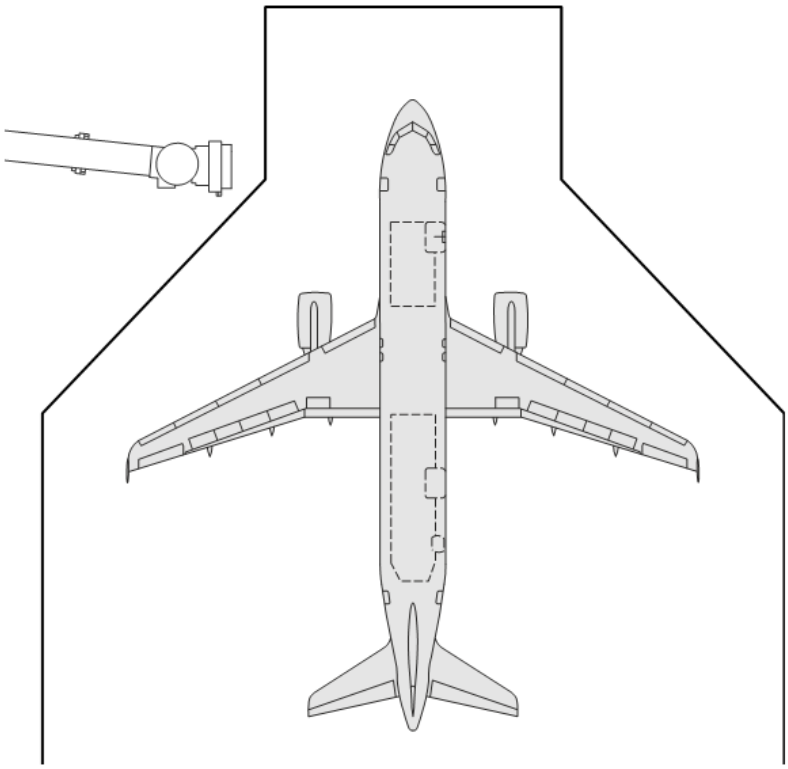


Figure 4 Equipment restraint area

3.1.2.4 FOD–Foreign Object Debris

(a) FOD applies to all loose objects that are a danger to the safety and integrity of aircraft or personnel. FOD, therefore, shall not be left in any area where it would pose a hazard.

(b) All personnel have a responsibility to ensure the risk of damage to aircraft from FOD is minimized. All waste material shall be properly disposed of such that it does not become FOD and all FOD shall be removed and properly disposed of as soon as it is discovered.

(c) Proper management of waste and debris is critical, as, if not disposed of correctly, it may become FOD. FOD can also move into airside locations during high winds.

Examples of FOD:

Plastic and paper: bags, sheets and towels

Metal: nuts and bolts, empty oil and hydraulic fluid cans, tools and equipment

Natural objects: rocks, pebbles and wood

Other debris: burst ballast bags, luggage handles and luggage wheels, etc.

Caution:

FOD can:

Be sucked or ingested into aircraft engines, causing damage leading to engine failure.

Cause damage to tires, the undercarriage, control systems and other parts of the airframe, which can lead to in-flight failures.

Become a trip hazard for personnel working on or around aircraft

(d) The following checks shall be conducted prior to any aircraft movement and after servicing operations:

1. Check GSE staging and parking areas in proximity to the area of operation.

2. Do routine checks of GSE (including floors of enclosed cabins) to ensure that everything is secure and operational, and not about to fall off and become FOD.

3. In ramp areas, ensure that anything carried in/on a vehicle is secured.

4. Before aircraft arrival, conduct a FOD walkaround of the aircraft parking stand, removing all FOD found.

5. Dispose all FOD in designated waste bins, where provided.

3.1.2.5 Personnel Protective Equipment

All personnel shall be issued with and wear appropriate PPE as required for their role and as per local regulations to include:

(a) Safety footwear

(b) Hearing protection

(c) High visibility clothing

(d) Gloves

(e) Any other specified PPE as per local requirements

3.1.3 Safety Instructions for Operating and Working with Ground Support Equipment (GSE) on the Ramp

3.1.3.1 General Safety Instructions

Apply these procedures whenever operating GSE on the ramp.

(a) Personnel shall only drive or operate GSE if trained and authorised for that specific equipment type.

(b) GSE shall not be moved or driven across the path of:

1. Taxiing aircraft
2. Embarking and disembarking passengers on the ramp.
3. Emergency vehicles.

Caution:

When operating any GSE:

(a) Check the aircraft for possible damage in the equipment contact zone before bringing the GSE up to the aircraft.

(b) Immediately report any damage found or where contact has taken place, or suspected to have taken place, especially for composite aircraft..

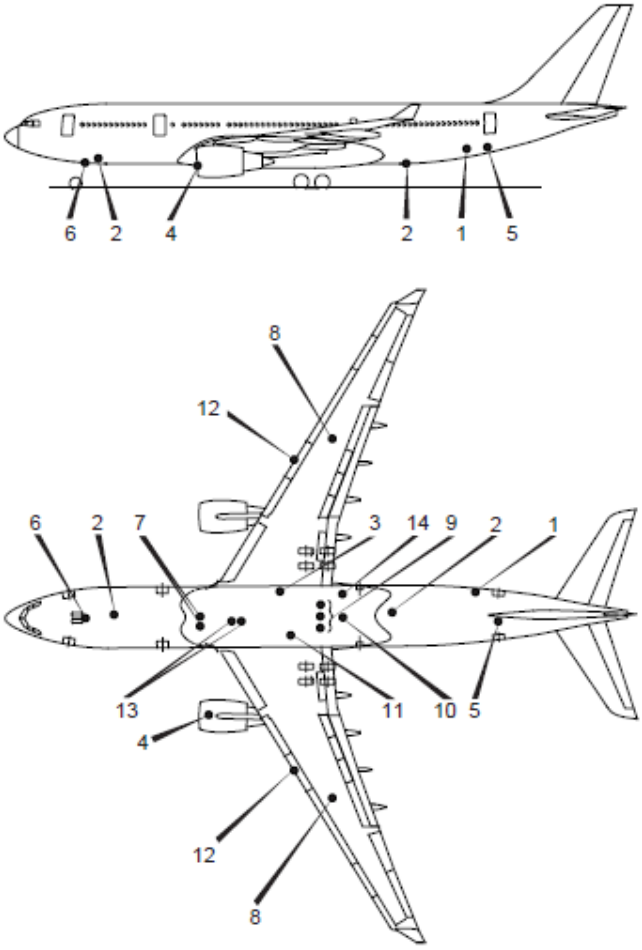
(c) Where damage has been found or where contact has taken place or is suspected to have taken place, do not move any GSE to/from the aircraft in the area where damage has been found until inspection is completed, and clearance given to proceed.

(d) Use all safety devices fitted on GSE (e.g. proximity sensors, bumpers, handrails, stabilisers, etc.) during aircraft handling and servicing.

(e) Ensure protective rubber bumpers DO NOT touch the aircraft fuselage.

(f) Personnel working with and around vehicles and equipment must protect themselves from loose clothing, long hair, and/or hanging accessories/jewelry from becoming a hazard, e.g., caught or trapped in equipment.

The following diagram details the various positions and points where aircraft services are to be connected.



1	Potable water service panel	9	Air charging for hydraulic accumulators
2	Remote water drain	10	Hydraulic reservoir filling and ground power (green)
3	Hydraulic ground power (yellow)	11	Hydraulic reservoir air charging and ground power (blue)
4	IDG oil filling	12	Refuel/Defuel couplings
5	Waste water panel	13	High pressure air
6	Electrical ground power receptacles	14	Refuel/Defuel panel
7	Low pressure air		
8	Fuel gravity filling		

Figure 5 Aircraft Servicing Points

3.1.3.2 Basic Operating Requirements for GSE

(a) Securely stow GSE cables and hoses, where fitted, prior to transportation and when not in use.

(b) GSE shall not impede the accomplishment of other aircraft handling operations in progress unless there is an important reason to do so.

(c) Check that all areas of GSE are free of contamination, FOD and safe for use prior to and throughout the operation.

(d) Operators shall check the GSE assigned to them prior to initial use, particularly the parking brakes, rubber protective bumpers, and safety systems. If found to be defective, the GSE shall be reported, tagged as “Out of Service” and removed from operations, when applicable.

(e) All safety rails shall be fully retracted/lowered prior to positioning, where possible.

(f) Extra personnel shall not be carried on moving GSE without an approved seat (i.e., apply the no seat–no ride principle).

(g) Seat belts shall be worn, where fitted, except where repositioning equipment is within the same operational area, e.g., within the parking stand or baggage makeup area.

(h) Before moving any GSE/Vehicle ensure all its doors are closed, where fitted.

(i) GSE shall not be operated while using handheld Portable Electronic Devices (PEDs).

(j) GSE shall only be used for its intended purpose, including for specific aircraft types.

(k) Prior to movement of any GSE/Vehicles, the intended travel path shall be checked and confirmed clear of personnel, equipment or other obstacles.

(l) GSE with lifting devices shall not be driven or towed in the raised position, except for final positioning onto the aircraft.

(m) The GSE platform shall not be operated while in motion.

(n) Use a guide person when vision is restricted. The guide person shall be able to accurately judge clearances and communicate signals to the driver/operator. Stop immediately if visual contact with the guide person is lost. Movement shall not continue until visual contact is re-established.

(o) Once motorised GSE is in its servicing position at or near the aircraft:

1. Apply the parking brake with the gear selector in park or neutral (if no selection for park).

2. Turn off the engine, unless required when in operating/servicing mode.

3. Install GSE wheel chocks, where equipped.

4. If equipped with stabilizers, ensure they are deployed before the GSE is used for servicing. Deploy other safety devices (e.g., active proximity sensors, safety rails), if fitted.

5. When motorised GSE is in operating/servicing mode, remain in a position whereby the emergency controls can be promptly accessed. This includes the immediate vicinity of the controls or an immediately adjacent and accessible location; for example, the cargo hold in the case of a ULD loader, where required to operate the aircraft cargo loading system (CLS), restraints and/or nets.

6. If motorised GSE is not fitted with external emergency controls, the operator shall remain in the operating position and in control of the equipment when in operating/servicing mode.

NOTE: *As an exception for pushback tractor, the engines may need to be left running unattended:*

1. While conducting a single person pushback operation

2. To avoid specific restart by maintenance function

If unattended, apply the parking brake and place the gear selector in park, or neutral if no selector for park.

(p) When GSE is chocked:

1. Place one chock at the front and one chock at the rear of the same wheel.

2. Chocks shall be centered on and in contact with the wheel.

(q) When unattended motorised GSE/vehicle is positioned in or adjacent to the ERA, other than as described in 0 (o):

1. Turn off the engine. In extreme cold weather conditions where local procedures permit engines running unattended, the motorised GSE shall be chocked.

2. Apply the parking brake with the gear selector in park or neutral, (if no selection for park) and, where equipped, install wheel chocks.

(r) The ground power unit (GPU) and preconditioned air (PCA) may be left running unattended when connected to the aircraft, provided the serviceability and fuel levels are checked periodically.

(s) A No-Touch policy (i.e., GSE shall not touch the aircraft) shall be employed for all GSE types.

1. GSE and passenger boarding bridge (PBB) not equipped with self-leveling sensors shall be positioned in a way to ensure that:

(i) The protective rubber bumpers do not touch the aircraft fuselage to allow vertical movement of the aircraft during the whole ground handling process.

(ii) The gap between GSE and aircraft shall not allow a person or large piece of equipment to fall through. As a guideline, a gap of 5 cm (2 in.) or two fingers should be maintained between the device and the aircraft.

2. Maintain clearance between the GSE and the aircraft fuselage at all times.

Exception:

No-Touch policy does not apply to GSE and PBB equipped with self-levelling sensors. Protective rubber bumpers may slightly touch the aircraft but shall not be compressed against the aircraft fuselage.

(t) When positioning GSE to the aircraft, check that throughout the turnaround process a clearance is maintained between the GSE and the fuselage to allow vertical movement.

(u) All safety rails shall be fully retracted/lowered during positioning and removal, where possible.

(v) After positioning equipment on the aircraft, raise or extend all safety rails on conveyor belts, loaders, and other elevated devices, except where restricted by the aircraft type.

(w) GSE shall be parked in the designated airside equipment parking areas when not in use.

(x) Access to firefighting equipment or the fuel hydrant emergency stop switch shall not be obstructed.

***NOTE:** For GSE operations during adverse weather refer to 3.3.*

3.1.3.3 Non-Motorised GSE

The following precautions shall be taken when operating non-motorised GSE:

(a) When parked, and/or when not connected to motorised vehicles, all non-motorised GSE shall have brakes set or chocks in place, with the exception of aircraft tow bars.

(b) Unit Load Devices (ULDs) shall be secured on dollies (or trailers/trucks) using the appropriate restraints.

(c) Pallet and container dollies may only be towed with the turntables in the locked position ('straight ahead'), and rotated only when at the loader platform.

(d) The number of carts and dollies allowed is usually limited by the local airport authority or ground service provider, however, in critical conditions (e.g. slippery surface conditions, congested facilities, low visibility) this number should be re-evaluated and might be reduced to ensure safe operations on the ramp.

(e) Know the dolly types as some dollies are not compatible with others. Follow the recommended towing combinations when transferring dollies from one place to another. Do not tow more units than the recommended sets or combinations.

(f) When connecting or disconnecting dollies/carts to/from the tow bar, hold only the tow bar handle and tow pin of the dollies/carts. Do not hold the tow eye when connecting or disconnecting.

(g) Position oneself beside the tow bar when connecting or disconnecting dollies/trolleys ensuring the tow-pin is properly inserted before towing and use the tow bar handle to connect and or disconnect dollies/trolleys.

(h) During transportation with carts and dollies, the load shall be properly secured using appropriate locks, stops, rails, curtains and straps.

(i) The overall height of loads shall permit safe lifting of each piece of the load during loading and offloading of carts by personnel standing on the ground.

(j) Light packages shall not be wedged between heavier items.

(k) When using tarpaulins, all straps shall be securely fastened to the baggage cart.

(l) If equipped with stabilizers, ensure they are deployed before the GSE is used for servicing or access. Deploy other safety devices (e.g., active proximity sensors, handrails), if fitted.

(m) If using maintenance stairs e.g., to open and close cargo hold doors:

1. The stairs shall be fitted with safety rails to prevent falls.

2. Maintenance stairs should be facing towards the panel which is being accessed. Retractable/extendable safety rails shall be lowered or retracted during positioning.

3. Raise or extend retractable/extendable safety rails prior to any personnel accessing the stairs.

4. Moving or repositioning the stairs is not permitted while personnel are on the stairs.

(n) Towable air start units (ASU), PCA and GPU shall not be connected to the tow vehicle and aircraft at the same time, if possible. Before towing the unit away, the operator shall ensure the unit is disconnected from the aircraft.

Warning:

While the movement of carts and dollies by hand may be very simple, it can result in injuries.

Therefore, additional care shall be taken.

3.1.3.4 Safely Driving and Parking Ground Support Equipment Inside the Equipment Restraint Area

In order to verify serviceability of GSE and to test the apron surfaces, apply the following precautions when driving or parking GSE within the ERA:

(a) Make one complete stop with all motorised GSE prior to entering the ERA or at 5m from the aircraft. This action shall be carried out even if there is no Equipment Restraint Line marked on the apron.

(b) Do not drive GSE faster than walking speed (5kmh / 3mph).

(c) Manoeuver GSE carefully in order to prevent personnel injury and/or aircraft damage.

(d) Avoid performing sharp turns near the aircraft, particularly when towing equipment.

(e) When GSE/PBB is being moved in close proximity to the aircraft, and when the vision of the operator is or might be restricted, the operator shall be:

1. Guided by a guide person using standard IATA signals. If visual contact with the guide person(s) is lost, the operator shall stop movement of the GSE/PBB immediately. Movement shall not restart until visual contact is re-established.

2. Assisted by means of appropriate proximity sensing and warning systems and/or visual aids such as cameras and mirrors.

(f) Vehicles/GSE that are not directly involved in the handling or servicing of the aircraft shall not be driven through or parked within the ERA.

(g) Do not drive or park under the aircraft fuselage and/or wing. Exceptions due to local restrictions may apply. Prior AirTanker approval shall be sought.

NOTE:

Exceptions:

GSE and vehicles needed for aircraft servicing (e.g. aircraft refuelling truck, water servicing truck, toilet servicing truck).

On stations where the aircraft/stand configuration makes it necessary to tow dollies under the wing during (off)loading of the aft cargo hold of Voyager/A330-200 aircraft. Prior AirTanker approval shall be obtained.

3.1.3.5 Passenger Boarding Bridge (PBB)

The operator of the PBB shall:

(a) Be trained and authorised to operate the PBB.

(b) Check that the PBB is serviceable before use.

(c) Report any malfunction of the PBB to the appropriate person/authority.

(d) Check that the walking surfaces are free of FOD, obstacles and safe for use.

(e) Ensure only personnel required for the PBB operation are in the PBB while it is moving. (e) The PBB shall be fully retracted or parked in its safe designated parking position prior to aircraft arrival and departure.

Warning:

There is a risk of entanglement, fall from height, and distraction to operator.

(f) Ensure the PBB is fully retracted or parked in its safe designated parking position prior to aircraft arrival and departure.

(g) Ensure the safety barrier shall be in place whenever the PBB is not at the aircraft.

(h) Ensure that the movement path is clear of personnel, equipment/vehicles and all other obstacles before moving the PBB.

(i) When positioning the PBB at the cabin access door and driver/operator vision is restricted, use a guide person.

(j) Prior to positioning/removal, ensure that all safety rails/canopies on the PBB are fully retracted.

(k) Move the PBB slowly toward the aircraft, avoiding any aircraft sensors or protrusions.

1. Where the PBB is equipped with self levelling device, continue movement until either the protective bumpers are within 2in (50mm) of the aircraft or the PBB's proximity sensors stop the movement.

2. When not equipped with self levelling device, maintain a gap in accordance with No-Touch policy. Refer to 0 (s).

(l) Ensure the PBB does not contact the wing root leading edge fairing that extends under certain cabin access doors or any other sensors or fairings.

(m) Once the equipment is positioned, ensure any safety rails and canopies on the PBB are fully extended.

(n) When positioning/removal is complete, secure/isolate the PBB controls to prevent movement by non-authorised persons.

(o) Maintain adequate clearance between the PBB and the underside of the cabin access door to prevent damage. This reduces the possibility that the aircraft door will rest on the PBB as the aircraft settles during loading and unloading.

(p) Engage any safety systems (e.g., safety shoe) and auto-leveler features, if applicable. If the PBB is not equipped with an auto-leveler, the PBB shall be attended by an operator whenever it is positioned at an aircraft.

(q) Ensure the cabin access door is closed before removing the PBB.

(r) Where integrated with the PBB, ensure ground power cables and PCA hoses are disconnected from the aircraft prior to moving the PBB, unless required for operational purposes.

3.1.3.6 Passenger Stairs

The following precautions shall also be taken when operating passenger stairs:

(a) Check that the walking surfaces are free of contamination and safe for use.

(b) Ensure the movement path is clear of personnel, equipment/vehicles and all other obstacles before moving the passenger stairs.

(c) If passenger stairs are towed, disconnect them from the tractor and manually position them at the aircraft. Ensure brakes are engaged once stairs are positioned to the aircraft.

(d) Ensure safety rails and canopies, if any, on the passenger stair platform are fully retracted prior to positioning.

(e) Move the passenger stairs slowly toward the aircraft, avoiding any aircraft sensors or protrusions, until either:

1. Where the passenger stairs are equipped with self levelling device, continue movement until either the protective bumpers are within 2in (50mm) of the aircraft or the PBB's proximity sensors stop the movement.

2. When not equipped with self levelling device, maintain a gap in accordance with No-Touch policy. Refer to 0 (s).

(f) The controls shall only be operated from inside the driver's cabin of the passenger stairs except where equipped with external controls.

(g) Maintain adequate clearance between the passenger stairs and the underside of the cabin access door, or as directed by the cabin door markings, to prevent damage.

(h) Engage any safety systems and auto-leveler features, if applicable. If the passenger stairs are not equipped with an auto-leveler, the level of the passenger stairs shall be monitored and adjusted, as required.

(i) Deploy stabilizers, if fitted. Do not allow anyone (except the operator) to use the stairs until the stabilizers are deployed.

(j) Ensure passenger stairs are positioned so that the cabin access door can be used as an unobstructed escape route in case of emergency.

(k) Passenger stairs shall not be removed from the aircraft door unless the cabin access door is closed. Refer to 4.4.2.1(b).

(l) After the cabin access door has been closed, confirm there is no personnel on the stairs prior to retracting stabilizers.

(m) If passenger stairs are towed when removed from the aircraft, manually position them clear of the aircraft to a suitable position before connecting them to the tractor.

Warning:

Cabin doors shall only be in open position if there is GSE or a boarding device positioned at the door.

Cabin doors may never be opened without any equipment positioned at the aircraft.

There is a risk of falling while operating cabin doors.

Slide deployments can be fatal. If an armed door begins to open, do not attempt to hold the door, as you risk being seriously injured or killed by doing so.

3.1.3.7 Belt Loader

The following precautions shall also be taken when operating a belt loader:

(a) Stop operating the conveyor belt or raise or lower the boom when personnel are on the belt.

(b) Do not stand or walk on the conveyor belt when the safety rails are lowered/retracted.

(c) Do not sit or stand on a conveyor belt while it is in operation, nor while the boom is raised or lowered.

(d) Belt loaders shall not be used to transport baggage, cargo or other items across the ramp.

(e) The boom of the belt loader shall never be positioned inside the cargo hold of any aircraft.

Exception:

The rule does not apply to specially designed belt loaders which require the equipment to be extended/positioned inside the cargo holds.

(f) Position and remove a belt loader to/from the aircraft in a straight line.

(g) Position the boom at an angle to the cargo hold doorsill that will:

1. Allow tractors/trailers to access the belt loader without impeding slide deployment areas and passenger evacuation routes.

2. Prevent items and personnel from falling between the boom and doorsill.

(h) Once the belt loader is positioned ensure the wheels are left in straight ahead position.

Caution:

Speeding up operation of the conveyor belt using the accelerator pedal is not permitted.

(i) Where clearance allows, always raise the side safety rail as soon as the belt loader is positioned. Ensure it does not touch the aircraft fuselage.

Caution:

Care shall always be taken when working around a moving belt.

Personnel shall remain vigilant to trap hazards while raising/lowering the safety rails. Keep hands/fingers away from the edges/ends of the belt where they may become trapped.

Ensure there is no loose clothing, long hair etc. in the vicinity of the belt.

Belt movement shall be stopped before any attempt to clear any obstructions.

(j) The safety rail shall also be deployed when a belt loader is used to gain access to aircraft cargo holds or cargo door controls.

(k) Ensure proper separation between articles and appropriate belt speed to avoid jamming.

(l) When unloading or loading items onto a belt loader, ensure they are stable, and correctly positioned on the conveyor belt to avoid items falling off.

(m) When unloading or loading items between the belt and aircraft cargo hold, ensure items do not come into contact with aircraft fuselage/cargo hold door.

(n) Adjust the back of the conveyor belt correctly to avoid dropping goods from the belt.

(o) The safety rail may be lowered to accommodate large items during loading and unloading.

(p) Ensure the boom is clear of the aircraft or other obstacles before making a turn.

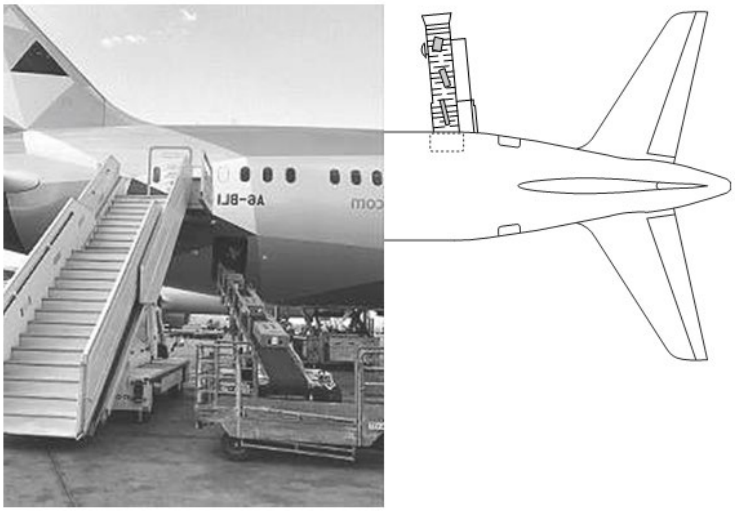


Figure 6 Baggage belt positioning

3.1.3.8 Unit Load Device (ULD) Loader

The following precautions shall also be taken when operating a ULD loader:

(a) Lower both platforms prior to maneuvering the ULD loader.

(b) Only personnel required for the ULD Loader operation shall be on the platform while manoeuvring.

(c) Ensure that the ULD guide rails are in the proper position before positioning the ULD loader at the aircraft. Use ULD loader platform guide rails, as required, to ensure alignment when loading or unloading

(d) Move the ULD loader slowly toward the aircraft, avoiding any aircraft sensors or wing fairings.

(e) When approaching the aircraft and visibility is limited or the aircraft type has limited clearance with the ULD loader, a guide person shall be used.

(f) Ensure the ULD loader is level with the height and angle of the cargo compartment floor.

(g) Do not open/close cargo access hold doors while standing on a ULD loader. Use maintenance stairs in accordance with 3.1.3.3 (m) or a belt loader in accordance with 3.1.3.7.

(h) Engage any safety systems and auto-leveller features, if applicable. If the ULD loader is not equipped with an auto-leveller, the level of the ULD loader shall be constantly monitored and adjusted as required (e.g., edge of cargo hold opening, cargo access hold door, control panel doors, fairings on fuselage and wings).

(i) The ULD loader front platform shall be fully lowered prior to personnel ascending or descending the equipment stairs and the platform shall not be raised or lowered when personnel are using the stairs. Always check the surrounding area and ensure its clear to raise/lower the ULD loader platform.

(j) Ensure no one stands between the ULD loader and dollies during ULD movement and during dolly positioning.

(k) Align dollies correctly to the ULD loader. Use a guide person, if required.

(l) ULD loaders should not be used to transport ULDs across the ramp unless specifically designed for this purpose.

(m) Move ULDs only when personnel are clear of all hazards.

(n) The vehicle (dolly or other) shall be positioned close to the ULD loader platform periphery and shall be at the same height before the transfer takes place.

(o) The use of external mechanical force to move ULDs should not be necessary, except with very heavy ULDs that may not move by manual force alone. Any such process shall be carried out with approved equipment and procedures.

(p) Whilst maneuvering ULD when it is on the ULD loader, ensure:

1. The platform(s) is clear of all personnel.
2. All stoppers are raised to prevent ULD from falling.
3. Immediate area around the ULD loader is clear of all personnel and equipment.
4. ULD is only rotated on the rear platform and when in the fully lowered position.
5. Only one ULD is rotated at a time.

(q) The access door to the in-plane systems is only to be opened when ULD movement within the hold(s) is required. In the periods during which internal loads are not being positioned inside the aircraft e.g. when waiting for the delivery of ULDs from dollies to aircraft door, the access door is to be closed. For the avoidance of doubt, ***when the hold in-plane controls are not actively in use, the access door shall be closed.***

(r) All personnel shall keep clear of the elevating platform when it is being raised or lowered.

(s) Before removal or repositioning of a ULD loader ensure any load positioned in the doorway is secured against roll out.

(t) Whenever possible, reverse in a straight line at a walking pace, monitoring all sides for clearance.

(u) Ensure the path of the ULD loader is clear of all obstructions prior to initiating turns.

NOTE: *The ULD loader shall be positioned at a 90-degree angle to the cargo doorsill.*

Warning:

Do not enter or place any part of the body inside the 'scissor' area beneath the ULD loader.

3.1.3.9 Elevating Equipment

The following precautions shall also The following precautions shall also be taken when operating elevating equipment:

(a) For elevating equipment with a rear access platform, ensure all safety barriers/rails are secured in place prior to vertical movement of the platform.

(b) Ensure the load is properly secured (e.g., cart brakes, stretchers, wheelchairs) and all doors and shutters are closed prior to raising or lowering the vehicle.

(c) Any elevating equipment doors not being used for servicing at the aircraft shall be closed and latched. Ensure all safety rails are extended taking care to allow room for opening cabin doors.

(d) The positioning of the elevating equipment shall allow the loading platform to be perpendicular and at the same level to the aircraft doorsill.

(e) The final position of the elevating equipment shall allow for a safe working area and minimize the length of the walking surface between the aircraft and the elevating equipment while in the raised position.

(f) Before accessing the platform at the front or the rear of the elevating equipment, ensure the platform is at the same level as the equipment cabin.

(g) Carefully place the portable ramp/bridge on the doorsill from the platform side, as necessary.

(h) Equipment (e.g., catering carts) and passengers in wheelchairs shall be pushed on and off the aircraft. Always ensure a hand-to-hand exchange. No elevating equipment is to be staged on the platform, and no loose items are to be transported on top of carts (e.g., catering equipment).

(i) Continually observe and be aware of the clearance between the aircraft door and the elevating equipment platform.

(j) When the servicing is finished, carefully remove the portable ramp/bridge from the platform side and stow securely. Close the cabin access door as per IGOM 4.4.2.7.

(k) The passengers and/or load shall be secured properly inside the elevating equipment. Passengers shall be seated and wearing seat belts. Passengers seated in wheelchairs shall have the wheelchair secured during elevating equipment movement.

(l) Visually check for any obstructions over both sides of the elevating equipment before lowering.

(m) Lower the truck body into the fully lowered position.

(n) Close and secure all the doors of the elevating equipment when the servicing is finished.

(o) Perform a walkaround to check for FOD and clearance around elevating equipment stabilizers.

(p) All elevating equipment shall stop operation when the wind speed reaches 40 knots (gusting).

Warning:

Do not enter or place any part of the body inside the 'scissor' area beneath the elevating equipment.

3.1.3.10 Tractor/Electric Baggage Tug

The following precautions shall also be taken when operating a tractor or electric baggage tug (EBT) and towing dollies/baggage carts:

(a) Take care to avoid sudden sharp turns, jerks and stops.

(b) Prior to moving with towed load, ensure there are no personnel between or near the towed load.

(c) Only transport baggage, cargo, or other items in the designated areas, if equipped.

(d) Use the remote push button control (inching operation) to connect dollies, carts, or towed load, where fitted.

(e) When Tractor/EBT is near the belt loader during aircraft handling, a gap of at least 1 m (3 ft.) shall be maintained.

NOTE: *Where necessary to position carts/dollies within 1 m (3 ft.) of the belt loader, adjust the position of the carts/dollies by hand.*

(f) When removing carts during the loading on or unloading from smaller aircraft or aircraft with low wings, the tractor shall be positioned pointing away from the aircraft wing and the cart maneuvered by hand to the tractor, as required.

(g) The appropriate type of dolly shall be used according to the ULD type to transport the load.

(h) Keep an appropriate distance between dolly and ULD loader during loading and unloading process. To avoid ULD falls, realign the dolly if the distance between ULD loader and dolly is unsafe.

(i) Ensure ULD is fully transferred onto the ULD loader before moving the Tractor/EBT.

(j) Ensure all the ULDs are secured on the dollies and flaps, or curtains are closed before transporting.

(k) Ensure where possible dollies/carts are connected as a chain, apply brake, and insert chocks where applicable, to avoid the movement

(l) Keep at least 2m (6ft) away from the fuselage.

3.1.3.11 ULD Transporter

The following precautions shall also be taken when operating ULD transporters:

(a) Do not sit or stand on the roller bed.

(b) Do not stand between the ULD transporter and ULD loader/dollies.

(c) Position the ULD transporter at a 90-degree angle to the ULD loader/dolly to ensure safe transfer of load.

(d) If fitted with an elevating platform:

1. Do not transport ULDs across the ramp with the platform in the raised position.

2. Do not raise the platform until final positioning at the aircraft.

(e) A guide person shall be used when operator visibility is or may be otherwise restricted (e.g. when reversing with a ULD on a Transporter that is not equipped with cameras and/or mirrors that provide full visibility of the intended movement path). If visual contact with the guide person(s) is lost, the operator shall stop movement of the ULD Transporter immediately.

(f) ULD transporters shall be operated in low gear and not faster than walking speed while manoeuvring in the ERA.

NOTE: *For combined ULD transporter/loader devices, refer to 3.1.3.8 for further precautions.*

3.2 Safety During Fuelling/De-fuelling

Applicable to: All operations

3.2.1 Fuelling Safety Zone

The Fuelling Safety Zone (FSZ) is defined as an area of at least 3 m (10 ft) in any direction from the centre point of all fuel vent exits, refuelling plugs, aircraft refuelling ports, fuel hydrants, fuel hoses and fuelling vehicles. This distance may be further increased as required by local airport or civil aviation authorities.

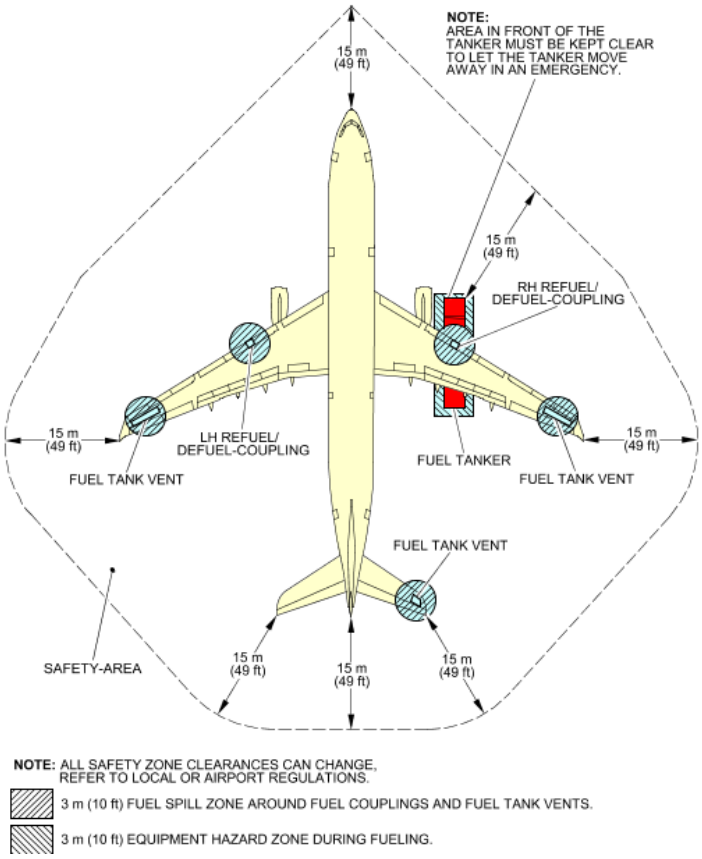


Figure 7 Fuelling safety zone

Within the FSZ, all personnel shall ensure that they:

(a) Do not smoke.

(b) Do not use any handheld PEDs including mobile phones, portable music players, portable game units or earpiece or headset.

(c) Enter the FSZ only when required by their current job task/responsibility.

(d) Assume that fuelling is taking place anytime a fuel vehicle is on the stand during aircraft servicing and fuel hoses are connected.

(e) Do not leave vehicle engines running unnecessarily.

(f) Position all GSE and vehicles so that they do not obstruct the fuelling vehicle's escape route; this is not a mandatory requirement for hydrant type fuelling vehicles but every effort should be made to ensure a clear exit pathway.

(g) Do not allow any passengers to enter the FSZ.

(h) Avoid the use of motorised GSE within the FSZ.

(i) Do not park any equipment in the FSZ.

(j) Ensure fuel hoses are protected and all equipment is kept a minimum of 1m (3ft) away from any fuel hose on the stand that is connected between a fuel truck and an aircraft.

3.2.2 Fuel Spillage

Take the following safety measures whenever a fuel spill occurs:

(a) Activate the emergency shut-off valve where installed.

(b) Alert the person in charge of fuelling and/or the Pilot in Command.

(c) Contact the local fire service, if not already done.

(d) Verify with authorities/supervisor whether to stop all activity around the aircraft.

(e) As far as possible, restrict all activities inside and outside the spill area to prevent access and to reduce the risk of ignition.

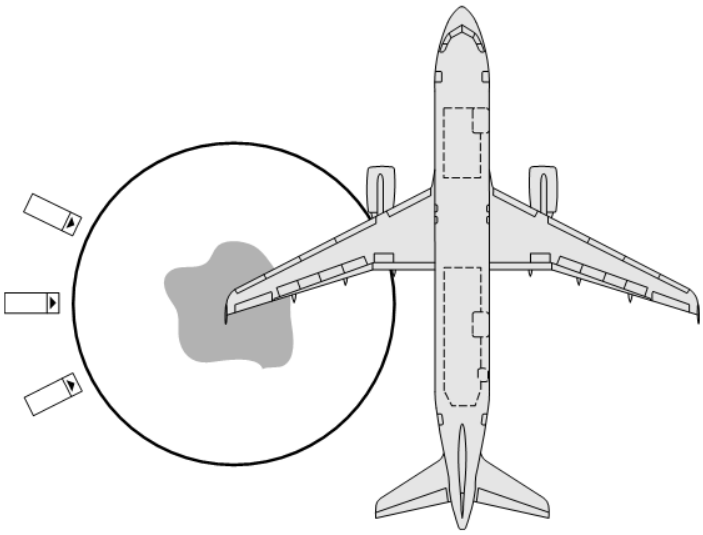


Figure 8 Fuel spillage

3.2.3 Fuelling/De-fuelling with Passengers on Board

When fuelling/defueling with passengers on board and/or during their boarding or disembarking personnel shall:

(a) Keep designated escape exits clear (at least 2 exits). An escape exit may either be a PBB into a terminal building, a cabin door or a passenger stair truck positioned on an open cabin door.

(b) Ensure all areas on stand below designated escape exits are kept free of any equipment and vehicles which would impede the deployment of an escape slide.

(c) Do not hinder escape routes of passengers on board by ensuring that passenger stairs and PBB are clear of FOD.

(d) Passengers are to be kept clear of the fuelling zone.

(e) Communications are to be established and maintained with the flight crew.

(f) Ensure that suitable fire extinguishing equipment is available on the aircraft parking area.

(g) Inform the flight crew of the beginning and end of the fuelling.

(h) Alert the flight crew if a fire or other hazardous situation arises.

(i) Stop fuelling upon flight crew request.

3.3 Adverse Weather Conditions

Applicable to: All operations

3.3.1 General

Airside operational staff should use the following procedures during adverse or poor weather conditions, which may have a negative impact on aircraft handling activities and ground safety. In the event that additional information is required, refer to supervisory staff.

3.3.2 Winter or Slippery Apron Conditions

Winter weather brings extra hazards, which require awareness and more care on the part of personnel working on the apron to prevent accidents. The following precautions to reduce accident risk shall be taken:

(a) Plan additional time for all ramp activities and take extra care when walking across apron surfaces, which can be slippery

(b) Take extra care when driving, especially when approaching the aircraft. Remember that GSE require greater distances to stop safely on slippery surfaces

(c) Operators of potable water tankers and toilet servicing units shall be vigilant that there is no spillage or leakage that can lead to subsequent freezing. Care shall be taken to keep spillage and overflow to a minimum.

(d) If apron conditions are hazardous, contact the competent authority to mitigate the hazard. In the event the hazard cannot be mitigated, suspend the affected operations.

(e) Close all entrance and cargo hold doors as soon as possible and keep them closed to avoid precipitation entry into the aircraft.

Caution:

Reduce speeds on slippery road conditions in slippery apron conditions. Adjust all activities and operations on the ramp to suit the conditions at the time.

3.3.3 Storms–Lightning Work Instructions

3.3.3.1 Storm-Lightning Work Instructions

On receipt of an ALERT:

(a) Make preparations for the STOP phase.

1. Suspend non-essential activities in open areas and ensure any personnel using or about to use headsets are informed of the alert.

2. Fuelling operations can continue, however, the proximity of the thunderstorm/lightning should be continually monitored.

3. Avoid using highly conductive equipment.

(b) On receipt of STOP

1. Stop fuelling and detach hoses from aircraft. Fuelling hoses cannot be left attached to the aircraft during any thunderstorm/lightning event.

2. Discontinue aircraft communication by headset.

3. Stop all ramp activity and clear ramp.

4. Personnel should seek shelter inside buildings or inside metal bodied vehicles. No one should seek shelter under any part of the aircraft, loading bridge, near light poles, fences, under trees.

5. In accordance with local procedures, aircraft may come on stand but the aircraft doors should remain closed and ground servicing suspended.

Warning:

Failure to follow procedures could result in a fatal accident.

LEVELS	ACTION
Amber–ALERT Lightning activity is detected at a distance in excess of 8 km (5 miles) from your operation.	Disseminate lightning warning to airside operating staff so they can prepare and plan their activities to be ready in case of a Red Alert in accordance with local regulatory requirements.
Red–STOP/SUSPEND Lightning activity is detected within 5 km (3 miles) of your operation.	Disseminate the order to stop all airside activities and seek shelter to all airside operating staff.
Green–ALL CLEAR Lightning activity has moved beyond 5 km (3 miles) and is heading away from your operation.	Disseminate the order to resume normal activities to all airside operating staff.

Note: *The distances referred to above may vary depending on local climactic parameters.*

3.3.3.2 Lightning Alert Callout

In the absence of an integrated airport notification system, all airside operating staff shall be aware of the following procedures:

(a) Use the counting method to detect/predict lightning activity. Determine the corresponding level based on the counting method diagram, see 3.3.3.3.

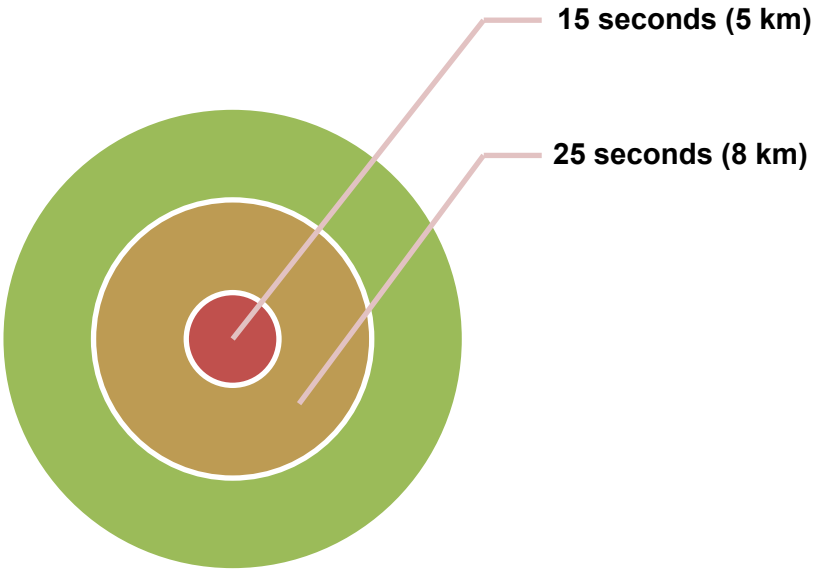
(b) The responsible person notifies all airside operating personnel of the lightning alert level. If the person responsible is not available, the counting method should be used by all airside operating staff for self-protection.

(c) In case of a Red Alert, proceed to a designated shelter.

3.3.3.3 Counting Method

The counting method is used when an integrated airport notification system is absent. It is used to estimate the level of lightning activity.

Counting Method Chart:



Note 1: *The time indicated is the time between the lightning and the sound of thunder*

Note 2: *If the counted time is less than 15 seconds, the lightning activity is less than 5 km from the airport.*

Note 3: *If the counted time is between 15 seconds and 25 seconds, the lightning activity is between 5 and 8 km from the airport.*

3.3.4 High Wind Conditions

High winds pose a great risk of damage and the following minimum precautions should be taken:

(a) Ensure the safety of the aircraft by installing additional chocks and removing all equipment from around the aircraft.

(b) Take extreme care when opening or closing any aircraft doors.

(c) Make sure parking brakes are set on all parked GSE.

(d) Set parking brakes and secure by additional means if necessary, all non-motorised ramp equipment. (i.e. baggage carts and ULD dollies).

3.3.4.1 High Winds Activity Table

The following actions shall be taken when sustained winds and/or gusts of wind exceeding 25 kts are predicted:

Staff Actions	25 to 39 kt 46 to 72 km/h	40 to 59 kt 73 to 110 km/h	Above 60 kt Above 111 km/h
Chock aircraft landing gear as per 'Aircraft Out of Service/Night-Stop/High Winds', see 4.2.4	X	X	X
Remove safety cones	X	X	X
Secure pre-conditioned air hoses (PCA)	X	X	X
Remove FOD	X	X	X
Secure ULDs	X	X	X
Secure rolling stock	X	X	X
Secure passenger boarding bridge (PBB) and position to minimise surface exposed to the direct force of the wind		X	X
Close cargo hold/passenger doors and access panels		X	X
Do not initiate the elevation of high lift equipment and stairs		X	X
Park GSE closely together, and adjacent to a building if possible			X
Retract PBB			X

Warning:

High winds pose a great risk of damage and injury.

3.3.5 Sandstorms and Low Visibility

The following minimum precautions should be taken:

(a) Issue appropriate PPE such as goggles, masks, covered clothing.

(b) Ensure the provision of shelter, as required.

3.3.6 Intense heat

The following minimum precautions should be taken:

(a) Issue appropriate PPE (i.e., covered clothing).

(b) Ensure the provision of rehydration for personnel.

(c) Ensure the provision of a temperature-controlled environment during rest breaks.

3.4 Hand Signals

Applicable to: All operations

3.4.1 Introduction

In order to standardise 'ground staff-to-ground staff' communication and/or 'ground staff-to-flight crew' communication, the following hand signals are defined, in accordance with IATA guidance:

(a) Guide Person Hand Signals–to be used by a specific guide person in direct liaison with the equipment operator to facilitate movements of any type of GSE.

(b) Marshalling Hand Signals–to be used by ground staff, to assist the flight crew during manoeuvring of the aircraft and engine starting.

(c) Technical/Servicing Hand Signals–to be used by ground staff to communicate technical/servicing information to flight crew, and by flight crew to communicate technical/servicing information to ground staff.

Note 1: *Only use hand signals when verbal communication is not possible.*

Note 2: *Make sure acknowledgement of all signals is received.*

(d) Aircraft Movement Hand Signals–to be used during the tractor/towbar, towbarless connection/disconnection process, as well as at the start and end of the ground movement operation.

3.4.2 General Conditions for Using Hand Signals

The person giving the hand signals shall:

(a) Use only approved hand signals.

(b) Wear a high visibility vest.

(c) Maintain the same role throughout the procedure.

(d) Keep in constant, visual contact with the other ground staff and flight crew throughout the manoeuver. If visual contact is lost, the operation shall stop and not re-commence until visual contact is re-established.

(e) Remain clear of the intended pathway of the vehicle/aircraft where possible.

3.4.3 Specific Requirements for Using Marshalling Hand Signals

(a) Do not perform aircraft marshalling unless it is permitted by the local airport authority and personnel have been trained and authorised.

(b) Give marshalling hand signals from a position forward of the aircraft while facing and within view of the flight crew.

(c) Wear a high-visibility vest.

(d) Use illuminated flashlights/wands to improve the visibility of the hand signals in the following situations:

1. Insufficient apron lighting
2. Poor visibility
3. Night conditions
4. When required by local airport authorities or regulations

Caution:

To avoid any possible confusion by the flight crew, do not use guide person hand signals for equipment until all aircraft marshalling has been completed.

NOTE: *It is not possible to give signals for engaging/releasing parking brakes with the use of bats or illuminated flashlights.*

3.4.4 Guide Person Hand Signals for Ground Support Equipment

Hand signals from guide persons to operators of GSE shall conform to those published in the IGOM (current version). Any deviations shall meet or exceed these requirements.

3.4.5 Aircraft Movement Hand Signals–Headset Operator to Tug Driver

Hand signals from headset operators to tug drivers shall conform to those published in the IGOM (current version). Any deviations shall meet or exceed these requirements.

3.4.6 Aircraft Movement Hand Signals–Wingwalker to Headset Operator/Tug Driver

Hand signals between wingwalkers and headset operator/tug driver shall conform to those published in the IGOM (current version). Any deviations shall meet or exceed these requirements.

3.4.7 Marshalling Hand Signals for Aircraft

Hand signals between ground marshaler and aircraft crew shall conform to those published in the IGOM (current version). Any deviations shall meet or exceed these requirements.

3.4.8 Technical/Servicing Hand Signals–Ground Staff to Flight Crew

Hand signals between ground staff and flight crew shall conform to those published in the IGOM (current version). Any deviations shall meet or exceed these requirements.

3.4.9 Technical/Servicing Hand Signals–Flight Crew to Ground Staff

Hand signals between flight crew and ground staff shall conform to those published in the IGOM (current version). Any deviations shall meet or exceed these requirements.

3.5 Toilet Servicing

Applicable to: All operations

3.5.1 Introduction

The complete procedure for servicing the aircraft toilet waste tank consists of the following 3 steps:

(a) Draining the waste tank(s);

(b) Flushing of waste tank(s);

(c) Adding an amount of pre-charge and/or concentrated deodorant pre-charge product, as applicable.

Caution:

1. Toilet fluids are corrosive.

2. Prior to servicing, inspect the toilet servicing panel on the aircraft for signs of leakage.

3. If any horizontal blue streaks are observed, the blue streak shall be cleaned prior to servicing.

4. After cleaning, look again for signs of leakage.

5. Blue ice build-up at higher altitudes may influence airworthiness. In the case of a possible leak, immediately inform the airline representative, ground engineer, or advise the flight crew.

3.5.2 Hygiene Precautions

(a) Wear heavy rubber gloves, full face protection and protective clothing against harmful wastes when performing toilet servicing.

(b) Do not park the toilet service unit (TSU) in the same area as the water service unit or at the water filling point.

Caution:

Once an agent has performed toilet servicing on an aircraft, the same agent cannot perform water servicing during the same shift.

3.5.3 Toilet Servicing Procedure

The aircraft is equipped with a vacuum waste system. The waste from the toilet system is stored in two waste tanks of 350 litres. These are stored in the pressurised under floor cabin of the bulk cargo hold. The control panels installed in the forward cabin flight attendant station indicate waste levels.

ITEM	CAPACITY		WEIGHT		H-ARM	
	(l)	(US gal)	(kg)	(lb)	(m)	(in)
Tank N° 1	350	92.47	350	771.61	51.587	2 030.98
Tank N° 2	350	92.47	350	771.61	52.369	2 061.77

Figure 9 Toilet Water Waste Tank Capacities

3.5.3.1 Emptying the waste holding tanks

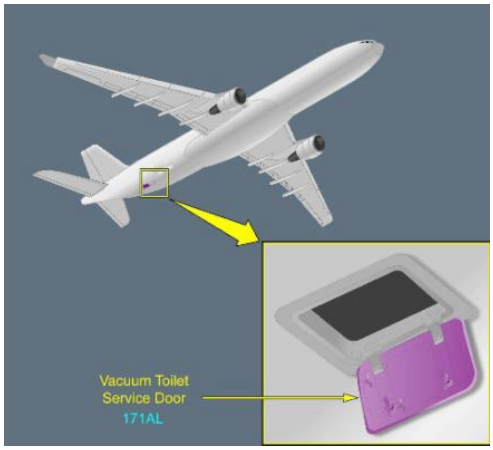


Figure 10 Toilet Servicing Door

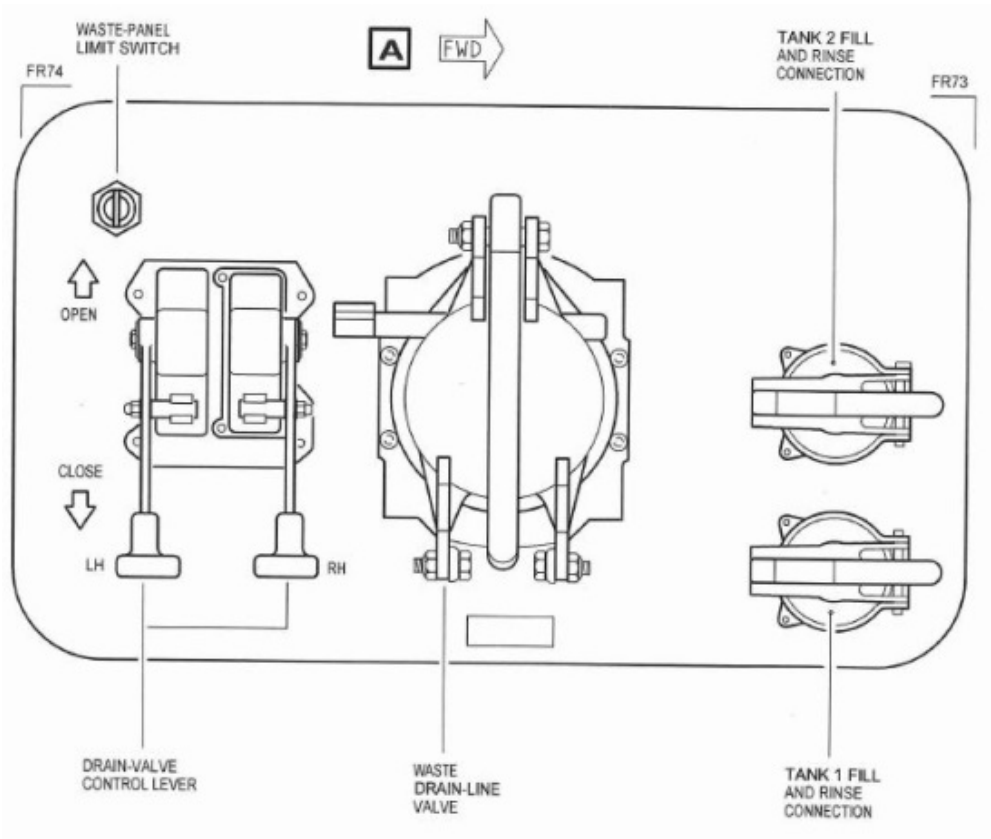


Figure 11 Toilet Water Servicing Panel

(a) Prior to opening a toilet service panel, check for stains around the panel;

(b) While opening the service panel, stay clear and watch for signs of leakage;

(c) Stay clear of the drain fitting cap while opening, and watch for signs of leakage;

(d) Connect the hose adapter and the 4 inch diameter drain hose of the TSU to the waste-tank drain connection;

(e) Push the PUSH TO OPEN lever on the waste drain-line valve to the OPEN position;

(f) Put the drain-valve control lever to the OPEN position and let the waste drain;

(g) Touch the drain hose and make sure that the waste has drained completely.

3.5.3.2 Flushing the waste holding tanks

Caution:

Make sure that the water temperature is not higher than 60° C (140° F). If it is higher it can cause damage to the components.

(a) Connect the flush/fill hose (1 inch diameter) of the TSU to a flush connection;

(b) Operate the TSU;

(c) Make sure that the water pressure is not more than 3.45 bar (50 psi) and the water flow rate is stable at 38L per minute;

(d) Flush the waste holding tank with 100L of water;

(e) Do this procedure for each waste holding tank;

(f) Put the drain-valve control-lever to the CLOSED position;

(g) Disconnect the drain hose and the hose adapter.

3.5.3.3 Filling the waste holding tanks with disinfectant:

Caution:

Make sure that the water temperature is not higher than 60° C (140° F). If it is higher it can cause damage to the components.

(a) Use the TSU to fill each waste holding tank with 18L of disinfection solution;

(b) Always follow the disinfection solution manufacturers recommended guidelines;

(c) Some disinfectant will drain from the flush connections when you disconnect the fill hose;

(d) Make sure there are no leaks from the toilet drain connections or from the fill/rinse connections;

Caution:

Ground service providers shall immediately inform AirTanker line maintenance engineers or OCC if any leakage is observed, the drain valve will not open or cannot be drained for any reason, or a spillage has occurred which will require a clean-up of the spillage.

(e) Close the cap of the waste drain-line valve;

(f) Turn off the TSU and disconnect the flush/fill hose;

(g) Close the caps of the tank flush connections; close the nozzle tightly in order to prevent the accumulation of ice during flight and wipe off residual water and disinfectant.

(h) Check for possible leakage.

(i) After servicing close and latch the fitting caps and service panel door.

(j) Clean and dry the service panel with a clean cloth textile-lint free cotton

Caution:

Drain the waste tanks if the aircraft is parked in the open for several hours without electrical power supply and the temperature is, or is expected to be, below the freezing point stated.

Caution:

Ensure the fill line is fully drained before closing the cap to prevent freezing of fluid in the fill line, do not attempt to remove the frozen substance in the fill lines or connections or on the service panels. Contact AirTanker line maintenance/OCC immediately.

Sluice the Toilet Service Unit (TSU) as required and at least daily at the station sluice point.

Replenish the water tank on the TSU.

3.5.3.4 Servicing During Freezing Conditions

Take the following measures to prevent freezing of the fluid in the aircraft toilet tanks and lines during freezing conditions:

(a) Drain the waste tanks if the aircraft is parked in the open for several hours without electrical power supply and the temperature is, or is expected to be, below the freezing point, as per operating airline policies.

(b) Fill the aircraft toilet system only after electrical power supply has been restored, and as close to flight departure time as possible.

(c) Ensure the fill line is fully drained before closing the cap to prevent freezing of fluid in the fill line.

Caution:

Do not attempt to remove the frozen substance in the fill lines or connections or on the service panels. Contact maintenance immediately.

3.5.3.5 Inoperative Toilet Systems

If defects of the toilet system prevent regular servicing, ask qualified technical staff–if available–for assistance (e.g., removal of panels).

If no technical staff is available, inform the flight crew or an airline representative.

3.6 Potable Water

Applicable to: All operations

3.6.1 General

(a) The water used for uplift shall fully meet the hygiene and testing requirements detailed in AHM 440 7.5, 8.11 and 9.1 and those detailed in 3.6.2.

(b) Equipment used shall fully comply with the specifications detailed in AHM 970 for water servicing vehicles or AHM 981 for towed service carts.

(c) All equipment shall be serviced according to the manufacturers' recommendations. Records shall be kept of all servicing, cleaning, disinfection and maintenance tasks performed.

(d) All equipment and facilities used shall be maintained to the highest possible hygienic standards.

(e) Only uplift water to aircraft if authorised or requested by AirTanker or Voyager operations personnel.

(f) Any deviation to these procedures shall be reported to AirTanker or Voyager maintenance, dispatch or flight crew.

(g) AirTanker / Voyager representatives shall be informed of any issue that may affect (or may have affected) the standard of water uplifted to the aircraft, including contamination incidents, maintenance findings and test failures.

3.6.2 Potable Water Servicing Procedures

3.6.2.1 Filling Aircraft Water Tanks

(a) Before connecting the aircraft filling hose to the aircraft, flush the hose.

Note: *The hose needs to be flushed into a bucket or waste container before connecting the hose to the aircraft filling port (not required on consecutive servicing).*

(b) Do not place hose ends on the ground.

(c) On immediate turnaround sequence, water service shall always be performed before toilet service.

(d) The aircraft filling port shall be cleaned/wiped dry with antiseptic wipes before the hose is connected to the aircraft adaptor.

Note: *Cleaning may be carried out either by wiping with a clean towelette or equivalent soaked with a disinfecting solution or by wiping with a presoaked disinfectant towelettes. The spray-and-wipe procedure is accepted if sprayed directly on the towelette. However, personnel should not spray directly into the aircraft coupling.*

(e) The potable water is stored in two tanks in the pressurized section of the fuselage. The total useable capacity of each tank is 350 litres. Unless specifically requested, the standard requirement on all AirTanker flights will be to fill both potable water tanks to 100%.

ITEM	CAPACITY		WEIGHT		H-ARM	
	(l)	(US gal)	(kg)	(lb)	(m)	(in)
Tank N° 1	350	92.47	350	771.61	39.167	1542.00
Tank N° 2	350	92.47	350	771.61	42.347	1667.20

Figure 12 Potable Water Data

(f) Procedures for filling the water tanks are as follows:

1. The aircraft shall be supplied with electrical power and the maintenance bus is switched on.

2. Delivery pressure shall not exceed 50psi (3.4bar).

3. Before uplifting water, ensure the overflow valve light is on.

4. After uplifting water, ensure the overflow light goes off. If any of these stages does not happen, consult an engineer.

5. The overflow valve light shall be off before the service panel is closed.

(g) When not in use, hose ends shall be:

1. Kept capped or;

2. Attached to a dummy connector or;

3. Kept in a container filled with disinfectant solution or;

4. Treated with disinfectant before use.

3.6.2.2 Water Servicing During Freezing Conditions

The following actions shall be followed to prevent freezing of the water in the aircraft water tanks and lines during freezing conditions:

(a) Drain the aircraft water tanks if instructed by AirTanker OCC or line maintenance as directed.

Dispose of water in accordance with airport operator requirements.

(b) Ensure the fill line is fully drained before closing the cap to prevent freezing of fluid inside.

Caution:

Keep aircraft cargo doors closed to prevent water lines from freezing when the cargo compartments are not being loaded or offloaded. Do not attempt to remove the frozen substance in the fill lines or connections or on the service panels. Contact AirTanker line maintenance immediately.

3.6.3 Potable Water Hygiene Requirements

3.6.3.1 Fill Points and Water Cabinets

(a) Daily, weekly and monthly tasks shall be conducted and recorded as per AHM 440 7.5 and 9.1.

(b) Hoses, connectors and water quality shall meet AHM 440 specifications and hygiene requirements.

(c) The water shall only be used as potable water for aircraft.

(d) The area around the fill point/water cabinet shall be kept clean and free from waste.

(e) When not in use, all fill point hoses shall be secured and locked in a metal pest-proof enclosure. Fill points without attached hoses shall be capped.

(f) When not in use, hose ends shall be:

1. Kept capped or;
2. Attached to a dummy connector or;
3. Kept in a container filled with disinfectant or;
4. Treated with disinfectant before use.

(g) Do not place hose ends on the ground.

3.6.3.2 Water Service Vehicles and Towed Service Carts

The water service vehicles and towed service carts shall:

(a) Have daily, weekly and monthly tasks conducted and recorded as per AHM 440 8.11.1.

(b) Only be filled at a designated potable water fill point using approved hoses and couplings.

(c) Only be used to fill aircraft potable water tanks.

(d) Be parked in a clean and secure area, at least 30m away from toilet servicing vehicles.

(e) Not be positioned close to toilet servicing units at any time, particularly when toilet servicing or toilet waste disposal is taking place.

Note 1: *The water service vehicles and towed service carts should be parked in a shaded area during hot sunny weather, particularly if filled.*

Note 2: *The tank shall be drained completely at least once per calendar day when using chlorinated substances for disinfection.*

3.6.3.3 Water Servicing Staff

The water servicing staff shall:

(a) Be dressed with clean working clothes in accordance with the World Health Organisation (WHO) *Drinking Water Quality Standard* to be assigned to drinking water servicing.

(b) For hygiene reasons, if operators conduct both toilet and water servicing during the course of their shift, the operators must service potable water before toilet servicing aircraft toilets.

Caution:

Should the operator be reassigned to perform water servicing after having performed toilet servicing, the operator shall shower and change into clean external clothes/overalls and PPE

(c) The operator should wear single use or disposable gloves during drinking water servicing; see AHM 440 10.9.

3.6.3.4 Water Treatment Chemicals (Sanitiser)

Water uplifted to aircraft potable water tanks shall contain a low concentration of disinfectant chemical (sanitiser) of a type suitable for potable water. The most common sanitisers are based on chlorine or hydrogen peroxide. Refer to AHM 440 for details.

3.6.3.5 Water Service Vehicle Cleaning and Disinfection

Water service vehicles, towed service cart tanks and hoses shall be checked every day, disinfected at least once per week, and deep cleaned at least once per month. Refer to AHM 440 for details.

3.6.3.6 Fill Point and Water Cabinet Cleaning and Disinfection

(a) Fill points, hose cabinets and their surroundings shall be checked daily for general cleanliness.

(b) Fill points and hoses shall be disinfected at least once per week. Refer to AHM 440 for details.

3.7 Aircraft Cleaning and Disinfection

Applicable to: AirTanker civil/military & Voyager operations (for Leased operations, refer to leasing organisation's standards)

3.7.1 General Information

For aircraft cleaning, refer to the Cabin Services Standards Manual.

3.7.2 Op VESPINA Cleaning Standards

For aircraft cleaning related to Operation VESPINA tasks, refer to the Enhanced Cabin Procedures Manual or contact Richard.millward@uk.airtanker.co.uk.

3.8 Safety During Aircraft De-icing/Anti-icing Operations

Applicable to: All operations

See Chapter 12 – Winter Operations.

4 Aircraft Turnaround

Information Owner: Aviation Services Manager

4.1 Aircraft Arrival

4.1.1 Actions Prior to Aircraft Arrival

(a) Conduct Foreign Object Debris (FOD) check of the entire stand, removing all debris just prior to aircraft arrival.

(b) Make sure the stand surface condition is sufficiently free of ice, snow, etc. to ensure safe aircraft movement.

(c) Make sure all required Ground Support Equipment (GSE) is available and serviceable, and is positioned well clear of the aircraft path, outside the Equipment Restraint Area (ERA).

(d) Make sure the aircraft path and ramp area are free of objects and obstacles that the aircraft may strike or personnel and GSE that may be endangered by jet blast effects.

(e) Make sure the aircraft docking guidance system is operating, or marshalling staff is present.

(f) Make sure additional ground personnel (i.e. wing walkers) are present, if required.

Warning:

All persons not responsible for the aircraft arrival operation shall stay well clear of the arriving aircraft and shall not approach the aircraft until:

(a) The engines have been shut down and are spooling down;

(b) The anti-collision lights have been switched off;

(c) The main gear wheel chocks are positioned; and

(d) Clearance to approach the aircraft has been given by the agent responsible for the arrival operation, if applicable.

NOTE: *For arrivals of aircraft with unserviceable APU, see 4.1.3.2*

4.1.2 Actions During Aircraft Arrival

(a) For a standard arrival at a stand without an automated guide-in system or at an open ramp:

1. As the aircraft approaches the stand area, the marshaller points to the guide-in line on the ramp to be followed by the aircraft by standing at the top of the guide-in line and giving the 'Identify Gate/Stand' signal. Wing walkers, if required, will be positioned approximately 1m (3ft) outside the path of the wingtips. Wing walkers shall maintain visual contact with the marshaller until the aircraft has come to a complete stop.

2. While the aircraft taxies along the guide-in line, the marshaller gives the 'Continue to Taxi Straight Ahead' signal with marshalling wands.

3. The nose wheel should follow the guide-in line all the way to the appropriate stop point. Use the 'Turn Left' or 'Turn Right' *(from the flight deck's point of view)* signals to correct the track of the aircraft as required.

4. If at any time during the aircraft movement the marshaller is unsure or identifies an imminent danger, signal the aircraft to 'STOP'.

5. If at any time during the aircraft movement, the wing walkers are unsure or identify an imminent danger, signal the marshaller with the 'STOP' signal.

6. As the aircraft approaches the stop position, use the 'Slow Down' signal if required. As the nose wheel reaches the stop point slowly cross the wands in the 'STOP' signal.

(b) For a standard arrival procedure at a stand with an automated guide-in system:

1. The ground personnel responsible for aircraft arrival operations shall verify that the correct aircraft has been selected for the arrival and the equipment is operational.

2. The agent responsible for staffing the emergency stop button shall be positioned with an unobstructed view of the arriving aircraft and within reach of the system to stop the aircraft in the event it is needed. It is essential to maintain a continuous unobstructed view between the agent responsible for staffing the emergency stop button and the ground staff member(s) ensuring clearance (e.g. wing walker(s)).

3. If the emergency stop is activated, and only after verification by the ground staff member operating the guidance system that the risk is no longer there, the aircraft docking guidance system can be reactivated. If not, standard aircraft arrival procedures shall be used;

4. Wing walkers, if required, will be positioned approximately 1m (3ft) outside *the path* of the wingtips. Wing walkers shall maintain visual contact with the agent responsible for the aircraft arrival operation until the aircraft has come to a complete stop.

NOTE: *For arrivals of aircraft with unserviceable APU, see 4.1.3.2*

4.1.3 Actions After Aircraft Arrival

4.1.3.1 Standard arrival procedure

(a) Upon aircraft stopping:

1. Position wheel chocks at Nose Landing Gear (NLG) wheels as per Wheel Chock Placement.

2. Position and connect the Ground Power Unit (GPU) or Fixed Power Unit (FPU), if required, before engine shut down.

(b) After engines have been shut down and anti-collision lights have been switched off:

1. The person responsible for arrival operations shall give clearance for placement of the remaining wheel chocks and safety cones.

2. Remaining wheel chocks shall be placed in accordance with Wheel Chock Placement and verbal/visual confirmation shall be given to flight crew.

3. Safety cones shall be placed in accordance with 4.3. After placement, GSE may enter the ERA to approach the aircraft. Confirm there is no damage on the cabin door area prior to positioning the Passenger Boarding Bridge (PBB)

NOTE: *Positioning of GSE at its final servicing position shall only take place after inspection of the door/service panel and surrounding area where the GSE shall position and clearance given.*

4. An inspection shall be carried out to confirm there is no damage to the cabin access door and surrounding area prior to positioning the passenger boarding bridge (PBB).

(c) Before positioning GSE, conduct an arrival walkaround to inspect for damage to the following parts of the aircraft:

1. All cargo access doors

2. All access panels and servicing access points

3. Aircraft fuselage

4. Aircraft engine cowlings

5. All cabin access doors, including service doors.

(d) Give clearance for GSE to position to the aircraft.

NOTE 1: *It is essential to have adequate lighting when performing the walkaround check. If lighting is insufficient, a torch may be used.*

NOTE 2: *If any damage is found, report it immediately to supervisor/engineer/flight crew and do not approach the aircraft with any GSE in the area where the damage has been found.*

NOTE 3: *'Spooling down' of an engine can be identified as follows: reduced engine noise, visible fan speed reduction, lack of exhaust heat/thrust plume.*

Warning:

If notified of a brake overheat do not approach the main gear.

Caution:

If an aircraft arrives with an unserviceable anti-collision light, do not approach the aircraft until headset communication has been established with the flight crew.

4.1.3.2 Non-Standard Arrival (Inop APU)

Warning:

Servicing aircraft with live engines operating is extremely hazardous. All personnel are to be briefed of the risks, be vigilant, and follow these procedures meticulously.

4.1.3.2.1 Pre-arrival

(a) Inoperative (Inop) Auxiliary Power Unit (APU) information shall be communicated by AirTanker Operations or flight crew to the ground handling service provider, as soon as available. Updates shall be provided (to avoid any last-minute stand changes that could disrupt planning and result in crews rushing) and communicated to frontline personnel and acknowledged.

(b) A threat and error management-based briefing must be conducted at the head of stand, led by a designated responsible person, to ensure that all personnel involved in the arrival process are aware of what to expect and reminded of their associated duties and hazards. This briefing should incorporate elements and consist of the following:

1. A review of the Inop APU arrival procedure.

2. The designated responsible person shall confirm the assignment of tasks for the ground crew, including communications with the flight crew, chocking, and ground power.

3. Other members of the team shall be reminded not to engage the aircraft (approach or drive equipment toward the aircraft) until they have been given clearance to do so.

4. As far as possible, any other providers that are present shall also be notified.

NOTE: *The designated responsible person shall:*

(a) Be located at ramp level.

(b) Maintain focus and not be distracted by any other tasks e.g. chocks/ground power.

(c) If possible, remain in direct visual contact with the flight deck.

(d) Continually monitor the ramp team's actions.

4.1.3.2.2 Arrival on stand

(a) The designated responsible person shall ensure the ground crew assigned to chock and power the aircraft are positioned at the head of the stand and whenever possible, stay in visual contact with the flight crew.

(b) Other ground crew members, providers and GSE must remain in the designated safe area at the head of stand, clear of the aircraft path, outside of the ERA. This area should be considered sterile for the entire arrival phase.

(c) Flight crew may shut one engine down for taxi, but this cannot be guaranteed. Ground crew shall act as though both engines are live and remain live after arrival. The anti-collision beacons shall remain switched on.

Figure 13 Engine numbering

(d) As much as possible, the designated responsible person shall ensure that no other staff, vehicles, or equipment approaches the aircraft.

4.1.3.2.3 Post-Arrival

(a) When the flight crew has brought the aircraft to a complete stop and the parking brake has been set, they shall signal 'brakes engaged' (see below) to the ground crew. This is to inform the designated responsible person that they have finished manoeuvring and that it is safe to approach.

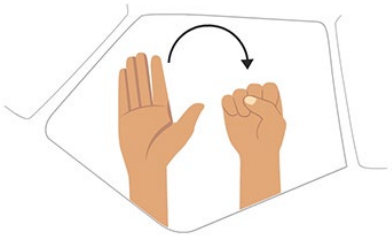


Figure 14 'Brakes Engaged' Hand Signal

(b) Upon confirmation from the flight crew that parking brakes have been engaged, the designated responsible person shall firstly respond to the flight crew that the message has been received and understood by replicating the hand signal, then indicate to the previously assigned person that it is safe to approach the aircraft and position the nose wheel chocks into place.

(c) Ground crews positioning nose gear chocks and providing ground power are only to approach the aircraft from the nose, never immediately in front of the nose wheels, or from its wing areas, staying clear of engines (see below).

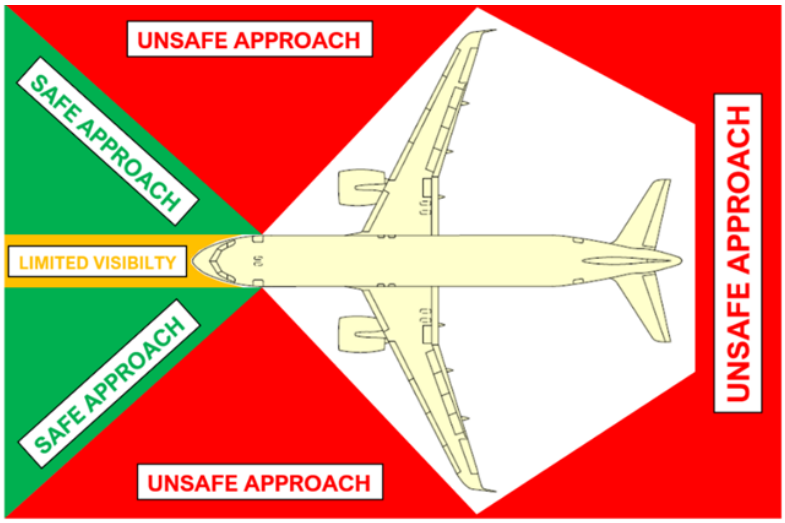


Figure 15 Safe Approach to Nose Wheel

(d) Once the nose wheel chocks have been positioned, the designated responsible person shall notify the flight crew, using the 'chocks inserted' signal (see below).

Figure 16 Chocks Inserted Signal

(e) Only after the aircraft nose gear is chocked can ground power be connected.

(f) Once the ground power has been connected and energised, the designated responsible person shall inform the flight crew by giving the 'ground power connected' signal (see below).

Figure 17 Connect Ground Power Signal

(g) Once flight deck systems indicate that the aircraft is accepting ground power, the flight crew shall shut down the engine(s) and switch off the anti-collision beacons. If there are any problems with the delivery of the power source, this must be clearly communicated to the ground crew using the 'negative/hold' signal (see below).

Figure 18 Negative / Hold Signal

(h) Only once the engine(s) have spooled down and the anti-collision beacons have been switched off, the designated responsible person shall indicate that it is to safe for ground service providers to approach the aircraft and commence servicing tasks.

4.1.4 Ground Support Equipment on Arriving Aircraft

4.1.4.1 Ground Power Unit and Fixed Power Unit

(a) It is permitted to pre-position a GPU inside the ERA provided there is a *marked* GPU parking position.

(b) Position the GPU on the starboard side of the aircraft *with the towbar facing away from the aircraft* as shown below.

(c) Set parking brake/chock the GPU.

(d) Ensure the GPU, while in operation, is positioned a minimum of 3m (10ft) from any fuelling vehicles and aircraft fuel vent exits.

(e) Fixed Power Unit (FPU) and leads shall be fully stowed/retracted during aircraft arrival as per the system design.

(f) Only connect GPUs/FPUs if requested/authorised by AirTanker Operations/flight crew.

(g) Before connecting to the aircraft, check the aircraft receptacles, lead(s) and plug(s) are clean and undamaged, with no sign of excessive wear or electrical burning to the contacts.

(h) Do not energise the GPU/FPU power output until the unit is connected to the aircraft.

(i) Connect the external power sources according to Airbus instructions, including number of supplies, required output, sockets to be used etc. Advise the flight crew of any discrepancies.

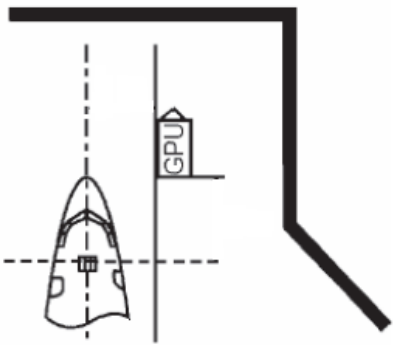
(j) Attach the power lead lanyards to the aircraft attachment point, where fitted.

(k) Request approval from flight deck before turning off and disconnecting the GPU/FPU cables.

(l) Turn off the GPU/FPU power output before disconnecting the cable(s).

(m) Always disconnect and stow the GPU power cables BEFORE connecting a tow tractor to the GPU

Example of GPU positioning:



4.1.4.2 Cooling/Heating Units/Pre-Conditioned Air (PCA)

Warning:

Before supplying air by external source:

Confirm with flight crew that APU bleed is off to prevent parallel operation.

Make sure at least one cabin door is open and remains open during air unit operation as per standard operating procedure.

Make sure that a motorised ground air supply unit is not near the aircraft. The engine exhaust pipe of the unit shall point away from the aircraft. Heat from the unit's exhaust can cause damage to the aircraft structure.

NOTE: *Make sure there is no blockage of the hose.*

(a) To connect PCA:

1. Open access panel;

2. Connect ground PCA unit to aircraft;

3. Start up ground PCA unit;

4. On the ground PCA unit, select the desired cooling or heating settings (air temperature and flow rate) and position the selector in the appropriate position.

(b) To disconnect PCA:

1. Shut down ground PCA unit;

2. Disconnect ground PCA unit from aircraft;

3. Close the access panel;

4. Retract the PCA hose to the fully stowed and secured position.

4.2 Aircraft Chocking

4.2.1 Wheel Chock Placement

(a) Make sure the required number of serviceable chocks are available taking account of the weather conditions.

(b) Chocks shall be kept clear of the lead-in line and kept in a safe area away from arriving aircraft and engine danger areas.

Warning:

Do not approach the aircraft to position chocks until the aircraft has come to a complete stop.

(c) One designated ground staff member will immediately place chocks forward and aft of the nose gear (as per 4.2.2). This is the first action to take place around the aircraft, and shall be completed before any other activity takes place.

(d) Before approaching the main gear, wait until:

1. Engines have been shut down and are spooling down;

2. Anti-collision lights are switched off.

3. Clearance to approach the aircraft has been given by the personnel responsible for the arrival operation.

(f) Walk towards the main gear in a path parallel to the fuselage, avoiding engine intake areas.

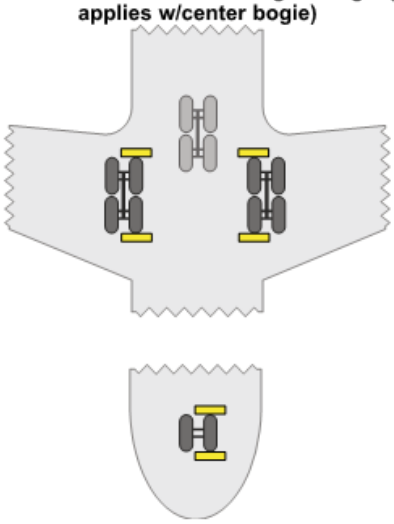
(g) Place chocks forward and aft of the main gear in accordance with the normal chock placement diagram.

(h) Notify the flight deck crew that the chocks are inserted.

4.2.2 Chock Placement

Applicable to: AirTanker military/civil & Voyager operations. For Leased operations, refer to 4.2.3.

Aircraft with double axle main-gear bogie (also applies w/center bogie)



Note: *Inside or outside main gear chocks are acceptable*

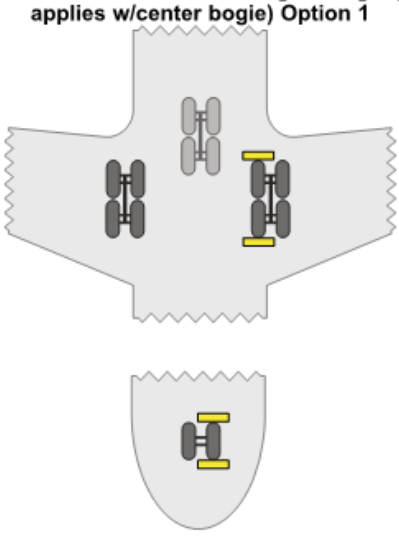
Because of the nature of its core operation, it is AirTanker policy to chock the aircraft as if in high winds and/or night stopping or maintenance.

4.2.3 Chock Placement for Other Operations

Applicable to: AirTanker Leased operations, for AirTanker military/civil & Voyager operations, refer to 4.2.2.

Other (leased-out) operations, where a quick turnaround is in operation may default to standard IATA chocking as follows:

Aircraft with double axle main-gear bogie (also applies w/center bogie) Option 1

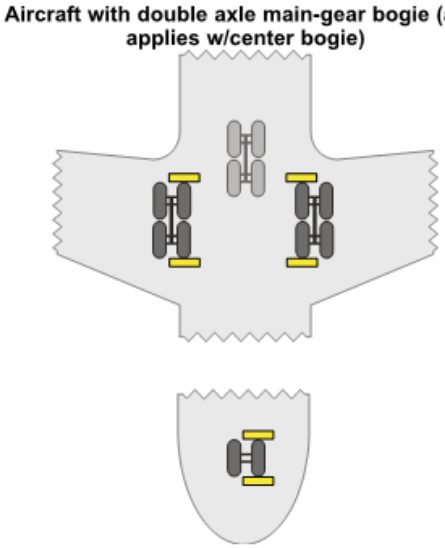


Note: *Inside or outside main gear chocks are acceptable*

4.2.4 Chock Placement for Aircraft Out of Service/Night Stop/High Winds

Applicable to: All operations

For all operations during high winds, or where the aircraft is out of service or night stopping, chock as follows:



Note: *Inside or outside main gear chocks are acceptable*

4.3 Aircraft Coning

4.3.1 Safety Cone Placement and Removal

Safety cones are a caution sign for drivers to maintain required safety clearances. Cones protect parts of the aircraft against collision by GSE.

(a) Prior to arrival of the aircraft, make sure there are sufficient serviceable safety cones to protect the aircraft type.

(b) Do not approach the aircraft to position cones unless all the following criteria are met:

1. Aircraft has come to a complete stop;
2. Engines have been shut down and are spooling down;
3. Anti-collision lights are switched off; and
4. Aircraft has been chocked.

NOTE: *'Spooling down' of engines can be identified as follows: reduced engine noise, visible fan speed reduction, lack of exhaust heat/thrust plume.*

(c) Place safety cones on the ground in accordance with the following diagrams–within a maximum of 1m (3ft) outward from the point of the aircraft being protected. Cones shall not be placed in high wind conditions.

(d) Additional safety cones may be needed as per operational requirements or local regulations.

(e) GSE shall not approach the aircraft until all safety cones have been placed (not applicable for the PBB or GPU, if required).

(f) All required safety cones shall remain in place until GSE and vehicle activities around the aircraft have ceased prior to departure of the aircraft.

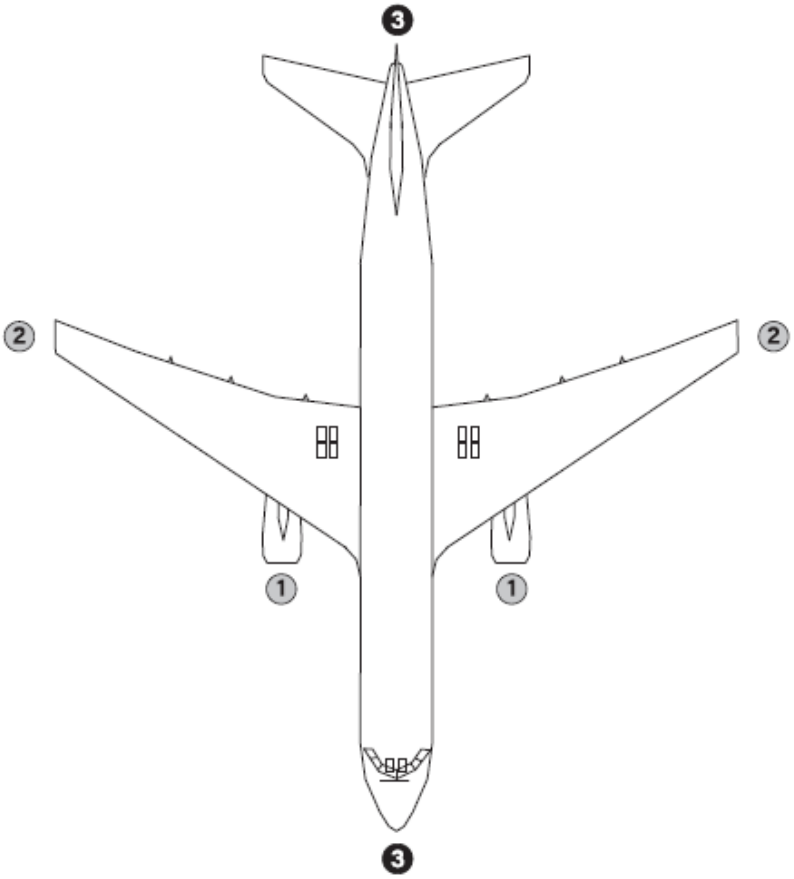
NOTE: *In some situations it may be necessary to re-position cones to allow GSE to be positioned. Cones shall not be placed under engines. Reposition the cones when the GSE is removed.*

(g) Ensure all vehicles has been removed from the ERA.

(h) Remove the safety cones from around the aircraft.

(i) When not in use, place the safety cones in the designated storage area.

4.3.2 Placement of Cones around AirTanker/Voyager Aircraft



CONE NUMBER	DESCRIPTION
①	Cones max. 1m in front of engine
②	Cones max. 1m from wingtip
❸	Additional cones to be placed at the applicable end(s) of the aircraft where immediately adjacent to a service road.

Caution:

Extra care and vigilance is to be exercised if handling activities continue whilst cones are not in position to warn agents of the proximity to engines, wingtips etc.

4.4 Aircraft Access Doors

4.4.1 General Safety Requirements

This section provides generic precautions and does not constitute training on opening/closing of aircraft access doors.

(a) Ground staff members shall not operate ANY aircraft doors unless they have been trained and authorised to do so by the AirTanker Flight/Ground Operations department.

(b) Seek assistance from AirTanker maintenance/dispatch/cabin personnel if any difficulty is experienced during normal door operation.

(c) If damage of irregularity is discovered, immediately report it to the supervisor, AirTannker maintenance or flight crew.

Caution:

Do not open cabin doors if wind speeds exceed 40kts. Doors shall be closed before wind speeds exceed 60kts.

4.4.1.1 Aircraft Door Dimensions and Locations

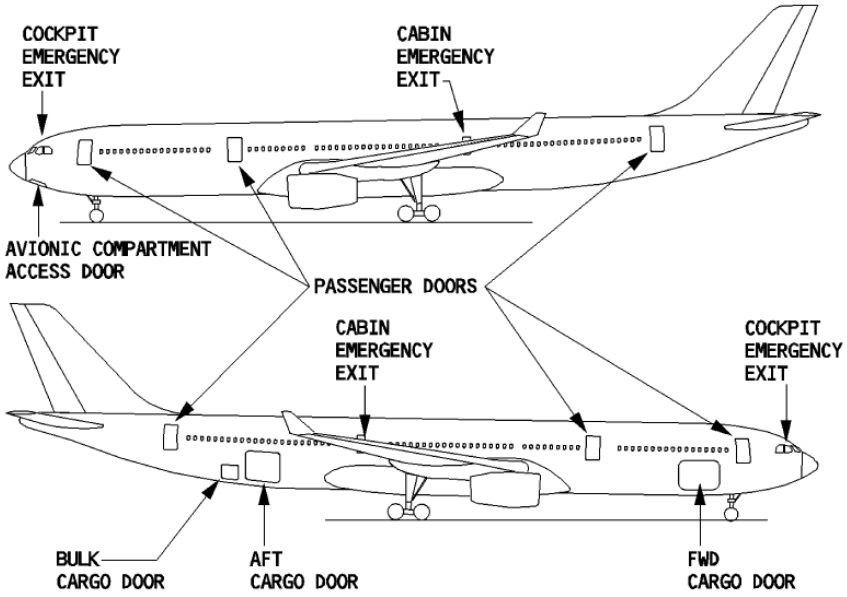


Figure 19 Aircraft Door Locations

Door	Distance from A/C Nose		Door Size		Sill Height			
					Minimum		Maximum	
Number	*Metres*	*Inches*	*Metres*	*Inches*	*Metres*	*Inches*	*Metres*	*Inches*
L/R 1	5.85	230	1.07 x 1.93	42 x 76	4.40	175	4.58	180
L/R 2	17.74	698	1.07 x 1.93	42 x 76	4.69	184	4.86	191
L/R 4	46.68	1838	1.07 x 1.93	42 x 76	5.47	215	5.70	224
Fwd Cargo	9.53	375	2.70 x 1.69	70 x 106	2.58	101	2.73	107
Aft Cargo	40.09	1579	2.73 x 1.68	107.5 x 66	3.22	127	3.45	136
Bulk Cargo	43.07	1696	0.95 x 0.95	37.4 x 37.4	3.36	132	3.58	141

Table 2. Aircraft Door Data

4.4.2 Cabin Access Doors

4.4.2.1 General

During the turnaround of AirTanker/Voyager aircraft, only cabin crew will be permitted to operate cabin doors.

Warning:

Cabin access doors shall only be in open position if there is an appropriate boarding device or appropriate equipment positioned at the door.

There is a risk of falling while operating cabin doors.

Slide deployments can be fatal. If an armed door begins to open, do not attempt to hold the door, as you risk being seriously injured or killed.

If a cabin access door is found open without a boarding device positioned at the door you shall immediately notify a supervisor or AirTanker representative.

(a) Do not attempt to close the cabin access door unless trained and qualified, *and there is a boarding device in place.*

(b) Guard the cabin access door until a qualified person is present to close it.

(c) The cabin door strap installed in aircraft doors is not considered an appropriate fall prevention device.

4.4.2.2 Opening Cabin Access Doors from Inside by Trained Crew

Ground staff shall:

(a) Knock twice on the door from outside with a raised ‘thumbs-up’ signal to indicate that a boarding device is properly positioned outside a door to be opened and that the door swing area is free of obstructions.

(b) Stand clear of the door and wait for the cabin crew to open.

(c) (As applicable) Assist cabin crew with moving the door to the fully opened position and engaging the gust lock as necessary.

(d) Ensure the safety rail of the boarding device is positioned so as to protect any risk of Falls from Height.

4.4.2.3 Opening of Cabin Access Doors from Inside by Authorised and Trained Ground Staff

Applicable to: VDIPS trained and qualified AirTanker staff or other trained staff verified by AirTanker Cabin Services and/or Ground Operations departments.

(a) Check that the door is disarmed.

(b) Check that all indicators show that it is safe to open the door.

(c) Check visually that a boarding device is positioned at the door.

Warning:

Under no circumstances shall the cabin door be opened, even partially, for the removal of galley waste.

There is a risk of falls from height.

(d) Open the door slowly and carefully in accordance with the instructions and markings labelled on the door, and/or your training.

4.4.2.4 Opening Cabin Access Doors from Outside with Crew/Ground Staff on Board

Applicable to: All operations

Opening Cabin Access Doors from Outside with Crew/Ground Staff on Board is not permitted.

4.4.2.5 Opening Cabin Access Doors from Outside with no Crew/Ground Staff on Board

Applicable to: VDIPS trained and qualified AirTanker staff or other trained staff verified by AirTanker Cabin Services and/or Ground Operations departments.

(a) Visually inspect the cabin access door and the surrounding fuselage for signs of damage.

(b) Check that all indicators show that it is safe to open the door i.e. residual pressure warning lights.

(c) If you cannot confirm that the door is disarmed, DO NOT OPEN THE DOOR.

(d) Once you confirm that the door is disarmed, open the door slowly and carefully in accordance with the instructions and markings labelled on the door, and/or your training;

(e) Move the door to the fully opened position and engage the gust lock.

4.4.2.6 Embarkation or Disembarkation Through Cabin Access Doors

Before allowing passengers or crew embarkation or disembarkation via a cabin access door, ensure that the boarding device is properly positioned at the door, and if stairs are to be used, that both guard rails (if applicable) are extended.

4.4.2.6.1 Loading/Unloading of Aeromedical Patients

Applicable to: Military/South Atlantic Air bridge operations only

AirTanker designates door R2 on the starboard side for use when loading/unloading aeromedical stretcher patients, or aeromedical patients who cannot use the passenger stairs.

Where an aircraft is configured in aeromedical role 3 (commercial stretchers over seats 37-39 port and starboard) AirTanker designates door R4 for use when loading/unloading aeromedical patients.

4.4.2.7 Closing Cabin Access Doors

(a) Make sure cabin access doors are closed immediately after servicing is completed;

(b) Receive confirmation from the crew that the cabin access door(s) may be closed for departure;

(c) Before removing the last boarding device from an aircraft, inform any ground staff on board the aircraft that the last cabin access door is being closed and the last boarding device is being removed from the aircraft;

(d) Look for any possible obstructions around the door area and remove them;

(e) Make sure the door gust lock is released and assist the person closing the door by moving it to the ajar position;

Warning:

Under no circumstances shall the cabin doors be closed without boarding devices / GSE in place.

There is a risk of falls from height.

(f) The intention to remove the boarding device shall be communicated to cabin crew or any other operational personnel on board. ***Do not remove the boarding device from the aircraft until the door is fully closed and locked.***

(g) If stairs were used at a cabin access door, retract the stair handrails if necessary to close the door. Remain at the top of the stair platform until the door is fully closed, and then descend the stairs before they are moved.

(h) Close the door slowly and carefully in accordance with the instructions and markings labelled on the door and/or your training.

(i) Before leaving the vicinity of the door, confirm that the door is properly seated flush with the surrounding airframe and that the exterior door handle is flush with the surface of the door.

(j) Seek assistance from aircraft maintenance personnel any time a door malfunction occurs.

(k) Do not retract equipment stabilisers in advance of the cabin door being fully closed *and personnel being fully clear of the stairs.*

(l) Before retracting equipment from the door, check to ensure the manoeuvring area is clear of all obstructions and personnel.

(m) If a passenger boarding stairs unit is used, then retract the passenger stairs canopy. Move the equipment to its approved parking position and engage any applicable restraints (such as closing the door on the passenger boarding stairs opening).

(n) Visually inspect the cabin access door and the surrounding fuselage for signs of damage, particularly in any areas where the boarding device was in contact with the aircraft. If damage is discovered immediately report it to AirTanker dispatch or maintenance personnel, and if available, the Pilot-in-Command.

4.4.2.8 Re-Opening Cabin Access Doors

If a cabin access door is not closed properly then it shall be re-opened and re-closed. Other situations when cabin access doors may need to be re-opened include the following operational situations:

(a) Subsequent delivery of catering and/or supplies, after the passenger boarding devices have been removed;

OR

(b) Re-connecting of passenger boarding devices after the initial removal.

If there is no crew on board the aircraft, follow the applicable Opening Cabin Access Doors procedures in this manual.

(c) Once the cabin access door has been closed in preparation for departure, do not attempt to re-open any aircraft door without the authorisation of the flight crew.

(d) If you believe a door shall be re-opened, you shall notify the flight crew through an open cockpit window or use the flight interphone system.

(e) If the crew requires a door to be re-opened, they will notify ground staff.

(f) Regardless of which party requested that the door be re-opened, once the flight crew gives clearance for the door to be re-opened, follow the actions/steps in: Opening Cabin Access Doors.

(g) If authorisation to re-open the door is not granted, do not attempt to re-open the door unless clearance is given by the flight crew.

4.4.3 Cargo Hold Access Doors

4.4.3.1 General

(a) Manual operation of an electrically or hydraulically operated cargo hold access door may only be performed by trained personnel.

(b) To access the cargo access door control panel where it is out of reach from the ground, use maintenance stairs in accordance with 3.1.3.3 or a belt loader in accordance with 3.1.3.7. ***ULD loaders shall not be used.***

(c) Allow adequate space for door clearance to avoid equipment obstructing the free passage of the door during opening/closing.

(d) The cargo access door control panel, where applicable, shall be closed when not opening/closing the cargo hold access door.

(e) Do not operate cargo doors unless trained and authorised to do so.

4.4.3.2 Opening Cargo Hold Access Doors

CAUTION:

Do not open the door if the wind speed exceeds 40 kts to prevent damage to the door or to the aircraft structure.

CAUTION:

Personnel shall close the door before the wind speed exceeds 60 kts to prevent damage to the door or to the aircraft structure.

CAUTION:

When operating Voyager/Airbus A330-MRTT doors, the lower edge of the door will swing down before going upwards.

(a) Before positioning loading equipment or any other ground support equipment at cargo doors and opening cargo doors, perform a visual check for any signs of damage to the doors or surrounding areas. If any irregularities are discovered during this visual check, report them to AirTanker dispatch or maintenance personnel and, if available, the Pilot-in-Command.

(b) Open the cargo doors in accordance with instructions found on the aircraft and training given on the Airbus A330-200 type.

(c) Allow adequate space for door clearance to avoid equipment obstructing the free passage of the door:

1. AirTanker / Voyager aircraft lower compartment cargo doors hinge upwards. Be aware that when opening or closing cargo doors, the lower edge of the door will swing down before going upward.

(d) If the cargo door will not open, do not use excessive force, tools or GSE to push or pull on the door to open it. Contact AirTanker dispatch or maintenance personnel, or the Pilot-in-Command for assistance.

Figure 20 Operation of ULD Locks

a) Locking handle and Flap,
b) Latching handle
c) Operating lever

	ITEM	ACTION	RESULT
1	Locking handle Flap	PUSH	
2	Locking handle	PULL	Locking handle unlocked
	Warning: stop the opening procedure if the red warning light flashes. Residual pressure could cause the door to open with a sudden force.		
3	Indicator flags (coloured red)	CHECK	Flags shall be out
4	Push button on Latching Handle	PUSH	Catch released
5	Latching handle	PULL DOWN FULLY	Door unlatched
6	Access Door		Access door fully opened
7	Door operation lever	SET TO 'OPEN' POSITION AND HOLD THERE UNTIL THE GREEN INDICATOR LIGHT COMES ON	Main cargo door fully opened

Table 3. Main Cargo Door Opening Procedure

The rear bulk hold door is opened and closed by manual operation only. The door opens inwards and upwards, locking into position in the roof of the bulk hold.

Figure 21 Bulk Hold Door Operation

	ITEM	ACTION	RESULT
1	External door handle button	PUSH	Handle comes out of its housing
2	Door handle	MOVE TO 'OPEN' POSTION	
3	Door	PUSH A SMALL DISTANCE INBOARD	
4	Door handle	PUSH INTO ITS HOUSING	
5	Door	PUSH INBOARD UNTIL HOOK ENGAGES	Hook engages with hook arrester – door fully open

Table 4. Bulk Hold Door Opening Procedure

4.4.3.3 Closing Cargo Hold Access Doors

(a) Before closing the cargo doors, ensure that:

1. The anti-roll-out system is in the raised position.

2. Load restraint and door protection nets are properly fitted.

3. Cargo compartment lights have been switched off unless required for carriage of Animal Vivant in Hold (AVIH).

3. The door area, including the door sill and frame are free of debris and other obstructions.

4. The door and door frame show no visible signs of damage.

5. Any damage discovered during the inspection of the cargo doors and surrounding areas/frames is immediately reported to AirTanker dispatch or maintenance personnel and the Pilot-in-Command.

(b) Close the cargo hold access door as per instruction and training.

(c) After closing the cargo hold access door, ensure:

1. The lock indicators are engaged/properly set, as applicable, and that the door is properly locked, handles are properly stowed, and panels are properly closed.

2. A visual check is performed for any signs of damage to the doors and surrounding areas.

	ITEM	ACTION	RESULT
1	Door operation lever	SET TO 'CLOSE' POSITION AND HOLD THERE UNTIL THE DOOR IS FULLY CLOSED	Main cargo door fully closed
2	Latching handle	PUSH UP FULLY	Door latched; push button on latching handle - engages with an audible 'click'
3	Locking handle	CLOSE	
4	Indicator flags (coloured red)	CHECK	Flags shall be in
5	Access Door	CLOSE	Access door fully closed

Table 5. Main Cargo Door Closing Procedure

Caution:

If a cargo door shall be re-opened prior to aircraft movement, approval from the flight crew via the ground staff responsible for the departure shall be obtained.

	ITEM	ACTION	RESULT
1	External door handle button	PUSH	Handle comes out of its housing
2	Door handle	MOVE TO 'OPEN' POSTION	Hook disengages from hook arrester
3	Door	LOWER INTO POSITION	*Note: Lower under control to fully closed position*
4	Door handle	MOVE TO 'LOCKED' POSITION AND PUSH INTO ITS RECESS	Door fully closed

Table 6. Bulk Hold Door Closing Procedure

4.4.3.4 Re-Opening of Cargo Access Hold Doors

(a) If a cargo compartment door is not closed properly, it shall be re-opened and re-closed.

(b) Once the pre-departure walkaround has taken place, do not attempt to re-open any aircraft door without the authorisation of the flight crew.

(c) If you believe a door shall be re-opened, you shall notify the flight crew through an open cockpit window or use the flight interphone system.

(d) If the flight or cabin crew requires a door to be re-opened, they will notify ground staff.

(e) Regardless of which party requested that the door be re-opened, if the flight crew gives clearance for the door to be re-opened, follow the actions/steps in: Opening Cargo Hold Doors.

(f) If authorisation to re-open the door is not granted, do not attempt to re-open the door unless clearance is received from the flight crew.

(g) If authorisation to re-open the door is granted by the flight crew, repeat the pre-departure walkaround checks according to 4.6.4.1.

4.5 Aircraft Loading

4.5.1 Supervision of Aircraft Loading and Unloading

4.5.1.1 Introduction

(a) The person performing the aircraft loading supervision task is responsible for the safe and efficient loading and unloading of the aircraft as well as the protection of the loads carried.

(b) The task will ensure the aircraft is:

1. Unloaded in accordance with LDM/CPM/OIR or any other incoming messages.

2. Loaded in accordance with the corresponding loading instruction report, (LIR) 5.12.

NOTE: *Any aircraft loading operation shall only start with the presence of ramp aircraft loading supervisor or person who is responsible for loading/unloading.*

4.5.1.2 Communication

When Verbal communication is used it is critical that combination of letters and numbers are pronounced and understood by those who transmit and receive voice messages by radio or telephone, regardless of their native language. The ICAO phonetic alphabet and numbering system shall be used by all parties when involved in aircraft turn-around.

TABLE 4.5.1.2A–ICAO PHONETIC ALPHABET AND NUMBERING SYSTEM

ICAO Phonetic Alphabet	
Alphabet	
A	ALPHA
B	BRAVO
C	CHARLIE
D	DELTA
E	ECHO
F	FOXTROT
G	GOLF
H	HOTEL
I	INDIA
J	JULIET
K	KILO
L	LIMA
M	MIKE
N	NOVEMBER
P	PAPA
Q	QUEBEC
R	ROMEO
S	SIERRA
T	TANGO
U	UNIFORM
V	VICTOR
W	WHISKEY
X	X-RAY
Y	YANKEE
Z	ZULU

ICAO Phonetic Numbers	
Numbers (pronunciation)	
0	ZE-RO
1	WUN
2	TOO
3	TREE
4	FOE er
5	FIFE
6	SIX
7	SEV en
8	Ait
9	NIN er
Decimal	DAY SEE MAL
Hundred	HUN DRED
Thousand	THOU SAND

NOTE: *Numbers shall be reported as single figures.*

To ensure all the load is accounted for accurately prior to departure, the parties responsible for loading and load planning shall clearly communicate and confirm:

(a) Flight Number

(b) Flight Leg (as applicable)

(c) LIR edition number

(d) All load by position/in compartments need to be reported, including NIL-Position/Compartment(s)

(e) Return load (stand-by load which is not loaded)

(f) All commodities and sub-commodities shall be reported

When communicating load figures using verbal communication between the person reporting the load and the person responsible for load planning task, the person responsible for load planning task shall always read back the information given according to the same guidelines above.

NOTE 1: *The same principle will also apply when load control office is verbally communicating information to the person responsible for the loading supervision task, and when loading information is verbally communicated between loading team members and loading team supervisor.*

NOTE 2: *To further prevent miscommunication during the aircraft turnaround handling and close out reconciliation process, implementation of standard verbiage for load discrepancy communication (see TABLE 4.5.1.2B) should be used between the person responsible for the loading supervision task and person responsible for load planning task and between the person responsible for loading supervisor task and loading team members.*

NOTE 3: *Efficient communication devices (e.g. headsets, high performance radio, phones etc.) should be provided to relevant involved teams in case of verbal communication in order to avoid misunderstanding in a noisy environment.*

TABLE 4.5.1.2B–LOAD DISCREPANCY COMMUNICATION

Discrepancy	Description
Offload	Planned load removed from aircraft for any reason (e.g. missing passenger/baggage, damaged cargo etc.)
Position change	Change of position within the cargo compartment or change of cargo compartment location.
Missing	Load not received for any reason, but planned on loading instruction report.
Weight	Difference between deadload weight as shown on LIR and actual weight of the load.
Incorrect load	Mismatch of received load for flight (e.g. incorrect ULD number, wrong flight number, incorrectly documented special load).
Restraints	Missing, damaged or malfunctioning floor locks, load restraints or nets.
Technical	Compartment technical issues (e.g. faulty locks, unserviceable stanchions, divider nets, other defects).
Not planned	Any deadload not included in LIR.

4.5.1.3 Actions Prior to Unloading

Prior to unloading, the person responsible for aircraft loading supervision task shall:

(a) Brief the unloading team members on safety and unloading requirements in accordance with the CPM/LDM/OIR (as applicable) including any special requirements, e.g., unloading sequence, special load items, restraint requirements, aircraft defect. Check to ensure the briefing and unloading instructions are understood by the persons responsible for aircraft unloading.

NOTE 1: *The offloading instructions report (OIR), which is a systematic plan for unloading, Should be issued prior to aircraft arrival.*

NOTE 2: *For transit flights, an OIR, may be issued.*

(b) Verify the aircraft registration with the registration on the CPM/LDM/OIR.

(c) Ensure the necessary equipment for unloading is available on the aircraft parking stand.

4.5.1.4 Actions During Unloading

During unloading, the person responsible for the aircraft loading supervision task shall:

(a) Cross-check the ULD/load against the CPM/LDM/OIR as the unloading progresses to ensure the correct sequence of unloading takes place in accordance with the specified timelines.

(b) For ULD unloading:

1. Carry out visually detectable damage checks during unloading in accordance with 4.5.9.3.

2. Check ULD placards have been properly filled out with the correct information in accordance with 4.5.9.2.

3. Perform a cross-check against CPM/LDM/OIR to ensure the following details correspond with each other:

(i) ULD number shown on the ULD identification tag

(ii) ULD identification number printed or stamped on the ULD

(iii) Confirm ULD unload information codes (e.g., X = empty ULD)

4. Ensure that there are no signs of leakage from ULDs.

(c) For bulk unloading:

1. Perform a visual inspection of all items during unloading to ensure no damage/leakage.

2. Ensure the load distribution is in accordance with the LDM.

(d) Ensure special equipment (e.g., tie-down straps, load spreaders, plastic sheeting for wet cargo) is unloaded, as required.

(e) Log any irregularities in the unload sequence noted during unloading and report as per operating airline procedures (see 4.5.1.5 (e)).

(f) Ensure, where applicable, transit loads are not offloaded or over-stowed.

(g) If required, Delivery at the Aircraft (DAA) bags/items shall be delivered as per operational requirement.

(h) If possible, organise immediate transportation of arriving ULDs and/or carts containing baggage, cargo and/or mail (see 4.5.6.2) and as per specified timelines.

4.5.1.5 Actions After Unloading

After unloading has been completed the person responsible for aircraft loading supervision task shall:

(a) Carry out a hold inspection, in accordance with 4.5.5.1 and action issues accordingly.

(b) Ensure the nets and straps are properly stowed and cargo access door checks are performed in accordance with 4.4.3 in case the cargo access doors need to be closed.

(c) Sign the OIR if applicable, (See *AHM 514 and AHM 515*) and in doing so confirm that:

1. Aircraft has been unloaded in accordance with OIR

2. Load was unloaded in a manner that prevents damage or spillage

(d) Close the cargo access doors if the aircraft is to be left unattended (see 4.4.3.3).

(e) If irregularities are reported during the unload sequence report to a member of the crew or Operations Control Centre.

4.5.1.6 Actions Prior to Loading

Prior to loading, the person responsible for the aircraft loading supervision task shall:

(a) Brief the loading team members on safety and loading requirements in accordance with the LIR, including any special requirements, e.g., loading sequence, special load items, restraint requirements, aircraft defect.

NOTE: *Check to ensure the briefing and loading instructions are understood by the persons responsible for aircraft loading.*

(b) Verify the aircraft registration with the registration on the LIR.

(c) Carry out a hold inspection prior to commencing loading, in accordance with the requirements detailed in 4.5.5.1 and action issues accordingly.

(d) Assemble and check loads against the LIR to ensure compliance with:

1. Special handling codes and related information.

2. Destination airport. (Confirm destination of the loads)

3. Confirm preliminary Notification to Captain (NOTOC) as per *AHM 381*, where applicable.

4. Special load requirements, e.g., live animals, perishable, valuables, DG, temperature sensitive products etc.

(e) For ULD loading:

1. Carry out a visually detectable damage checks prior to loading in accordance with 4.5.9.3.

Note: *Ensure all loaded ULDs are serviceable. Do not load damaged ULDs.*

2. Ensure ULD placards are properly filled out with the correct information as detailed in 4.5.9.2.

3. Perform a cross-check to ensure the following identification numbers correspond with each other:

(i) ULD number shown on the LIR

(ii) ULD number shown on the ULD identification tag

(iii) ULD identification number printed or stamped on the ULD

4. Cross-check ULD gross weights.

5. Confirm ULD load information codes (e.g., X = empty ULD).

6. There are no signs of leakage from ULDs.

7. All ULDs are safe to move and will not shift, roll, or topple while maneuvering/loading onto the aircraft.

(f) Ensure all loads are protected from adverse weather. Special attention shall be given to live animals and/or perishables.

(g) For bulk loading, confirm

1. Cart identification labels are correctly filled in where applicable.

2. Loose pieces/weight information is correct, where applicable.

(h) A visual inspection of all items of bulk load shall be performed prior to loading to ensure they are properly packed and will not damage/leak or contaminate the aircraft. (All items are fit to be loaded on the aircraft).

(i) Ensure the load is protected from adverse weather conditions, if applicable.

(j) Allow no contamination (e.g., snow, ice, water, wood, plastic) on the ULD or bulk load/loose load pieces.

(k) Ensure special equipment is available (e.g., tie-down straps, load spreaders, plastic sheeting for wet cargo), as required.

(l) Where possible, organize and position the ULDs and/or carts containing baggage, cargo and/or mail in hold and load order.

4.5.1.7 Actions During Loading

During loading, the person responsible for the aircraft loading supervision task shall:

(a) Cross-check the ULD/bulk load against the LIR as the loading progresses to ensure the correct sequence of loading takes place in accordance with the specified timelines (e.g., where applicable, transit loads are not over-stowed for transit stations).

(b) Regularly check with loading staff members who are physically loading the aircraft and, in particular, attend to any issues raised concerning loading.

NOTE 1: *Stop/suspend loading operations where an irregularity is discovered e.g., aircraft/cargo hold/ULD damage, damage to or leakage from load items, cargo loading system malfunction*

NOTE 2: *Log any irregularities in the load sequence noted during loading and report as per operating airline procedures (see 4.5.1.8).*

(c) Liaise with the person responsible for the weight and balance calculation task and receive authorization for any deviations, including any last-minute changes to the LIR, as documented in 5.16. The person responsible for the weight and balance calculation task shall check the deviation and confirm whether possible or give an alternative solution.

NOTE: *Any load information change between the LIR and actual loading (e.g., changes in transfer bag figures, cargo figures) shall be communicated to the person responsible for the weight and balance calculation task as soon as known to avoid unnecessary reloads, weight and balance issues, and last-minute pressure.*

(d) If an authorised change of load order occurs, provide confirmation of change to the persons responsible for the aircraft loading task prior to recommencing loading in the hold.

(e) Protect all loads from adverse weather. Special attention shall be given to live animals and/or perishables.

(f) Ensure special loads are handled and loaded as per instructions provided.

(g) Where applicable remove any loose plastic or any other material used to protect load from bad weather.

(h) Visually inspect all loads requiring special handling to ensure they are secured against shifting. Ensure all necessary nets have been closed. 4.5.7

(i) If required, Delivery At the Aircraft (DAA) bags/items shall be loaded as per operational requirements.

4.5.1.8 Actions After Loading

After loading has been completed, the person responsible for the aircraft loading supervision task shall:

(a) At the completion of loading, receive confirmation of the following from the persons performing the aircraft loading task:

1. Loading status of the aircraft is in compliance with the latest edition of the LIR.

2.Loads are secured and that all locks, stops, nets, net stanchions, fire blankets are raised, closed, locked or installed and that load securing is correctly applied (see 4.5.7)

(b) Where the operating airline requires additional signature fields to be completed on the LIR (e.g., by the person performing the loading of each hold), ensure the applicable person(s) have signed the required fields in accordance with operating airline requirements.

NOTE: *The person responsible for the aircraft loading supervision task still maintains overall responsibility for the loading of the aircraft.*

(c) Sign the LIR, and in doing so confirm that:

1. Aircraft has been loaded in accordance with the final edition of the LIR including any authorised changes.

2. Load is secured (in a manner that prevents movement or spillage during flight) and locks, stops, nets, fire blankets are correctly installed, raised, locked.

(d) If applicable, sign a NOTOC to confirm or otherwise state that:

1. There was no evidence of leakage from the package(s) or any leakage from the ULDs loaded on the aircraft.

2. The package or ULD is loaded in the designated position and secured.

NOTE: *The LIR and the NOTOC shall be retained in accordance with applicable regulations.*

(e) If irregularities are reported during the load sequence report in accordance with operating airline procedures

(f) Ensure cargo hold access door checks are performed in accordance with 4.4.3.3

4.5.2 Aircraft Ground Stability

Applicable to: All operations

Caution:

If deviating from the standard distribution it is the responsibility of the GHA to ensure aircraft ground stability at each stage of loading. When planning a non-standard lower hold load, the passenger embarkation and disembarkation sequences shall be taken into account.

Unloading or loading may cause the aircraft to become unstable or could, in extremis, cause tipping.

As a general principle, the sequence below shall be adhered to:

(a) Unload the aft hold first.

(b) Unload the forward hold last.

(c) Load the forward hold first.

(d) Load the aft hold and bulk last.

NOTE: *If this sequence cannot be followed, check with AirTanker Operations (Dispatch) for instructions about the correct unloading/loading sequence.*

4.5.3 Safety Requirements Specific to Aircraft Loading and Unloading

Applicable to: All operations

4.5.3.1 General

(a) Holds and compartments shall only be entered or exited by using the appropriate loading equipment, which shall be positioned and secured at the aircraft cargo access door.

(b) Loading equipment shall remain in position while personnel are still in the cargo hold.

(c) Equipment operators shall ensure that other personnel are not entrapped by movement of loads, pallets and/or containers, either in the aircraft or on the loading equipment.

(d) Carts shall not be used to gain access to cargo holds.

(e) Personnel shall walk around chains of carts and dollies to access required areas. Do not walk between carts and dollies even when they are stationary on the ramp.

(f) Hinged side gates of loaded carts should be lowered carefully in case loads fall out and cause injury.

(g) Take care when pulling or pushing carts especially when ramp conditions are slippery. When necessary, obtain assistance.

(h) Use correct manual handling techniques and practices when handling heavy items. Get assistance when moving heavy articles.

4.5.3.2 ULD Loading and unloading

(a) For ULD loader operations see 3.1.3.8

(b) Inspect all ULDs before loading/unloading so that no nets, straps, protective materials can drag or get jammed in rollers, ball mats or wheels of Power Drive Units (PDUs).

(c) Push (do not pull) containers on and off dollies and loaders.

(d) ULDs on dollies or transporters shall be secured to prevent movement using locks, stops, rails or straps, except when the load is being transferred to/from the equipment.

Caution:

Do not place ULDs directly on the ramp surface.

Warning:

During loading/unloading operations:

1. Walkways inside the cargo decks shall be used for step safety.

2. Loading lanes shall be clear of personnel when ULDs are moved.

3. Moving ULDs may cause injuries to personnel.

4. Locks may only be raised after the ULD comes to a complete stop in its final position.

5. When ULDs become stuck, personnel may assist with the dislodging of the unit after coordinating with the Cargo Loading System (CLS) operator. In such cases, all personnel shall be aware of sudden ULD movements.

6. The CLS equipment operator shall at all times be aware of where on personnel are positioned.

Warning (cont.):

7. The access door to the in-plane systems is only to be opened when ULD movement within the hold(s) is required (see 3.1.3.8).

Note: *Certain ULDs can tip during movement as the base is smaller than the top, causing a high center of gravity.*

4.5.3.3 Bulk Loading and Unloading

(a) Where a belt loader is used, position items on/off the belt loader see *IGOM 3.1.3.7*.

(b) Where possible avoid placing loads directly on the ramp, especially if the ramp is contaminated.

(c) When loading/unloading aircraft directly from the ramp without the use of equipment:

1. Position carts/dollies to/from the aircraft in a parallel direction to the fuselage, maintaining a gap of at least 1m (3 ft.) from the fuselage.

2. Always turn tractors and carts/dollies away from the aircraft.

Note: *For any load items that cannot be safely loaded directly from the ramp, appropriate loading equipment (e.g., belt loader) should be used to avoid injury or damage.*

(d) Ground personnel carrying out bulk loading task shall:

1. Use the right lifting techniques to reduce on the risk of injury.

2. Be accounted for once inside the aircraft hold and after completion of loading for safety reasons.

4.5.3.4 Shipments Requiring Special Handling

(a) General

1. All shipments requiring special handling will be identified on the Load Message (LDM) or Container Pallet Message (CPM) for an arrival flight or under a NOTOC for departing flights.

2. Comply with any special handling requirements. Be alert for special load and/or dangerous goods shipments.

3. Always follow the orientation markings and/or special handling instructions as applicable while handling.

4. Make sure that packages with directional handling labels are kept in the correct orientation e.g. THIS WAY UP.

5. Always observe the specific instruction labels and markings i.e. Cargo Aircraft Only (CAO), FRAGILE, TOP, THIS SIDE UP.

6. Ensure shipments labelled ‘Cargo Aircraft Only’ are not loaded into passenger aircraft.

7. Always handle fragile items with care.

(b) Dangerous Goods

Transportation shall be in accordance with the IATA Dangerous Goods Regulations (DGR) Manual. Refer to Chapter 8 for specific instructions.

(c) Live Animals

Transportation shall be in accordance with the IATA Live Animals Regulation (LAR). Also, check Chapter 7 for specific limitations.

(d) Wet Cargo

The following types of cargo, if not subject to the IATA Dangerous Goods Regulations (DGR), shall be considered as wet cargo:

1. Liquids in watertight containers;

2. Wet materials not packed in watertight containers, e.g. fish packed in wet ice, fresh or frozen meat, casings (fresh animal guts), wet hides, skins etc;

3. Goods which by their nature may produce liquid, e.g. larger live animals (usually mammals) where presence of faeces and urine is likely;

4. Fruits/vegetables with high moisture, e.g. berries.

NOTE: *Live animals such as birds, reptiles, insects and certain molluscs (terrestrial) in appropriate animal containers do not pose a higher risk for corrosion than normal baggage/cargo and are therefore excepted. Refer to IATA Live Animals Regulations (LAR).*

Caution:

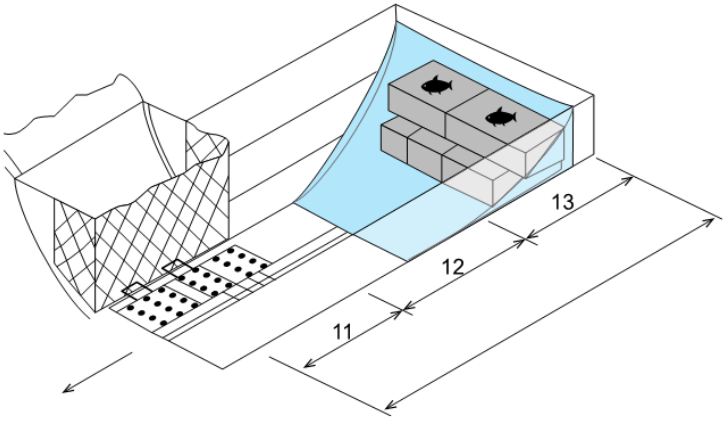
Spillage or leakage during carriage by air could lead to corrosion or other damage to the aircraft structure or its components, or damage to other loads.

5. The person responsible for the aircraft loading supervision task shall ensure the wet cargo is properly packed and free of leakage. Do not load damaged or leaking packages.

6. Loading precautions:

(i) Spread plastic sheets or tarpaulins to protect the aircraft floor and walls and catch any spillage or leakage. Use absorbent material as required by the nature of the spill risk.

(ii) For wet cargo in containers which are not watertight: contact AirTanker Operations, see 0.7.



NOTE 1: *When wet or damp, the strength of some packaging can be considerably reduced. Special attention shall be given to avoid crushing of the packages when stacking to several levels.*

NOTE 2: *For reference regarding packing of wet cargo and temperature sensitive packaging refer to IATA Perishable Cargo Regulations (PCR) and IATA Temperature Control Regulations (TCR).*

(e) Perishable and temperature-sensitive healthcare products.

During transportation, loading and unloading of perishable and temperature-sensitive healthcare products, ensure that they are:

1. Handled in a manner to minimize the waiting period

2. Not exposed to adverse environmental conditions

NOTE 1: *Perishables must be moved into storage (e.g., cooler, freezer) appropriate for the type, in accordance with the Perishable Cargo Regulations (PCR).*

NOTE 2: *Pharmaceuticals must be moved into storage (e.g., cooler, freezer) appropriate for the type, in accordance with the Temperature Control Regulations (TCR).*

(f) Dry Ice

Dry ice (solid carbon dioxide) is used as a refrigerant for temperature sensitive health care products e.g., vaccines and other life sciences products to ensure that they are maintained at the required temperature throughout the supply chain.

1. Where dry ice is present in the cargo being loaded or unloaded the ramp, staff must be aware of the precautions required to ensure that there is no risk of suffocation from elevated CO_2 levels from sublimating dry ice.

2. Verify the documentation for the presence of dry ice as a refrigerant (code ICE) and instruct the personnel that the cargo compartment shall be allowed to vent after the cargo access door is opened and before entering the cargo compartment

3. Open the cargo compartment door and stand back. No person shall enter the hold. Cargo compartment where dry ice is present must be allowed to vent after cargo compartment door is opened.

4. Cargo access doors shall remain open to clear dry ice vapors before you enter the hold or compartment.

Warning:

1. There is a risk of suffocation when entering a compartment containing dry ice.

2. Anyone entering a cargo compartment before the dry ice vapour has dispersed may be overcome with dizziness and shortage of breath due to lack of oxygen. In such circumstances the person should be removed immediately to fresh air and, if breathing is seriously affected, be taken to medical aid.

4.5.4 Unloading

4.5.4.1 Scaling Process

If the flight crew experiences a handling irregularity on take-off, the flight crew may request aircraft scaling (weighing of all baggage and cargo on board) at the arrival station. The aircraft shall not be unloaded when a scaling has been requested until the process has been initiated. Contact the airline representative for details.

4.5.4.2 Safety Precautions for an unload

(a) Before positioning GSE and/or opening cargo hold access doors, perform a visual check for any signs of damage to the doors or surrounding areas (see 4.4.3).

(b) Check to ensure that the aircraft hold load has not shifted during the flight.

1. Verify the contour of the cargo loads passing through the doorway to ensure sufficient space between the doorway depressor seals and the cargo load is assured.

2. Contact the person responsible for the aircraft loading supervision task if the shifted load will not safely exit the door.

(c) Check for incorrectly loaded ULDs (i.e. locks not raised, locks or side rails overridden).

(d) Check ULDs during unload for damage, leakage and load stability.

(e) Check for damage to the aircraft hold as the unload progresses and also after completion of unloading (see 4.4.3).

NOTE: *Immediately report any discrepancies e.g. spills, unusual fumes or smells, etc. prior to or during the unloading process to the person responsible for aircraft loading supervision task or as required by the operator or authority, immediately.*

4.5.5 Cargo Hold Inspection

4.5.5.1 General

(a) A cargo hold inspection shall be performed:

1. After aircraft unload is complete

2. Prior to loading if this does not follow immediately after unloading is complete

3. In case the aircraft was unattended between unloading and loading; or

4. There was a change of persons responsible for the aircraft loading and supervision task.

(b) The person undertaking the cargo hold inspection shall perform a visual check of all cargo holds to ensure:

1. No damage of compartment floors, walls, ceiling, door frames, panels, door.

2. No missing, damaged or malfunctioning floor locks, load restraints or nets.

3. No spills.

4. No Loads other than transit loads have been left on-board the aircraft.

5. Any other items that should not be present in the hold have been unloaded.

(c) The person responsible for undertaking the cargo hold inspection shall provide positive confirmation that the inspection has been carried out to the person responsible for the aircraft loading supervision task prior to commencing loading of the aircraft, if appropriate.

(d) Any damage or discrepancies observed shall be reported to the person responsible for the aircraft loading supervision task or the weight and balance calculation task as a minimum.

NOTE: *A check shall be conducted in a hold even if on arrival the hold was reported as being empty.*

(e) Any other items that should not be present in the hold.

4.5.5.2 Cargo Hold Damage

Any damage such as holes, tears or detachment to compartment liners may reduce their effectiveness, permitting air to enter the compartment and fire suppression agent to escape, reducing the capability to handle a fire event and may lead to specific loading limitations, therefore:

(a) Any technical malfunction, damage or irregularity discovered shall be reported to the supervisor, Company Representative, Ground Engineer or PiC if available for further action as applicable.

(b) Adhere to any resulting load limitations according to AirTanker's instructions.

(c) Inform the onward station(s) of the load limitations according to the instructions of AirTanker's representative, if the defect cannot be rectified before departure.

4.5.5.3 Spills in Cargo Holds

(a) Spills can occur in cargo holds during unloading and/or loading and in flight due to:

1. Improper packaging

2. Damage due to mishandling prior to loading

3. Improper loading in the compartment

(b) Spills can be of liquids, gels, or material in a powdered or granulated form.

(c) Spills can be hazardous, corrosive, flammable, explosive, toxic, poisonous, etc. Even water can cause serious damage to electrical components and systems.

(d) Spills can be corrosive to the aircraft structure. Mercury spills are particularly corrosive to the extent that the affected aircraft structure may have to be completely replaced if the spill is not cleaned up quickly.

(e) It is essential that any spill is reported immediately so that corrective action can be taken.

(f) Initiate the local spill response plan for spill events.

(g) Request information from the respective Cargo Terminal Operator about the nature of what has leaked as well as the Safety Data Sheet, if applicable.

4.5.6 Loading

Applicable to: All operations

4.5.6.1 Load Handover

The handover process between cargo handling (cargo warehouse), baggage handling (baggage make-up area) and ground handling (ramp) departments shall be done systematically to ensure a safe departure.

Depending on the airport infrastructure and/or local agreements, the handover of cargo, mail and baggage to the ramp should be done at a dedicated handover point.

4.5.6.2 Load Transportation

Prior to transporting cargo and/or mail from the cargo warehouse or baggage from the baggage make-up area, the equipment operator shall ensure that:

(a) The GSE used for transportation is serviceable. For GSE operations see 3.1.3.

(b) A visual inspection of all loads is carried out to ensure that:

1. The cargo, mail and/or baggage for transport is the correct load for the departing/arriving flight(s).

2. No nets, ropes, straps or protective materials can drag on the ground or get jammed in rollers, ball-mats or wheels.

3. All built-up cargo/mail/baggage is safe to move and will not shift, roll or topple.

4. There Is no damage to the load.

(c) All loads are protected from adverse weather via use of tarpaulins or covered carts. Special attention shall be given to live animals and/or perishables. When using tarpaulins, all straps shall be securely fastened to the cart.

4.5.6.3 Load Delivery for Departure

Depending on the location of the handover point the person responsible for aircraft loading supervision task or the person responsible for receiving the load shall:

(a) As required by the airline and if applicable, receive all documentation, pouches and special instructions for the specific flight.

(b) Carry out an inspection of all of the load to ensure:

1.The load is correct for the departing flight(s).

2. No damage has occurred during the transport process.

3. There is no evidence of tampering with the load (e.g., cuts, tears to plastic foil).

4.No nets, ropes, straps, protective materials, etc. should drag on the ground or get jammed in rollers, ball-mats or wheels while maneuvering or while being loaded onto aircraft.

5. All dollies are serviceable, and all restraints are engaged to secure the ULD on the dollies prior to the ULD being loaded onto the aircraft.

(c) Immediately report any damage of the load(s), whether it is discovered when the load arrives on stand or occurs during loading.

1. Report torn or missing baggage tags and cargo labels.

2. Do not load unless discrepancies are corrected.

4.5.6.4 Loading Process

(a) General

1. A330-MRTT has conventional lower hold configurations made up of forward holds 1 and 2, as well as rear holds 3, 4 and 5. Holds 1 – 4 are used for the loading of Unit Load Devices (ULDs) and has a semi-automatic loading system. Hold 5 is for bulk loading only. Aft cargo-hold Compartment 3 and 4 and bulk cargo hold Compartment 5 are separated by a lateral divider net. Only bulk cargo hold compartment 5 is heated. Compartment 5 is not available for bulk loading cargo on aircraft fitted with a FRU.

Further details are contained in Annex A to Chapter 5, 5.20.8.

2. Loading shall not commence if there is no LIR either electronic or hard copy, unless otherwise specified by AirTanker.

3. Prior to loading commencing, a cargo hold inspection check (see 4.5.5), shall be performed.

4. Carry out a Visually Detectable Damage Check prior to loading.

5. Carry out a visual inspection of all items of bulk load prior to loading to ensure no damage/leakage.

(b) Report any issues, errors, changes or other loading matters to the person responsible for the aircraft loading supervision task immediately.

(c) Any signs of hold damage must be reported immediately.

(d) While loading ULDs into position in the compartment, the equipment operator shall ensure:

1. When ULDs are loaded, raise/lock the ULD restraints to secure the ULD in applicable position, in accordance with the LIR.

2. While loading ULDs:

(i) The edges are either guided by the safety rails or fit under the stops/locks/guides.

(ii) The height of the pallet allows for sufficient clearance in the door opening.

(iii) Control the speed at which ULDs are moved within the aircraft, slowing the ULD prior to reaching its allocated position to prevent crashing.

(iv) They have no protrusions or overhangs that will damage the aircraft cargo access door opening or the interior of the aircraft cargo hold.

NOTE 1: *A tactile check shall be performed by checking the security of each lock to ensure serviceability. A systematic double-check of the restraint system and of special loads (e.g., heavy (HEA), AVIH, human remains (HUM), etc.) before departure is recommended.*

NOTE 2: *All ULD restraints shall be raised, unless specified by the operating airline procedures.*

NOTE 3: *ULD restraints do not have to be raised in cargo holds that are completely empty, unless otherwise specified by operating airline procedures.*

NOTE 4: *If applicable, ensure fire barriers are installed as the hold is loaded.*

(e) While loading into bulk holds, the person carrying out the loading of baggage/cargo/mail shall:

1. Load in accordance with LIR requirements.

2. Cross-check cart labels to ensure the load is correct.

3. Check cargo, mail and baggage labels to ensure correct destination/flight number.

4.Ensure any leaking or damaged loads are not loaded and the supervisor is informed immediately. Any contaminated load is kept separately.

5. Ensure applicable special load items are tied down (see 4.5.7) or otherwise secured in accordance with operating airline requirements.

6. Install/close/secure compartment/bay divider nets, barrier nets, fire curtains, door nets and stanchions, as applicable.

7. Ensure light packages are not loaded or wedged between heavier items.

8. Ensure the necessary clearance between the load and aircraft hold ceiling is achieved to avoid any obstruction or damage to aircraft smoke detector/fire suppression system. Specific requirements given by the operating airline shall be followed.

9. Loads shall be correctly stacked to achieve maximum volume.

10. Confirm the final loading status to the person responsible for the aircraft loading supervision task.

NOTE 1: *Between unload and onload, compartment nets shall be secured inside aircraft compartments and not left hanging outside to avoid clips and attachment points striking the fuselage, especially during adverse weather.*

NOTE 2: *Ensure the ramp area is clear of all wooden and/or plastic pallets and other load related material after completion of loading or unloading.*

4.5.6.4.1 Unit Load Devices (ULDs)

(a) A variety of ULDs can be loaded to the A330-MRTT aircraft.

1. Containers: LD3 (AKE), LD3 (AKN), LD6 (ALF)

2. Pallets: LD9 (PMC), LD7 (P1P/PAG), 463L/SL4 (military type pallet).

(b) The above list does not encompass all ULD types. Other container/pallet types may be accepted for loading on approval from AirTanker.

Further details are contained in Annex A to Chapter 5, 5.20.8.4.

For serviceability checks refer to the serviceability placard on the ULD.

For further information regarding ULDs refer to the IATA ULD Technical Manual.

4.5.7 Securing of Load

4.5.7.1 General Rules

When transporting a load in an aircraft, it shall be secured such that it shall not:

(a) Move during the flight, which could dangerously affect the weight distribution and balance of the aircraft.

(b) Cause damage to the aircraft structure or other important parts of the aircraft.

(c) Cause damage to another load or become damaged itself.

(d) Cause injury to passengers and crew in case of an emergency landing.

(e) Cause injury to ground handling personnel during loading and unloading.

4.5.7.2 Bulk Compartments

(a) The Load in bulk compartments is generally secured by door nets and sector divider nets. Ensure that following items are always secured:

1. Barrels or drums filled with liquids
2. Cages or boxes with live animals (AVI)
3. Heavy pieces (HEA) weighing 150 kg (330 lb) or more
4. Coffins with human remains (HUM)

NOTE: *Do not load baggage or other shipments on top of the coffin.*

5. Dangerous Goods (see 8.10.4)
6. Powered mobility devices
7. Load which needs spreading
8. Fragile loads

(b) The following loads shall not move vertically upward or horizontally during flight. If the available volume of the compartment or net section is not volumetrically filled (three quarters of the height) with load, additional securing is necessary for:

1. Load which is sensitive against shocks or tilting.

2. Wet cargo.

3. High density packages.

4. Pipes, tubes, bars, beams, planks, poles or other objects of a penetrating nature.

(c) If long pieces do not fit into one net section and the divider net cannot be closed correctly, check with the operator's GOM for load restrictions. Refer to operating airline procedures for further requirements.

(d) For battery-powered wheelchair and mobility devices ensure:

1. It is loaded/unloaded in such a manner that prevent unintentional activation during transport and the battery terminals shall be protected from short circuits (refer to *IATA DGR*).

2. The battery is either adequately protected against damage by the design of the mobility aid and securely attached to the device with the electrical circuits being isolated following the manufacturer's instructions, or

3. Removed from the mobility aid following the manufacturer's instructions.

Note: *Battery-powered wheelchairs or mobility devices for use by passengers are classified in three main categories based on the battery type that powers the device as defined in DGR Manual 2.3.2.2-2.3.2.4*

4. It does not roll when moving up the loading belt in an upright position. If tilting is necessary ensure the passenger has consented, and can only be done on the side without the device controls

5. It shall be secured against movement in the cargo compartment, by use of straps, tie-downs or other restraint devices.

6. The mobility aid, including batteries, electrical cabling and controls shall be protected from damage, including damage caused by the movement of baggage, mail and cargo.

7. Any battery-powered mobility aid shall not be stowed together with loose loaded (bulk) items within a unit load device (ULD) or other loads loaded on top.

NOTE 1: *When securing use tie-down points, keep the mobility aid in an upright position where possible, secure the mobility aid using the base frame, avoid unnecessary tilting of the mobility aid, ensure adequate clearance when loading/unloading, avoid over-tightening tie-down straps or other securing devices, load last when possible.*

NOTE 2: *The pilot-in-command shall be informed of the location of the mobility aid with installed batteries, removed batteries and spare batteries.*

4.5.7.3 Securing of ULDs

4.5.7.3.1 Types of Lock

There are two types of ULD restraint locks as follows:

- Longitudinal (providing forward/aft restraint)
- Lateral (providing sideward restraint)

NOTE: *All lock types are manually operated.*

Longitudinal (Forward/Aft)

Forward and aft locks may be in either single, double or triple rows with their use dependant on ULD type/load configuration. Operation of the Locks, including double or triple row combinations is in a standard way as described in the following paragraphs.

Forward/aft lock types are of a spring loaded design, i.e. if not in the up (locked) position, locks will drop to the floor under spring tension.

WARNING:

Extreme care shall be taken when locking ULDs in position.

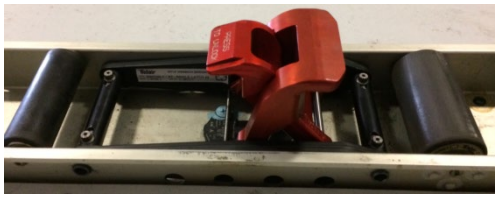


Figure 22 Example of a single type lock

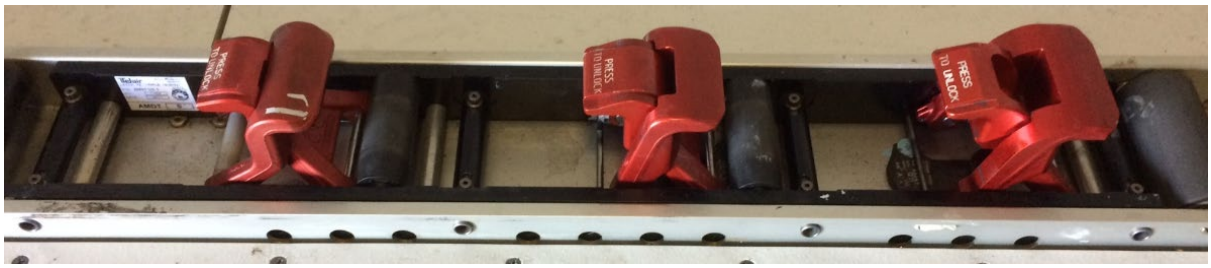


Figure 23 Example of a triple row combination

Lateral (Sideward)

Lateral locks are for use mainly when loading pallets, in particular when loading the military SL4 ULD types. In addition, ALF/AKE type ULDs loaded in the doorway area will use the door sill lateral locks.

SL4 ULDs:

- Main compartment SL4 lateral locks are found on the starboard side of the hold.
- Door area SL4 lateral locks are positioned within the ball matt area.

Figure 24 Example of a lateral, main compartment SL4 ULD lock

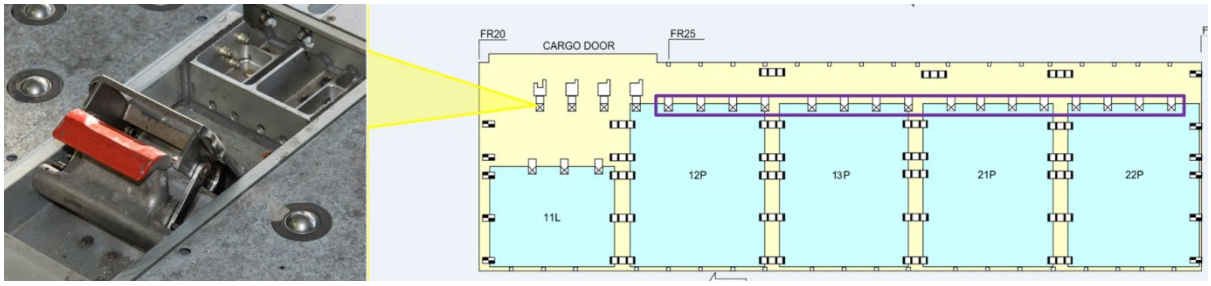


Figure 25 Example of a lateral doorway SL4 ULD lock; forward hold positions

Door sill lateral locks:

For restraint of commercial pallets or baggage ULDs when positioned in doorway locations.

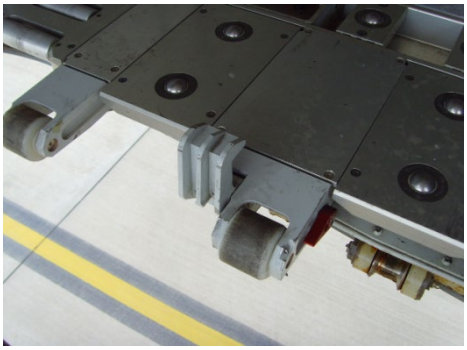


Figure 26 Example of a lateral doorway lock

4.5.7.3.2 Operation of locks

Operational of the locks shall be in accordance with the following:

Longitudinal (Forward/Aft)

Locking

Shall be locked up by hand (see below) and checked that the lock is correctly located.

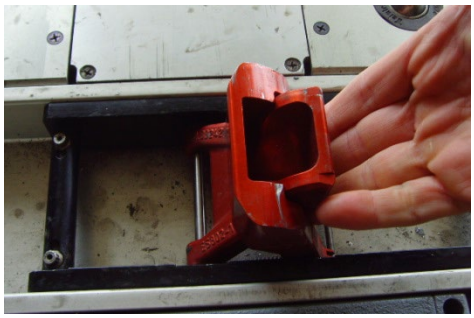
NOTE: *When locking in the up position a clear 'click' should be heard – indicating locked.*

Caution:

Do **not** use your foot to lock up in position.

Caution:

Bowed/damaged ULDs (especially pallets) may cause the lock to stay and look to be in position, however, during flight vibrations/compressions the lock spring mechanism may cause the lock to drop during flight.



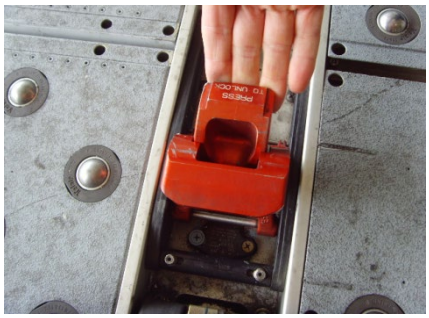


Figure 27 Locking by hand

Unlocking

To unlock, use your foot to depress and engage the lock spring which will drop the lock to the floor.

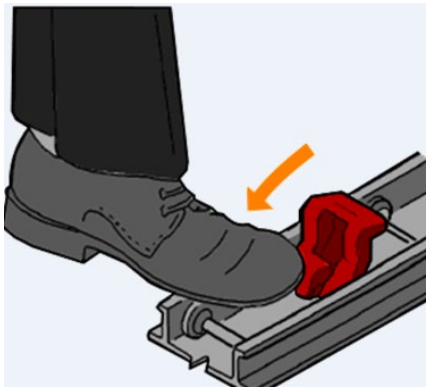


Figure 28 Unlocking by foot

Lateral (Sideward)

Caution:

Operation of this type of lock is only to be done by using the foot. Never operate by hand.

SL4 Locks

Locking

Using your foot, depress the rear of the lock as shown below. The lock spring mechanism will ensure the lock engages in the up position.

Figure 29 Locking SL4 Locks

Unlocking

Using your foot, depress the front of the lock as shown below. Pressure will be required to locate the lock in the down position.

Figure 30 Unlocking SL4 Locks

Door Locks

NOTE: *Operation of this type of lock is* ***only*** *to be by hand.*

Locking

Raise the lock until in the position as shown. A check that the lock will not fall shall be done.

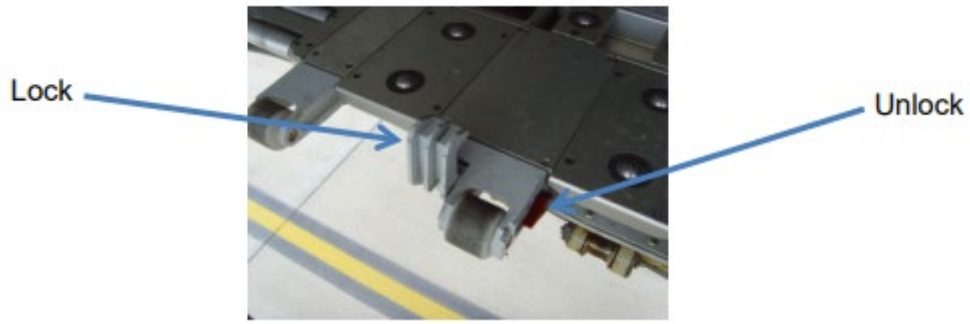


Figure 31 Door Locks

Unlocking Press the red lever down, the lock will fall to the lowered position.

4.5.7.3.3 Restraint of ULDs

Applicable to: All A330-200 and Voyager aircraft

Dependant on ULD type and load configuration lock usage may vary.

Once located and locked in position, all locks shall be double checked to ensure they are fully engaged in the locked up position.

See the following examples of ULDs located and locked in position.

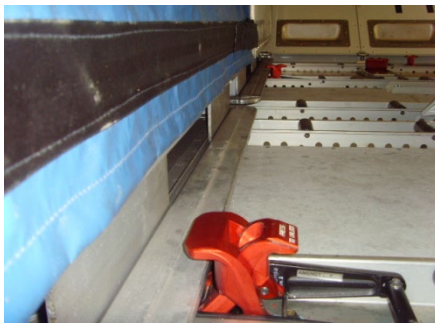
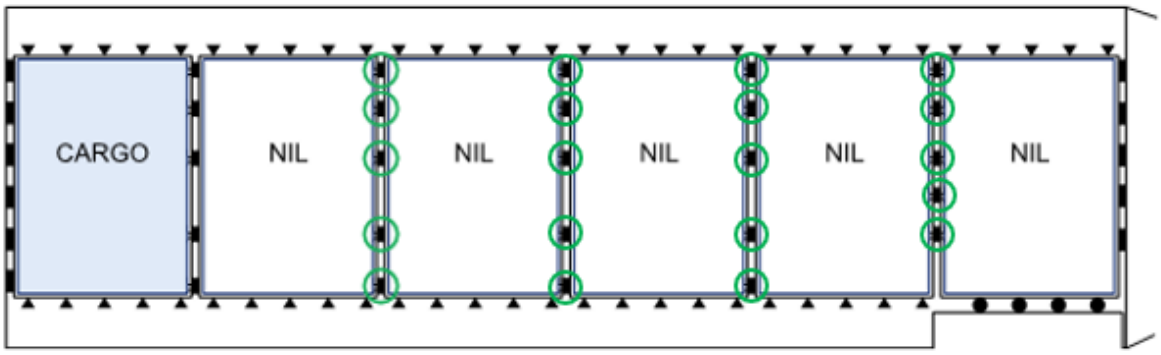


Figure 32 Example of AKE (LD3) type ULD locked using a longitudinal (forward/aft) lock

Figure 33 Example of military SL4 type ULD locked in position using the SL4 lateral locks

NOTE: *Lower holds may be part loaded (not full), however, in any part loaded case ALL locks shall be raised in the up (locked) position to prevent inadvertent slippage of any ULD.*



4.5.7.4 Tie-Down Loads

Definition of forces

Tie down the loads on board the aircraft properly to withstand the following types of forces during take-off, flight and landing.

Force	Definition
Forward	Horizontal forces effective during landing and steep angles of descent
Backward	Horizontal forces effective during take-off and steep angles of climb
Sideward	Horizontal forces effective during rough landing, turbulence and close turns
Upward	Vertical forces effective during landing and heavy turbulence in flight

Depending on the flight situation, the forces described above can be stronger than the normal gravity force of 1g. Secure all loads against the different forces according to the gravity factor ('g-factor').

In general the ULD build up is done with a net which restraints the load against all forces.

Tie-down of load with straps or ropes

If the primary restraint of the load is done by straps, tie-down shall be carried out according to AHM 311 or ULDR (OS 6/07)

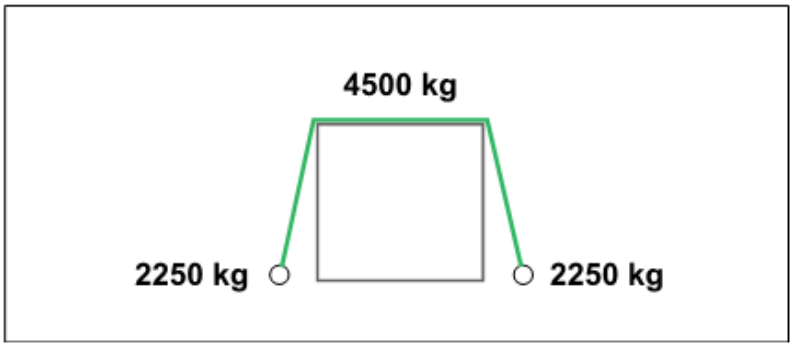
The usage of tie-down material with different capacities is not allowed.

There are two ways to secure a package with tie-down ropes or tie-down straps:

(a) Lashing across or around a package (embraced lashing)

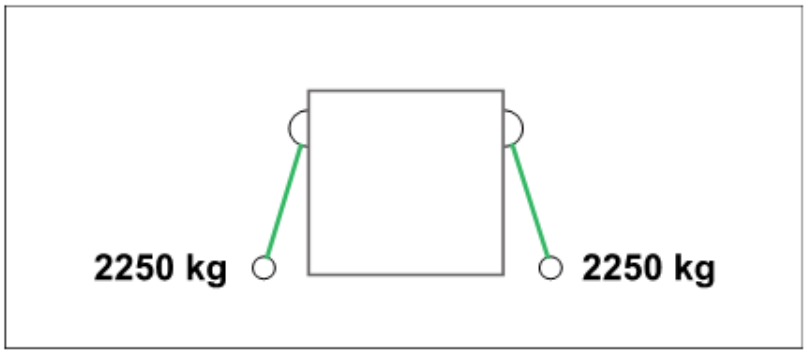
The embraced lashing method with tie-down straps or tie-down ropes is to fasten the strap or rope from one tie-down fitting across or around the load to a second tie-down fitting on the opposite side.

A strap attached to the fittings on opposite sides of the load is rated for twice its ultimate load capacity, e.g. an ETSO/TSO-C172 strap with 2,250 kg (5000 lb) rated restraint capacity will provide up to maximum 4,500 kg (10000 lb) ultimate load for standard lashing.



(b) Lashing directly fastened to the package (direct lashing)

If a tie-down strap is directly fastened to the load with one tie-down fitting, the ultimate restraint capacity of the strap, e.g. an ETSO/TSO-C172 strap with 2,250 kg (5000 lb) ultimate load, will apply.



4.5.7.5 Use of Tie Down Material

Make sure that tie-down material is in a serviceable condition.

(a) Tie down ropes

1. Fix tie-down ropes to the aircraft floor tracks or tie-down fittings.

2. Make sure that the overlapping ends of the tie-down ropes are long enough and will not loosen in the case of sudden stress.

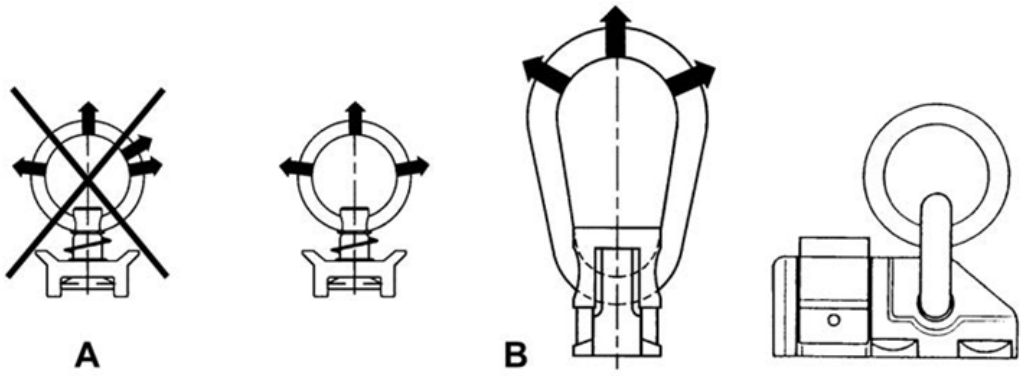
3. Fix the tie-down ropes to the tie-down rings in a way that they may be easily loosened for unloading.

4. Do not fix tie-down ropes to other parts of the aircraft.

5. Do not use the same attachment points for lashing, which are used to secure the net sector divider nets.

(b) Tie down fittings

A single tie-down fitting may receive up to three straps/ropes in three different restraint directions (one up and two opposite horizontal directions). Forces generated by the load can never act in more than one direction at the same time; thus, the fitting will never be pulled by more than one strap/rope at the same time. Therefore, a fitting may never receive more than one strap/rope in the same direction.



Alpha-Numeric	Description
A	Forbidden
B	Allowed

Fix tie-down rings to the aircraft floor only at tie-down points or tie-down tracks.

Distribute the attachment points of the tie-down rings evenly (nearly equal distances) over the length of the piece

4.5.7.6 Tie-Down Provisions in Bulk Compartment

Applicable to: G-VYGJ, G-VYGK, G-VYGL, G-VYGM, ZZ330, ZZ331 & ZZ343

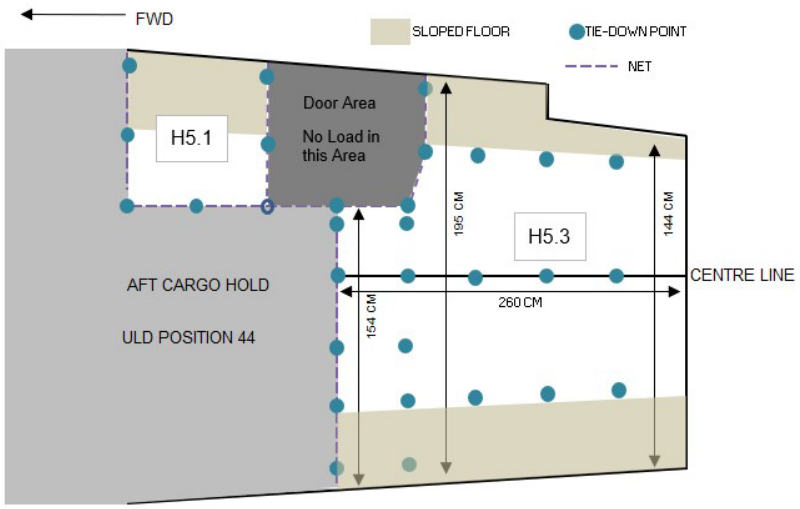


Figure 34 Bulk Hold (inc. ULD Position 44)

Applicable to: ZZ332, ZZ333, ZZ334, ZZ335, ZZ336, ZZ337, ZZ338

Figure 35 Bulk Hold (no ULD Position 44)

NOTE: *Not applicable when a FRU is fitted. See 5.20.8.10.*

Caution:

Tie-down on any other part of the aircraft structure, or on other restraints than those above, even if equipped with rings or tie-down points, is forbidden.

4.5.8 Load Spreading

When the weight of item(s) to be loaded exceeds the maximum floor load per square metre or the maximum floor load per running metre of a compartment, the weight has to be spread to prevent damage to the compartment floor. This applies to HEAs, but may also apply to smaller items weighing less than 150 kg. The item shall be fully restrained (see example below).

Caution:

Overloading can cause damage to aircraft frames and ribs and consequently can have serious implications for the safety of the aircraft.

The weight can be spread by making use of spreading wood, in which case:

(a) The surface to support the weight will be enlarged.

(b) The length will be enlarged.

The Load Agent or Cargo will advise the spreading requirements for each item. The information will be notified on the LIR.

4.5.9 Aircraft Unit Load Devices (ULDs)

4.5.9.1 General

ULDs can be divided into two groups:

(a) Containers

(b) Pallets with or without nets

Each ULD shall meet minimum technical specifications to ensure safe restraint of the load. These specifications are published in the IATA ULD Technical Manual.

4.5.9.2 Identification/Labelling of ULDs

Identification: Each ULD has an IATA identification code allowing proper ULD control.

The first three identify the type of ULD. The next four or five identify the inventory number and the last two identify the airline or pool that owns the container. For example:

TYPE OF CONTAINER	INVENTORY NUMBER	AIRLINE/POOL
AKE	12345	9L

All ULDs shall be identified with container/pallet tags when loaded.

The pre-printed letters (in boxes) indicate the specific application of the tag.

(a) Each tag shall be fully completed.

(b) One tag shall be placed in the tag holder of a container.

(c) A cross-check shall be performed during the loading of the ULDs. The following identification numbers shall always be checked to ensure they correspond with each other:

1. ULD number shown on the LIR
2. ULD number shown on the ULD identification tag
3. ULD identification number printed or stamped on the ULD

4.5.9.3 Unit Load Device (ULD) Inspections

Unserviceable ULDs could:

(a) Cause injury to employees.

(b) Damage the aircraft structure.

(c) Impact On Time Performance.

(d) Damage ULD contents (Baggage and Cargo).

(e) Affect Weight and Balance load requirements.

4.6 Aircraft Departure

4.6.1 Introduction

A departure is normally conducted with a dialogue between flight crew and the ground staff member in charge of the departure via an interphone. This procedure ensures the highest level of safety during departures based on a precise exchange of information. The ground staff member in charge of the departure operation shall maintain continuous contact with the flight crew and is responsible for the ground manoeuver.

The scope of the following departure procedures is limited to conventional towbar and towbar-less (TWL) tractor pushback operation.

NOTE: *The term "headset" applies whether a wired or wireless interphone system is used.*

Other personnel are also involved in the departure process. The number of other personnel and their functions/responsibilities can differ depending on:

(a) Particular operation e.g. Air-to-Air Refuel vs Air Transport flight.

(b) GSE used for the manoeuvre.

(c) Airport infrastructure.

(d) Stand configuration.

4.6.2 Ground Staff Member Responsibilities

4.6.2.1 Ground Staff Member Responsible for Departure

The responsible ground staff member is defined as the person performing the communications with the flight crew. A responsible ground staff member shall be in charge of every aircraft pushback. This function can be performed by different personnel in different roles and positions.

NOTE: *At home base and certain line stations, this may be an AirTanker Dispatcher or Line Engineer. At stations where 3rd party handling arrangements exist, whether for military 'Voyager' operations or for chartered operations, this is likely to be the GHA's dispatcher or ramp team leader.*

The ground staff member responsible for the departure shall:

(a) Be in charge of the entire pushback, once clearance to begin pushback has been given by the flight crew.

(b) Ensure the pushback tractor and towbar/TWL tractor is suitable for the aircraft type.

(c) Ensure the nose gear steering bypass pin is installed prior to towbar/TWL connection to the aircraft as required for pushback.

(d) Conduct briefings with all persons involved in the aircraft movement to review and confirm how the aircraft will be manoeuvred.

(e) Connect the interphone and conduct a communication check to:

1. Verify the communication system is functional.

2. Update flight crew on the progress of the ramp operation.

3. Request permission to disconnect ground power.

4. Disconnect ground power after verbal approval is received from flight crew.

(f) Be in continuous communication with flight crew by interphone.

(g) Conduct a pre-departure walkaround.

(h) Have ultimate responsibility to review pushback procedures based on conditions observed and advise flight crew of any anticipated changes to pushback procedures.

(i) If ramp conditions are below standard for a normal pushback (e.g. hazards, obstacles, slippery, ice), the ground staff member in charge of pushback will inform the flight crew that engine start clearances will not be given until either:

1. The aircraft is moving over an area of the ramp where the conditions are safe for an engine start.

2. The pushback has been completed, the aircraft has come to a complete stop, and the parking brake has been set.

(j) Signal 'Clear to Push' to the pushback tractor driver and wing walkers (if applicable) once advised by the flight crew that the aircraft brakes have been released and approval for pushback is given by the flight crew.

(k) Be positioned either inside the tractor, or walking on the apron at a safe distance from the nose gear and tractor, and 'inside' the turn of the pushback.

Caution:

The ground staff member responsible for the departure (headset operator) should be positioned outside the tractor during:

Low-visibilty conditions (heavy rain, fog, bad lighting).

Lack of sufficiently visible markings.

Obstructions behind the pushback (e.g. GSE, light post).

Any doubt that the pushback procedure cannot be safely performed when positioned in the tractor.

(l) If walking adjacent to the nose gear, maintain visual contact with the tractor driver throughout the pushback.

(m) Monitor the interphone during the pushback and communicate with the flight crew as required.

(n) Advise the flight crew if, for any reason, it is not safe to start an engine and stop the engine-start procedure.

NOTE: *The flight crew may advise as each engine is being started.*

(o) When the pushback manoeuvre is complete:

Receive the 'Vehicle Brakes On/Stop' signal from the tractor driver to confirm that the tractor parking brake is set.

1. Request flight crew to set the aircraft parking brake.

2. When confirmation that the aircraft brakes have been set is received from the flight crew:

   (i) Give the 'Vehicle Brakes On/Stop' signal to the tractor driver and wing walkers, if applicable.

   (ii) Give authority to disconnect pushback equipment.

3. Carry out a pushback disconnection procedure in accordance with their training.

NOTE: *Ensure the towbar is disconnected from the tractor before disconnecting from the aircraft (except where the towbar is specifically designed to be disconnected from the aircraft first).*

(p) Remove nose gear steering bypass pin.

(q) Complete the headset communication and, after receiving flight crew approval, disconnect the headset and close the access panel.

(r) Move clear of the aircraft to a safe position visible to the flight crew and away from its intended path.

(s) Display the steering bypass pin to the flight crew.

(t) After confirming all personnel and equipment is clear of the aircraft and its intended path, give the 'All Clear' signal once eye contact has been made with the flight crew and they are expecting the signal. In low light conditions, the flight crew will turn on the interior lights of the flight deck.

(u) Remain in position until an acknowledgement from the flight crew is received.

Caution:

The flight crew shall be notified immediately in the event any connection between the tractor and the aircraft is lost during aircraft movement.

Warning:

If the nose wheels are not in the centred position, they can turn quickly to their centred position when the steering bypass pin is removed. Personal injury and/or aircraft damage could result.

Do not disconnect the interphone communication cable until the towbar or TWL tractor has been disconnected from the nose gear.

4.6.2.2 Tractor Driver

The pushback tractor driver shall:

(a) Completely raise the towbar wheels before the start of the aircraft movement, if used.

(b) Stand by for clearance to push communication from the flight crew or responsible ground staff member.

(c) Prior to the aircraft movement, make sure the parking brake is released and the anti-collision lights are switched on, in accordance with local airport regulations.

(d) Select the appropriate gear on the tractor and slowly begin movement.

(e) Start the pushback operation in a straight line.

(f) Keep the manoeuvring speed to a minimum and apply the vehicle brakes gently.

(g) Scan the apron during pushback. Monitor clearances and wing walkers, if applicable, to ensure the aircraft is moving clear of all obstructions. Be prepared to stop.

(h) After flight crew approval to commence pushback, the tractor driver shall always ensure the taxiway is free of other aircraft/equipment/obstacles throughout the pushback manoeuvre.

(i) During the pushback, ensure the steering limits are not exceeded and advise the flight crew if any are exceeded. Damage may occur to the nose gear.

4.6.3 Action Prior to Departure

Prior to departure of the aircraft, make sure that:

(a) The ramp area is clear of all FOD and any equipment.

(b) The apron surface condition is sufficiently free of ice, snow, etc., to ensure safe aircraft movement.

(c) The ramp area is free of objects/obstacles that may be impacted by the aircraft or may endanger others due to jet blast effects.

(d) All persons not involved in the aircraft departure operation shall remain clear of the departing aircraft, behind the ERA.

(e) Additional ground staff such as Wing Walkers are present (if applicable/required).

(f) Verbal communication with flight crew is established by means of an interphone system, departures using marshalling hand signals without any headset communication are only conducted in exceptional cases.

(g) In the event an ASU is required for engine start, communicate with the flight deck crew on ASU positioning and engine start sequence.

NOTE: *Prior to connecting the tractor to the aircraft, the tractor may be parked in front of the aircraft or outside of the ERA, but never behind the wings.*

4.6.4 Pre-Departure Check

4.6.4.1 Pre-Departure Walkaround Check

NOTE: *For AirTanker operations, this check is to be undertaken in one continuous walk around after all servicing activity has taken place and all equipment is clear. For the sake of expediency, the*

forward stairs may remain in place while the check is performed, so long as the walk around check is paused at point 18 (see Figure 36), and completed once the stairs have been removed.

The walk around should start as soon as possible after all ground servicing activities have been completed.

Walk around the entire aircraft at a normal walking pace. The check shall start as close as possible to departure time. If any part of the aircraft still has GSE engaged at the time of the check, or if GSE re-engages with the aircraft after the check, the applicable area(s) shall be re-inspected.

The pre-departure walk around check shall include the following:

(a) The apron is clear of all FOD items that may cause aircraft damage or pose a risk.

(b) All GSE and passenger boarding devices are detached.

(c) The stand area is clear of obstructions. GSE and vehicles are positioned clear of the aircraft path.

(d) Adequate clearance exists between the aircraft and facilities or fixed obstacles along the aircraft movement path.

(e) All aircraft servicing panels and/or hatches are closed and secured (except - external power and headset panels).

(f) Cabin/cargo doors:

1. Handles are flush with the fuselage;

2. There is no visible damage on the aircraft, particularly around cabin and cargo doors.

(g) Any abnormalities on the aircraft observed (e.g. obvious damage, fluid leakage, unremoved pitot covers) are immediately brought to the attention of the Flight crew and maintenance personnel.

(h) Landing gear safety pins are removed.

(i) There are no obvious signs of unmarked dents or other skin panel damage.

See the below as a reference for the pre-departure walkaround check:

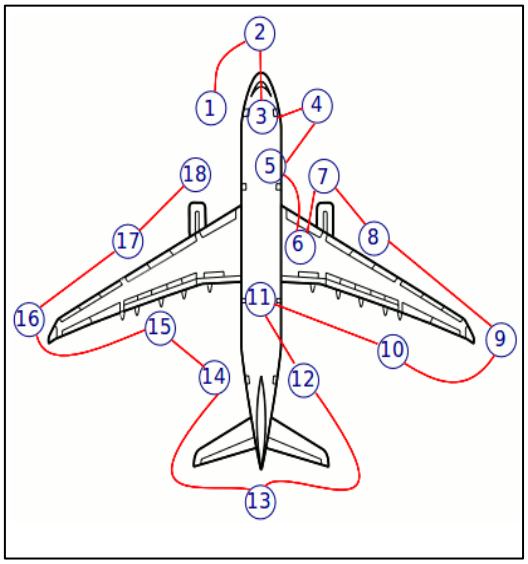


Figure 36 Aircraft pre-departure walkaround

NOTE 1: *In the event of the aircraft returning to stand, the pre departure walk around check shall be repeated.*

NOTE 2: *It is essential to have adequate lighting when doing the walk around check. If the lighting is insufficient, use a torch.*

Caution:

If any of the above conditions or actions are not met, inform your supervisor, maintenance personnel and the Pilot-in-Command. This may affect the safety of the intended flight.

4.6.5 Wheel Chock Removal

Headset Operator:

(a) Via the interphone, request chock removal approval from the flight crew, and confirm the aircraft parking brakes are set.

(b) Check all GSE has been disconnected from the aircraft.

(c) Check the passenger boarding stairs have been retracted from the aircraft, if applicable.

(d) Check the tow tractor and tow bar are fully secured to the nose gear and parking brakes are set on the tractor, if applicable.

(e) For TWL tractor operation, check that equipment is fully secured to the applicable landing gear and parking brakes are set on the tractor, if applicable:

1. Remove chocks at applicable gear only and leave remaining chocks in place until departure.

2. Nose gear wheel chocks may be removed without notification for the purpose of tractor connection provided the main gear wheel chocks are still positioned (except for main gear towbarless tractor).

(f) Give clearance to ground staff to remove chocks.

NOTE 1: *If a chock is stuck, the responsible personnel remove it by tapping it with a spare chock or moving the aircraft after the aircraft brakes have been released.*

NOTE 2: *Responsible personnel stow chocks in their designated stowage place.*

NOTE 3: *Nose gear wheel chocks may be removed without notification provided the main gear wheel chocks are still positioned.*

NOTE 4: *Once high wind or icy conditions have passed, any additional chocks that were added to the aircraft may be removed so that chock placement reverts to that for normal conditions.*

NOTE 5: *If hand signals are used (i.e. aircraft interphone system is inoperative) the person performing the hand signal shall:*

(i) Display the ‘Set Brakes’ hand signal.

(ii) Receive confirmation from the flight crew when they display the ‘Set brakes’ hand signal in response.

(iii) Remove chocks.

Caution:

Do not remove the MLG chocks until:

(a) All GSE (with the exception off the PBB, passenger stairs, GPU and ASU) is removed from the aircraft;
(b) The pushback vehicle is connected to the aircraft;
(c) The parking brakes of both the pushback vehicle and the aircraft are set.

4.6.6 Pre-Departure Table

General

Prior to aircraft movement, the responsible ground staff (headset operator) shall ascertain that the following requirements are met:

Legend: TT–towbar tractor TWL–towbarless tractor

ACTION	APPLICABLE TO				
	PUSHBACK		TOWING		TAXI OUT
	TT	TWL	TT	TWL	
The required Pre-Departure servicing checks are completed.	X	X	X	X	X
Fire protection devices are available and correctly positioned (as per local rules).	X	X	X	X	X
Communication with flight crew and ground staff is established via interphone system.	X	X	X	X	X
The path and area that the aircraft is moving towards is clear of FOD ensuring safe aircraft movement.	X	X	X	X	X
The stand surface condition is sufficiently free of ice, snow, etc. to ensure safe aircraft movement.	X	X	X	X	X
The GSE is outside the ERA, and loading bridge is fully retracted (if applicable).	X	X	X	X	X
If an ASU is required, check the equipment is correctly positioned and suitable for the operation.	X	X			X
Wing Walkers are present (if applicable).	X	X	X	X	
The air intake and blast areas of the aircraft engines are clear of persons and obstacles, such as GSE.	X	X			X

The nose gear bypass pin is installed correctly.	X	X	X	X	
All persons involved in the aircraft movement stay well clear of the danger areas around the tractor, landing gear and aircraft engines.	X	X	X	X	
A qualified brake operator is in the cockpit.			X	X	
Wheel chocks are not removed from MLG until Flight Deck has confirmed that Aircraft parking brake is set, the tractor is fully secured to NLG and the parking brake of the tractor is set.	X	X	X	X	
The tractor and shearpin combination (if applicable) are suitable for the operation, considering the aircraft type and weight, the weather and surface conditions.	X	X	X	X	
The completion of the pre-departure table is indicated to the Flight Deck.	X	X	X	X	

4.6.7 Engine Start using Air Start Unit (ASU)

(a) Only personnel and equipment involved in engine starting or aircraft pushback are permitted within the ERA during engine start.

(b) Establish communications with the flight crew and confirm the total number of engines to be started, the engine start sequence to be used and number of ASUs being used.

(c) All personnel and equipment shall remain clear of engine danger areas.

(d) Advise the engine start sequence to the ASU operator(s) and any other ground personnel.

(e) The ASU should be positioned on the starboard side of the aircraft forward of the no 2 engine, and connected to the two high pressure ground connectors on the underside of the fuselage, see Figure 5.

(f) If the aircraft is to be pushed back, connect the pushback tractor and set the tractor's parking brake (where this is possible without disconnecting ground electrical power).

If a pushback tractor is not connected, position a chock in front of the nose wheel.

(g) Confirm with flight crew that the aircraft parking brake is set, then remove main gear chocks.

(h) The ASU operator shall ensure that the unit is ready to supply air pressure.

(i) The headset operator informs the flight crew that ground crew are ready for engine start.

(j) Start engine(s). Refer to 4.6.9.2 for communications requirements.

(k) When engine start is complete, headset operator signals ASU and ground power operator(s) to disconnect the ASU and remove ground power.

(l) Disconnect the ASU hose(s).

(m) Close and latch external air start and electrical panels.

Warning:

When connecting and disconnecting ASU hose(s), walk directly underneath the fuselage, or close alongside it, keeping clear of engine danger areas.

4.6.8 Communication Requirements

4.6.8.1 Communication During Engine Start

Coordinate the engine starting sequence with the flight crew by conducting a pre-departure briefing.

(a) During the engine start communicate with the flight crew only if you observe circumstances that require immediate notification and action by the flight crew.

(b) In case of starting up with an ASU, supply the pressure at the request of the flight crew.

NOTE: *From the captain's seat facing forward, engine on his/her left is referenced as engine number one i.e. port side.*

4.6.8.2 Communication During Engine Fire

Engine Fire

The Flight Crew normally detects an engine or APU fire and will take action using the engine fire extinguishing system. However, alert the flight crew immediately via the headset if flames are noticed from the engine or engine pylon.

In the event that a headset is not available, the appropriate “Fire” hand signal shall be used. (Refer to the Marshalling Hand Signals in Chapter 3 of IGOM) i.e. point to the engine with one arm and perform figure of 8 with the other:

Tailpipe/Exhaust Fire

If you notice flames from the engine tailpipe during engine starting, alert the flight crew immediately, as such a fire might not be detectable via temperature sensors and/or fire warning systems in the aircraft.

Caution:

Do not fight engine fires with fire extinguishers on the ground when the flight crew is in the flight deck. The flight crew will take all necessary action.

4.6.9 Departure Communication

4.6.9.1 General

Departure communication outlined in this section is a basic standard for both pushback and open ramp (taxi out) departures.

This specific dialogue does not forbid the exchange of additional important information between flight crew and ground staff using non-standard phraseology (e.g. request for authorisation to disconnect ground support units etc.).

NOTE: *If the pushback shall be stopped, the following call will be made: STOP PUSH BACK.*

Only engage the towbarless tractor and lift the aircraft once the passenger boarding device has been removed from the aircraft and the flight crew has requested for pushback.

4.6.9.2 Departure Communication Dialogue

In case of an aircraft taxi-out, “Pushback” and “Pushback completed” phases are not applicable. The dialogue is a sample communication to be used for a departure:

Dialogue between Ground Staff and Flight Crew				
Phase	**Ground Staff**		**Flight Crew**	
Preparation	**Call:**	CONFIRM PARKING BRAKE SET		
			Reply:	PARKING BRAKE SET
			Call:	CONFIRM BYPASS PIN INSTALLED
	Reply:	BYPASS PIN INSTALLED		
			Call:	CLEAR TO PRESSURISE? (if required)
	Reply:	CLEAR TO PRESSURISE (if required)		
After completion of the pre-departure checks	**Call:**	PRE-DEPARTURE CHECKS COMPLETED		
			Reply:	ROGER
Pushback	**Call:**	ELEVATING AIRCRAFT[2]		
			Reply:	STAND BY
	Call:	READY FOR PUSHBACK[1]		
			Call:	PARKING BRAKE RELEASED, CLEARED TO PUSHBACK (+ ANY SPECIFIC PUSHBACK

	Reply:	COMMENCING PUSHBACK (+ ANY SPECIFIC PUSHBACK REQUIREMENT).		REQUIREMENT).
Engine start	**Call:**	CLEAR TO START ENGINES.	**Reply:**	STARTING ENGINES (MENTION ENGINE START-UP SEQUENCE)
Pushback completed	**Call:**	PUSHBACK COMPLETED, SET PARKING BRAKE.	**Reply:**	PARKING BRAKE SET.
Disconnecting	**Reply:**	DISCONNECTED, WAIT FOR VISUAL SIGNAL ON YOUR LEFT.	**Call:** **Reply:**	CLEAR TO DISCONNECT. HOLDING POSITION AND STANDING BYFOR VISUAL SIGNAL ON THE LEFT.

1 Applicable to departures with towbar and towbarless tractor.

2 If required, applicable to towbarless tractors.

4.6.9.3 Items to be Communicated between Ground Staff and Flight Crew

Phase	Task	Ground Staff Action
Departure Preparation	**GPU removal**	When instructed by flight crew, remove GPU
	Towbar/Towbarless Tractor connection	(a) Get confirmation that the aircraft's parking brake is set. (b) Advise flight crew that the bypass pin is inserted. (c) Connect the Towbar. (d) Connect the Towbarless Tractor
	Chock removal	(a) Get confirmation from flight crew that aircraft parking brakes are set. (b) Remove chocks.
	Pre-departure check	Advise the flight crew that the pre-departure check has been completed, all panels and doors are closed and no damage has been found, or report any discrepancies.
Engine Start	**Starting engines**	When requested by the flight crew, advise when the engines may be started and the start sequence.
	ASU	When requested by the flight crew, signal to the ASU operator to supply the required pressure.
Pushback [and Engine Start]	**Brakes**	Get confirmation that aircraft's parking brakes have been released.
	Direction of push/nose	If applicable, ask in which direction the aircraft has to be pushed/in which direction the nose should point after pushback.
	Movement of the aircraft (pushback/pull out)	Get permission from flight crew to commence the pushback.
	Engine start	When requested by the flight crew, advise when the engines may be started.
Pushback completed and Engine start	**Towbar/towbarless Tractor disconnect**	(a) Get confirmation that the aircraft's parking brake is set. (b) Advise flight crew to hold position and wait for visual signal at left/right of the aircraft.

completed		(c) Remove the steering bypass pin.
	Headset removal	(a) Get permission from flight crew to disconnect the headset. (b) Advise flight crew to hold position and wait for visual signal at left/right of the aircraft.
Departure	**'All clear' signal**	(a) Ensure verification of pin removal has been completed. (b) Give the 'All clear' signal when the path of the aircraft is clear of all obstacles. (c) Get acknowledgement of 'All clear' signal.

4.6.9.4 Departure Communication without Interphone

An aircraft departure shall always be conducted using interphone communications.

In the event that the interphone becomes unserviceable or under extreme circumstances where the interphone is not available, you shall use conventional hand signals (see IGOM 3.4.6 and 3.4.7) for the departure (not applicable to main gear pushback unit departures).

Prior to departure a briefing shall be held between the Captain and the ground agent responsible for the departure, including:

(a) Review of departure specifics, e.g. direction of movement, final positioning, and taxi out direction;

(b) The hand signals to be used, including emergency signals.

Caution:

Read back all instructions or acknowledge them in a manner clearly indicating that they have been understood and will be complied with.

4.6.9.5 Re-Establishing Communication After Departure

This procedure is to be used in case the ground staff or flight crew wishes to re-establish interphone communication after it has been disconnected.

4.6.9.5.1 Initiated from the Cockpit

The flight crew sets the parking brake and re-establishes communication with ground staff via company channel or ATC.

If visual communication with responsible ground agent is still established then visual signals may be used.

4.6.9.5.2 Initiated from the Ground

If ground staff needs to re-establish communication with the aircraft after dispatch, do NOT approach the aircraft. If communication cannot be established using hand signals, make contact via company channel or through ATC.

When preparing to re-establish communication with aircraft, take the following precautions:

(a) Make sure you have been seen by the flight crew and the intention to approach the aircraft to re-establish interphone communication is understood.

(b) Approach the aircraft from the direction where visual contact with the flight crew is maintained as long as possible.

(c) Only the person establishing the interphone communication shall approach the aircraft.

(d) Stay outside the aircraft's engine danger area when approaching the aircraft.

(e) If possible, position pushback tractor in front of aircraft in clear view of flight crew to act as a safety barrier and prevent premature movement of the aircraft.

Caution:

For safety reasons, the interphone communication system cannot be used when there is thunderstorm activity over the airport as there is a risk of electrical discharges between the aircraft and the interphone system. Under these conditions communication headsets cannot be worn.

4.6.9.6 Interphone Communication Failure

Aircraft pushback requires a communication interphone. In the event the interphone becomes unserviceable or communications is lost, the following procedure shall be followed:

(a) In case of a single person operation and if no other means of communication are available, stop the movement (depending on local situations and regulations) and immediately request assistance to continue the movement.

(b) In case of multiple person operation then communication with the flight crew will be established using hand signals as described in this chapter. The tractor driver shall be able to receive the visual signals as relayed from the flight crew. Once hand signal communication has been established the pushback can resume.

(c) Notify ATC (if radio available) and continue the movement in co-operation with ATC, depending on local regulations.

4.6.10 Preparation for Pushback

4.6.10.1 Pre Departure Communication

An aircraft departure shall always be conducted using interphone communications. In the event that the interphone becomes is unserviceable, you shall use conventional hand signals see IGOM 3.4.6 and IGOM 3.4.7 for the departure (not applicable to main gear pushback unit departures). Prior to departure a briefing shall be held between the Captain and the ground agent responsible for the departure, including:

(a) Review of departure specifics, e.g. direction of movement, final positioning, and taxi out direction.

(b) The hand signals to be used, including emergency signals.

Caution:

Repeat all given instructions or acknowledge them in a manner clearly indicating that they have been understood and will be complied with.

4.6.10.2 Connecting the Pushback Vehicle

The pushback vehicle is connected as follows:

(a) Aircraft main gear chocks installed, nose gear chocks removed–if applicable;

(b) Approach nose gear to centreline of fuselage;

(c) Use a spotter to assist in the final approach to nose gear:

1. tractor & towbar:

   (i) connect towbar to nose gear first.

   (ii) raise towbar so that its head is at same height as the tractor connection.

   (iii) approach slowly until connection aligns and secure connection to tractor.

   (iv) raise towbar wheels.

   (v) select “Neutral” or “Park” and set parking brake of tractor.

2. towbarless tractor:

   (i) on final approach to aircraft, the tractor shall be properly aligned and correctly positioned.

   (ii) position towbarless tractor to standby for lifting and wait for approval from flight deck to lift, if applicable.

   (iii) select “Neutral” or “Park” and set the parking brake.

Caution:

Do not remove the main landing gear chocks until:

All GSE with the exception of the boarding passenger stairs(s), GPU, PCA, and ASU is removed from the aircraft, the pushback vehicle is connected to the aircraft and the parking brakes of both the pushback vehicle and the aircraft are set.

4.6.11 Aircraft Pushback

4.6.11.1 Pushback Requirements

All staff walking on ramp shall remain clear of:

(a) Aircraft nose gear throughout the pushback operation;

(b) The tractor's path;

(c) Engine danger areas.

4.6.11.2 Pushback & Pull Forward

If an aircraft is to be pulled forward after pushback and engines started, care and special precautions shall be taken to reduce the risk of the aircraft's engine thrust causing damage to the nose gear and towbar when stopping the aircraft at completion of manoeuver.

Special Precautions include gentle application of brake, engine at idle thrust, towing operation at lowest gear available.

Caution:

When using a towbarless tractor:

Do not lift the aircraft when loading equipment and/or a passenger boarding device is still connected to the aircraft.

4.6.11.3 Ground Crew in Charge of Pushback

Ground Crew Responsibility

The responsible ground crew is defined as the person performing the communications with the flight crew.

A responsible ground crew shall be in charge of each aircraft pushback. This function can be performed by different agents in different roles and positions. See 4.6.2.

Responsible ground crew for the departure will:

(a) Be in charge of the entire pushback, once clearance to begin pushback has been given by the flight crew;

(b) Ensure that the towbar/shearpin/towbarless tractor is suitable for the specific aircraft type;

(c) Conduct briefings with all persons involved in the aircraft movement to review and confirm how the aircraft will be maneuvered;

(d) Be in continuous communication with flight crew by interphone;

(e) Have ultimate responsibility to review pushback procedures based on conditions he/she observes and shall inform the flight crew;

(f) If ramp conditions are below standard for a normal pushback (e.g. hazards, obstacles, slippery or icy) then:

1. he/she will inform the flight crew that engine start clearances will not be given until either:

(i) The aircraft is moving over an area of the ramp where the conditions are considered to be safe for an engine start;

OR

(ii) The pushback has been completed, the aircraft has come to a complete stop and the parking brake has been set;

(g) Ensure that the nose gear steering bypass pin is installed prior to towbar/towbarless connection to aircraft;

(h) Connect the interphone and conduct a communication check to:

1. Verify the communication system is functional;

2. Update flight crew on progress of the ramp operation;

3. Request permission & disconnect ground power after verbal approval is received from flight crew.

(i) Conduct a Pre-Departure walkaround;

(j) Signal “All Clear” to pushback tractor driver and wingwalkers (if applicable) once advised by flight crew that the aircraft brakes have been released and approval for pushback given by Flight Crew;

(k) Be positioned either inside tractor or walking on apron at a safe distance from the nose gear and tractor, ‘inside’ the turn of the pushback.

Warning:

If walking adjacent to nose gear: walker and tug driver shall be in visual contact throughout the pushback. After approval of flight crew, the tug driver shall always assure taxiway is free of other aircraft/equipment/obstacles.

(l) Monitor the interphone during the pushback and communicate with the flight crew as required;

(m) Advise the flight crew if for any reason it is not safe to start an engine and stop the engine start (the flight crew may advise as each engine is being started);

(n) Advise the flight crew to set aircraft brakes at end of pushback. Once confirmation from the flight crew has been received, give the brakes set signal to the tractor driver and wingwalkers (if applicable).

(o) Give visual signal to the tractor driver and wingwalkers (if applicable) that it is clear to disconnect pushback equipment.

(p) Disconnect the headset and close the access panel on the aircraft once the approval to disconnect has been given by flight crew and the towbar/towbarless tractor has been disconnected.

(q) Remove the nose gear steering bypass pin and ensure the swing lever is returned to the proper position.

(r) Close and latch all access panels and then move clear of the aircraft to a safe position visible to the flight crew, to conduct final departure marshalling.

(s) Display the steering bypass pin.

(t) Give the “All Clear to Taxi” signal once eye contact has been made with the flight crew and they are expecting the signal. In low-light conditions the flight crew will turn on the interior lights of the flight deck.

(u) Remain in position until an acknowledgement from the flight crew is received.

Caution:

The flight crew (or brake operator) shall be notified immediately:

In the event any connection between the tractor and the aircraft is lost during aircraft movement;

To stop the aircraft movement using gentle brake application if the aircraft is about to overtake the tractor while towing.

Warning:

If the nose wheels are not in the centred position, they can turn quickly to their centred position when the bypass pin is removed. Personnel injury or aircraft damage could result.

Do not disconnect the interphone communication cable until the towbar (or towbarless tractor) has been disconnected from the nose gear.

4.6.11.4 Wingwalker

The operating airline's GOM establishes requirements for wingwalkers. The presence of such personnel may also be controlled or restricted by civil aviation authorities or local airport authorities.

Where applicable, wingwalker or other assist personnel shall:

(a) Be under the direction of the responsible ground crew at all times.

(b) Use 2 marshalling wands, either day-wands or illuminated wands for low visibility operations.

(c) Be positioned before and during movement of aircraft as follows where applicable and/or permitted:

1. approximately 1 m (3 ft) outboard of the wingtip.

2. in line with the rearmost main gear wheel.

3. shall maintain visual contact with person responsible for pushback/towing.

(d) Ensure the aircraft movement path is clear of any obstructions, other aircraft, vehicles etc.

(e) Provide “Safe to Proceed” clearance signals at all times to the person responsible for pushback by using a distinct “Pendulum” motion of the arm.

(f) Continue to monitor the aircraft path until the aircraft is stopped at the departure point.

(g) If at any time during aircraft movement, the wingwalkers are unsure or identify an imminent danger, signal the marshaller with the “STOP” signal.

(h) Position themselves in clear visibility of the flight crew on the terminal side, at a safe distance away from the aircraft (either at the 11 o'clock or 1 o'clock position).

(i) Give the “AIRCRAFT HOLD” signal to the flight crew when the visual Brakes Set” signal has been received from the person responsible for pushback (crossed wands may be over head or in front of chest).

Aircraft Hold / Normal Stop

(j) Remain in position until the responsible ground crew walks over to take over the marshalling clearance of the aircraft.

(k) Return to terminal once marshalling duty has been transferred.

4.6.11.5 Tractor Driver

The pushback tractor driver will:

(a) Align the tractor or tractor and towbar combination with the centre line of the aircraft gear before the aircraft movement.

(b) Completely raise the towbar wheels before the start of the aircraft movement (if used).

(c) Standby for clearance to push communication from flight crew or responsible ground crew.

(d) Select appropriate gear on tractor and slowly begin movement.

(e) Prior to the aircraft movement, make sure that the parking brakes are released and the anti-collision lights are switched on (depending on the local airport regulations).

(f) Start the pushback operation on a straight line.

(g) Keep the manoeuvring speed to a minimum, and apply the vehicle brakes gently.

(h) Scan the apron during pushback, monitor clearances and wingwalkers (if applicable) to ensure that aircraft is moving clear of all obstructions. Be prepared to stop.

(i) Ensure during pushback the steering turn limits are not exceeded and advise flight crew if any are exceeded. Damage to nose gear will occur. Refer to Figure 37 for steering turn limits.

(j) If responsible ground crew on interphone is walking on ramp, maintain visual contact and ensure a safe distance is maintained from the nose gear during entire pushback.

(k) If the responsible ground crew is too close to the nose gear, the pushback shall be stopped and a review of the required safety clearance conducted.

(l) Set brakes on the tractor once pushback is completed.

(m) Maintain the brakes on the pushback until the release signal is received from the flight crew or responsible ground crew on interphone.

(n) Wait for flight crew or responsible ground crew on interphone to give the “Aircraft Brakes Set” signal.

(o) Release the tractor brakes and put the gear selector in “Neutral” after aircraft brakes have been set, to release any pressure on the towbar.

(p) Position the tractor in the aircraft's path and be visible to the flight crew (if possible) after the towbar has been disconnected from the tractor.

(q) Remain in a position visible to the flight crew until the headset operator has disconnected and is in view of the flight crew.

(r) Drive tractor back to terminal or appropriate parking position.

Caution:

If the nose wheels are not in the centred position, they can turn quickly to their centred position when the bypass pin is removed. Personal injury could result.

4.6.12 Manoeuvring During Adverse Weather Conditions

4.6.12.1 General

During adverse weather conditions (fog, rain, etc.) visibility and traction will be affected.

The Tractor Driver shall reduce and adapt vehicle speed as required by the present conditions.

4.6.12.2 Icy Conditions

When manoeuvring the aircraft on slippery apron surfaces, extreme caution is required to avoid losing control of the tractor due to skidding. Many elements can contribute to the hazards involved such as strong winds, slippery road surfaces, pavement slopes etc.

Observe the following minimum precautions:

(a) Avoid sudden turns, deceleration or acceleration.

(b) Except when using an Air Start Unit, do not start aircraft engines unless:

1. the condition of the pavement is such that reasonable traction is ensured.

2. the aircraft parking brakes are set and the aircraft is disconnected from tow tractor/towbarless tow tractor.

4.6.13 Nose Gear Steering

4.6.13.1 General

Use only steering bypass pins designed for use on A330 aircraft.

Warning:

The bypass pin shall be:

Labelled with the specific aircraft type(s) for which it can be used;

Identified with a “Remove Before Flight” streamer;

Checked regularly for proper technical condition, or as per manufacturer instructions.

4.6.13.2 Nose Gear Protection and Steering Angles

In order to protect the nose gear from damage, visual turning limit markings indicate the aircraft's maximum nose gear steering angles. These are shown on the nosewheel landing gear as follows:

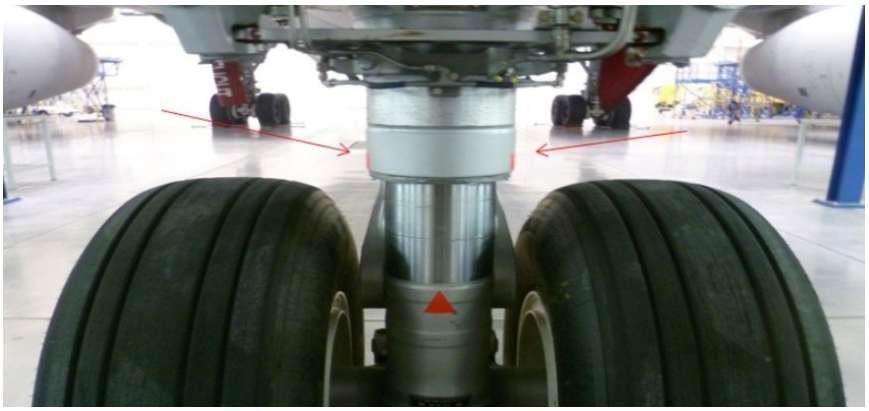


Figure 37 Steering limit markers

Warning:

In the event of exceeding the maximum nose gear steering angle, inform the maintenance department and flight crew, if applicable, and request a technical inspection. The aircraft shall return to the parking stand in order to check whether the gear is damaged.

When using a towbarless tow tractor equipped with either an over steer warning or over steer protection device, verify the visual turning limit markings at all times to prevent exceeding the maximum nose gear steering angle.

When using a towbarless tractor on an aircraft, the “over steering” or “over torque” system of the tractor shall be operative.

4.6.14 Anti-Collision Lights

On a standard departure, once all aircraft doors are closed, the flight crew requests pushback clearance from ATC. Once clearance is obtained the flight crew will switch on the aircraft's anti-collision lights.

Caution:

Anti-collision lights that are switched on are a visual indication to ground staff of imminent engine start-up or aircraft movement. Vehicle traffic shall stop until the aircraft has departed from the area.

4.6.15 Engine Cross Bleed Start

Engine start using cross bleed can only be performed once the pushback has been completed, the aircraft brakes have been engaged, and the area around the aircraft is clear.

Caution:

With engine(s) above idle thrust, blast and suction effects are greater.

4.7 Not Used

4.8 Open Ramp Departure

An open ramp is a taxi-in and taxi-out operation area. In some locations, the aircraft may be towed from an open ramp to a taxiway, prior to engine start.

(a) Complete all pre-departure checks.

(b) Refer to departure communication section and follow required phases of dialogue.

(c) Ensure all staff and equipment is clear of the aircraft behind the ERA.

(d) Position for marshalling in an area behind the ERA while being in clear view of the flight crew on either side of the aircraft (depending on facility).

4.9 Aircraft Towing

4.9.1 Aircraft Towing Requirements

The following requirements shall be met to perform an aircraft tow:

(a) Ensure hydraulic system pressure for aircraft braking and/or the brake accumulator is within required pressure range.

(b) Ensure any required electrical systems for towing are energised.

(c) Ensure all gear safety pins/sleeves are installed, and after tow, ensure all pins are removed and stowed.

(d) Make sure a qualified brake operator is in the cockpit.

(e) Establish communication with the brake operator by means of the interphone system.

(f) Make sure wheel chocks are positioned at the end of the manoeuver, prior to disconnecting the towbarless tow tractor or towbar.

Caution:

Inform the brake operator/flight crew and/or contact the maintenance department for technical inspection if you:

Observe any type of excessive fluid leakage;

Notice any signs of unmarked aircraft damage;

Observe any fault, failure, malfunction or defect which you believe may affect the safe operation of the aircraft for the intended flight.

4.9.2 Towing Manoeuvring

4.9.2.1 General

The following minimum safety precautions and procedures shall be followed prior to and during aircraft towing operations:

(a) Align the tractor or tractor and towbar combination with the centre line of the aircraft before the aircraft movement.

(b) Completely raise the towbar wheels before the start of the aircraft movement (if used).

(c) Prior to the aircraft movement, make sure that the parking brakes are released and the anti-collision lights are switched on.

(d) Wait for the authorisation of the flight crew or brake operator before moving the aircraft.

(e) Start the pushback operation on a straight line.

(f) Keep the manoeuvring speed to a minimum, and apply the vehicle brakes gently.

(g) Do not exceed the towing speed limit as regulated by the towing equipment, aircraft and/or airport.

(h) Use relevant apron lines as guidance during manoeuvring to ensure safe obstacle clearance.

(i) Keep a minimum safety distance between vehicles sufficient in which to stop.

(j) Stop 50m/55yd before a taxiway intersection, if a stop is required.

(k) Avoid sharp turns, which results in excessive tire scrubbing.

(l) Make all stops smoothly.

(m) When arriving at the allocated position, move the aircraft in a straight line for a few meters to ensure that the nose wheels are in the straight ahead position. This relieves any torsional stress applied to landing gear components and tires.

(n) Apply the tractor parking brake after a complete stop.

NOTE: *Some of these precautions may not be applicable to towbarless vehicles.*

4.9.2.2 Towing Preparation

The following checklist is to be used in preparation for an aircraft tow.

Action	Performed by	
	Brake Operator	Tractor Driver
Apply the cockpit checklist for towing. AirTanker engineers must be consulted.	X	
Connect and test the interphone link.	X	
Insert the bypass pin.	X	X
Give permission to connect the towbar and tractor or towbarless tractor after applying the aircraft parking brake.	X	
Install the gear safety pins.	X	X
Connect the towbar; first to the aircraft, then to the tractor.		X
Once all GSE has been cleared away from the aircraft, remove or check removal of aircraft chocks.		X
Switch on the external and anti-collision lights of the aircraft.	X	
Contact the Control Tower for clearance to start moving the aircraft.		X
After receiving the clearance, release the aircraft parking brake.	X	
Give clearance to the Tractor Driver to start moving the aircraft.	X	
Request confirmation from the Brake Operator that the aircraft parking brake has been released.		X
Conduct tow.		X

4.9.2.3 Towing Completion

The following checklist is to be used at the end of an aircraft tow.

Action	Performed by	
	Brake Operator	Tractor Driver
Set tractor parking brake.		X
Request Brake Operator to set the aircraft parking brake.		X
Inform the Control Tower that towing is completed and the frequency will be left (depending on local regulations).	X	X
Set the aircraft parking brake and check the pressure. Inform the Tractor Driver: PARKING BRAKE SET, PRESSURE CHECKED.	X	
Chock the aircraft main landing gear.		X
Switch off the external and anti-collision lights of the aircraft.	X	
Inform Brake Operator: AIRCRAFT CHOCKED.		X
Request permission from Brake Operator to disconnect the towbar or towbarless tractor.		X
Give permission to disconnect the towbar or towbarless tractor.	X	
Disconnect the towbar or towbarless tractor and remove the bypass pin.		X
Chock the aircraft.		X
Inform: TOWBAR/TRACTOR DISCONNECTED.		X

Release the aircraft parking brake and inform: PARKING BRAKE OFF.	X	
Check and inform: AIRCRAFT STABILISED.		X
After permission from the Brake Operator, shut down and disconnect the tractor GPU.		X
Install and connect a GPU.		X
Remove and stow gear safety pins in the dedicated location.	X	

Brake Operator	Tractor Driver
VHF Communication Failure	
	(a) Stop aircraft/tractor set immediately; unless crossing a runway, in which case clear the runway, then stop. (b) Apply tractor parking brake. (c) Advise Towing Regulation and wait for assistance (Follow me before completing the towing).
Tractor failure	
(a) Inform ATC. (b) Apply parking brake. (c) Listen to VHF and wait for assistance.	(a) Stop aircraft/tractor set. (b) Inform ATC (towbarless towing with one man operation). (c) Apply tractor parking brake. (d) Chock the aircraft. (e) Listen to VHF (towbarless towing with one man operation).
Coupling Break Off	
(a) Brake the assembly by stepping on both brake pedals progressively. (b) As soon as the aircraft is at a standstill, apply the parking brake before releasing the pedal.	(a) Do not apply tractor brakes. (b) Follow the aircraft path attentively and stop the tractor according to the aircraft position. (c) Chock the aircraft.
Tractor Fire	
(a) Inform ATC. (b) Apply the parking brake. (c) Fight fire with the on board fire extinguisher. (d) Evacuate the aircraft using on-board means, if required.	(a) Stop the aircraft/tractor set immediately. (b) Apply the tractor parking brake. (c) Advise towing regulation. (d) Do not unload or disconnect the aircraft. (e) Chock the main landing gear.
Accident with other Aircraft or Vehicle	
(a) Contact the Control Tower stating position and nature of trouble. (b) Listen to VHF and wait for assistance.	(a) Stop aircraft/tractor set immediately. (b) Apply tractor parking brake. (c) Advise towing regulation. (d) Do not unload or disconnect the aircraft.

	(e) Chock the main landing gear.
Interphone Communication Failure	
If during the tow the interphone fails, the tow shall immediately be stopped and an alternate means of communication established before continuing. If this is not possible, assistance shall be requested.	

The Tractor Driver and Brake Operator shall continuously keep each other informed.

4.9.3 Towing Limits

Fuel and other loads can affect an aircraft's balance. To avoid “tail tipping” during towing, ensure that the actual centre of gravity of the aircraft is forward of the critical centre of gravity. If you are unable to determine this, then you shall request assistance from the AirTanker Mass & Balance Engineer.

4.9.3.1 Operational Towing

Operational Towing is a term used by Airbus when an aircraft loaded with passengers, fuel and/or cargo is towed not for the specific purpose of manoeuvring to/from a parking gate/stand. Examples of Operational Towing would be towing a loaded aircraft to a remote parking stand or towing a crewed aircraft to a separate loading area, e.g. to load dangerous goods.

Caution:

Operational Towing is prohibited on AirTanker A330 and Voyager aircraft.

The following are examples of towing that is permitted:

(a) Towing short distances for the purpose of enabling operations on nose-in gates/stands i.e. pushback.

(b) Moving the aircraft after it has suffered a technical failure to the nearest available gate/stand or parking area.

(c) Recovery of the aircraft from a runway.

Towing that falls outside of this limited scope must not be accepted by ground handling agents. In such cases the aircraft should be taxied under its own power.

Personnel are to raise a GHOR or other safety occurrence where they encounter a proposed ATC or other operational plan that may require Operational Towing.

5 Load Control

Information Owner: Mass & Balance Engineer
massandbalance@uk.airtanker.co.uk

5.1 Introduction

Applicable to: All operations

This chapter contains general information, processes and requirements concerning the Load Control processes, aircraft loading and mass and balance for AirTanker aircraft.

Load control is a process that ensures the production of all applicable documentation to comply with operator and regulatory authorities for the safe and secure handling of an individual flight. This includes planning, reporting and recording of the loading of the aircraft.

The Load Control process comprises of the following tasks:

(a) Load planning.

1. Production of a Loading Instruction Report (LIR).

2. Weight and balance calculation.

(b) Aircraft loading and unloading supervision.

1. Verification and recording of aircraft loading.

2. Communicating final loading figures.

(c) Mass and balance calculation.

1. Loadsheet production.

2. Other loading documents such as Notice to Captain (NOTOC), if applicable.

(d) Post-departure messages.

1. Transmission of messages.

2. Document retention, as applicable.

The scope of this chapter is to establish standard procedures for the Load Control process that meet the minimum standards established in the IATA Airport Handling Manual (AHM)–Chapter 5 “Load Control” and the operator's requirements.

5.2 Load Control Principles

Applicable to: All operations

Load Control is an essential process with the purpose of ensuring that the aircraft is safely loaded within operational limits, considering both the mass and centre of gravity parameters.

To ensure flight safety, all items to be loaded into an aircraft must be precisely planned, documented and filed. Documented communication is required to guarantee accurate mass and balance calculations for the pilot in command (PIC) prior to an aircraft's departure.

The Load Control process shall ensure that for each flight:

(a) Aircraft weight and balance conditions are correct and within limits.

(b) The aircraft is loaded in accordance with the specific loading instructions.

(c) Information about dangerous goods and other special loads is taken into account.

(d) The loadsheet reflects the actual loading of the aircraft, including last minute changes (LMC).

(e) Operational messages are dispatched to relevant bodies.

(f) All approved documentation is filed for retention.

Load control functions must be performed by trained and qualified personnel.

5.3 Regulatory Requirements

5.3.1 General

Applicable to: All operations

Regulatory: Load control functions can be carried out by the operator or a third party.

It can be performed at any dedicated location locally at the departure airport or at a remote centralised load control facility. Load control can be performed with a system (manual or computerised) approved by AirTanker.

***NOTE:** AirTanker use third party operators to perform load control functions on their behalf. AirTanker do not perform the load control function.*

The load control function for all AirTanker and Voyager operations is carried out by either a nominated GHA (civil or military) or Centralised Load Control (CLC). It can be carried out at a local (station) location or at a remote CLC facility.

5.3.2 Qualifications

Applicable to: All operations

It is essential that any person involved in the load control process must have received relevant authorisations to operate in their respective areas and as a minimum must be trained in the following:

(a) Load planning

(b) Mass & Balance calculations

(c) Checking and finalising of process documentation e.g. LIRs, LDS

(d) Dangerous goods training in accordance with the current IATA DGRs

Training should be in accordance with AHM591 and AHM1110.

In addition, a proven knowledge of the following:

(e) Where the process involves a CLC or local automated (EDP/DCS) systems, knowledge of individual systems as required.

All staff providing load control services should be familiar with the current edition of the AirTanker Ground Handling Manual.

5.3.3 Documentation

Applicable to: All operations

AirTanker is responsible for providing all relevant documentation for load planning and mass & balance calculations.

The load controller issuing the loadsheet is responsible for accurately reflecting the data received on all documents, reports and messages with regard to each flight departure handled.

Relevant documents must be manually or electronically signed as per AirTanker and regulatory requirements. Specified documents must be retained as per the applicable regulations or as instructions given by AirTanker, but not less than 3 months.

5.4 Responsibilities

5.4.1 Load Control (General)

Applicable to: All operations

Responsibilities of persons performing the Load Control task may vary depending on the organisational set-up. In general terms, Load control is responsible in ensuring the production and/or collation of all applicable documentation to comply with AirTanker policy and the regulatory authorities for an individual flight. Load control responsibilities may vary by operator ground handling agent to include e.g. EDP loadsheet production.

The Load Planning task shall ensure loads are planned safely and distributed in the aircraft compartments and/or holds considering all aircraft limits.

In general the load planning process will consist of the following, however see the relevant paragraphs for commercial and military situations. The load planner shall:

(a) Check aircraft basic mass/index.

(b) Check all items to be included in the Dry Operating Mass/Index.

(c) Check operational messages from the previous flight or leg, including any special loads, if applicable.

(d) Check aircraft operational limitations or any other restrictions that may limit load planning.

(e) Calculate expected traffic load.

(f) Check any other dangerous goods or special loads (DGSL) that require special handling and segregation.

(g) Plan unit load devices (ULDs), taking into consideration the expected loading figures, the aircraft configuration and specific operator requirements.

(h) Allocate loading positions for all traffic load and special loads, if applicable, taking into consideration all flight legs.

(i) Calculate the estimated zero fuel mass (EZFM) and transmit to flight dispatch or operations, as applicable, for flight planning purposes.

(j) EZFM should be communicated every time there is a significant difference from the previous calculation, as per operator requirements.

(k) Check fuel load and distribution.

(l) Perform a pre-calculation of the aircraft mass and balance to ensure that the aircraft operational limits are not exceeded.

(m) Give consideration to aircraft ground stability (refer to 5.21.3.2) to avoid tail tipping, as per operator requirements. Particular attention must be paid to the distribution of the transit load on multi-sector flights. The distribution of the load remaining in the compartments at the next station should be planned such that it meets the above condition. When this condition cannot be met, the offloading/loading sequence in the transit station shall be planned to ensure aircraft ground stability is maintained.

(n) Produce a Loading Instruction Report (LIR).

5.4.1.1 Local Load Control

5.4.1.1.1 Commercial Operations

Applicable to: Commercial operations

Service provided by the local nominated GHA. Responsibilities include, but are not limited to:

(a) Load planning, calculating aircraft payload.

(b) Issuing loading instructions.

(c) Handling the Trip Information Sheet (where applicable).

(d) Transmission of information (communications) e.g. MVT messages, LDM, CPM.

(e) Acting as local contact for AirTanker Operations.

(f) Acting as local contact in cases where a CLC is used.

5.4.1.1.2 Military Operations – Main Base Supported

Applicable to: Military operations – Main Base Movements Supported

Service provided by the military GHA, RAF Logistics (Movs). Responsibilities include, but are not limited to:

(a) Liaising with AirTanker Operations and Dispatch.

(b) Liaising with up-line and down-line stations.

(c) Calculating aircraft payload/EZFM.

(d) Liaising with aircraft loading teams and RAF dispatch (DAMO).

(e) Completing the aircraft Load Data Sheet.

(f) Collating all relevant flight departure documentation.

(g) Transmission of information (communications) e.g. MVT messages, LDM, CPM, NOTOCs etc.

5.4.1.1.3 Military Operations – Unsupported Locations

Applicable to: Military operations – Unsupported Locations (AMW Operations)

Service provided by the mobile military GHA. Responsibilities include, but are not limited to:

(a) Liaising with AirTanker Operations and Dispatch.

(b) Liaising with up-line and down-line stations.

(c) Load planning.

(d) Calculating aircraft payload/EZFM.

(e) Liaising with local handling agents (where required).

(f) Completing the aircraft Load Data Sheet.

(g) Collating all relevant flight departure documentation.

(h) Transmission of information (communications) prior to departure*.

*Due to the nature of some operations, transmission of all departure data may be extremely difficult as the loading team may have to re-board for departure on the next sector. The minimum requirement is a telephone confirmation to AirTanker Operations of the current scenario.

For long term AMW supported locations refer to the above *Military Operations – Main Base Movements Supported.*

5.4.1.2 Centralised Load Control (CLC)

Applicable to: Commercial operations

Where the CLC function carried out by a nominated provider, all load control elements will be carried out fully by the contracted CLC.

5.4.1.3 AHM565 Data

Provide by the AirTanker Services Mass & Balance Department on an as required basis. AHM565 data details the specific data and information to enable a CLC/DCS provider to produce an automated loadsheet. Carriers requiring AHM565 data must contact massandbalance@uk.airtanker.co.uk for details.

5.4.1.4 ACMI Operations

Unless specifically requested by the carrier, ad-hoc ACMI operations will not be supported by a CLC provider. In all cases, the load control function will be carried out under local (station) load control arrangements. Support can be sought from AirTanker Operations where requests for the relevant Ground Operations Mass & Balance Information may be made.

Where CLC or local EDP support is requested as a service to be provided by the lessee, para 5.4.1.3 applies and liaison with massandbalance@uk.airtanker.co.uk is required.

5.4.2 Dispatch Staff

Applicable to: All operations

Dispatch staff act as liaison between load control, operations and the aircraft flight and cabin crew. Dispatch responsibilities may, and often do, vary by operator or ground handling agent to include other elements of the departure process e.g. production of loading documentation. In support of leasing/ACMI operations, dispatch staff may be required to liaise with a Centralised Load Control (CLC) facility.

5.4.3 Pilot in Command (PIC)

Applicable to: All operating PICs

The Pilot in Command is authorised to prepare a loadsheet and is legally responsible for satisfying hims/herself that the load is correctly and safely distributed and properly stowed and secured. He must check and sign the loadsheet (manual or EDP) before departure, ensuring specifically that the loadsheet accounts for the following:

(a) That the name and signature of the person responsible for preparing the loadsheet is legible.

(b) That the aeroplane registration, DOW / DOI correspond to the values contained in the Company Operations Manual.

(c) That the flight number and date are correct for the intended flight.

(d) That the number of crew is correct – especially if the crew configuration is non-standard due to operational or training requirements.

(e) That the limiting weights are correct, especially if these are restricted on the day due to operational or performance requirements.

(f) That the take-off fuel is sufficient and the trip fuel agrees with the flight plan.

(g) That the actual take-off weight, including any Last minute changes (LMC) corresponds with that previously estimated for a gross error check.

(h) The payload.

(i) That the balance chart has been used correctly.

5.5 Information Exchange

Applicable to: All operations

All data pertaining to the aircraft mass and balance calculations must be communicated to the person responsible for the load planning task and final issuance of the loadsheet. Information must be documented and filed using one of the following methods:

(a) Digitally.

(b) Written via documentation.

(c) Verbal communication; In this case, the person receiving the information must assure that one of the following is applied:

1. Read back all information received to guarantee accuracy of the data.

2. Record all verbal communications in written format (manually or digitally) to be able to clarify all discrepancies before the final loadsheet is issued. Note: These records must form part of the flight file for retention.

5.6 Load Planning

Applicable to: All operations

Load planning is an integral part of the flight operation enabling production of instructions to allow the safe loading of the aircraft for operation. The Loading Instruction Report (LIR) gives detailed information regarding the loading sequence and final load positions. A LIR must be prepared for every departure. The following agencies are authorised to carry out load planning:

(a) Commercial operations: Through CLC procedures (DCS). If required, manual processes at local level can be adopted.

(b) Military operations: Through local (station) military GHAs (LDS/manual docs).

The following paragraphs contain general, non-specific aircraft type load planning information. For load planning on specific aircraft types see the relevant annex to this chapter.

The load planner, during the load planning process, typically takes into consideration and will check the following:

(c) Aircraft basic mass and index.

(d) Aircraft role or configuration.

(e) Items to be included in the Dry Operating Mass (DOM) (crew, catering, potable water).

(f) Operational messages from the previous flight or leg, including any special loads, if applicable.

(g) Aircraft operational limitations or any other restrictions that may limit load planning.

(h) Dangerous goods or any other special loads that may require special handling and segregation.

Expected traffic load (payload) and/or the EZFM can be calculated as described in the following paragraphs.

The load distribution can be planned by the load controller/load planner (local or CLC), adhering to any specific operator requirements and procedures.

5.7 Standard Mass Values

The following mass values have been established for calculating crew, passengers and baggage:

5.7.1 Crew and Crew Baggage

Applicable to: All operations

CREW MEMBER	STANDARD MASS (kg)	CREW BAGGAGE (EACH) (kg)	
		DOMESTIC & EU SHORTHAUL*	LONGHAUL
Flight Crew	85	Nil	15
Cabin Crew	75	Nil	15

*Due to the nature of the flying, Domestic & EU Short haul flight crew baggage will normally be taken into the cabin and is accounted for as part of the standard mass value.

5.7.2 Passengers – Commercial Operations

Applicable to: Commercial operations

The following standard mass values for passengers are to be used for commercial operations only. Standard masses include hand baggage and, when lap-seating infants, the mass of the infant when sat on the adult lap. Infants occupying separate passenger seats (utilising a car seat) must be considered as children.

TYPE OF FLIGHT	PASSENGER STANDARD MASS (kg)					
	Male	Female	Child	Infant	All Adult	
All Flights (except Holiday Charters)	88	70	35	0	84	Note 1
Holiday Charters	83	69	35	0	76	Note 1

NOTE 1: M / F / C / I masses will normally be used Where the M/F/C/I distribution cannot be determined the “All Adult” mass should be applied.

5.7.3 Passengers – Military Operations

Applicable to: Military operations

The following standard mass values for passengers are to be used for military flights only.

The ‘all flights’ standard mass and all adult values include hand baggage and, when lap-seating infants*, the mass of the infant when sat on the adult lap. Infants occupying separate passenger seats (utilising a car seat) must be considered as children.

Military Ops/Ex mass values include hand baggage (95 kg) or body armour & helmet (103 kg).

TYPE OF FLIGHT	PASSENGER STANDARD MASS (kg)					
	Male	Female	Child	Infant*	All Adult	
All Flights (other than mil ops/ex)	88	70	35	0	84	Notes 1& 4
Military (Ops/Ex) - Hand baggage only					95	Notes 2, 3 & 4
Military (Ops/Ex) - Body armour & helmet only					103	Notes 2, 3 & 4

*Infant Seating: Current MOD policy states that all passengers, including infants (under 2 yrs), are allocated a seat. An infant must be seated in a suitable child car seat and a child mass of 35kg is to be used.

Car Seats: Must be designed to enable the car seat to be safely secured to the aircraft seat by use of the aircraft seat belt. If the car seat cannot be safely secured the infant must be lap-seated for take-off, landing, taxying and other situations where the seat belt sign is illuminated. In a situation where the infant must be lap-seated, cabin staff may be able to stow the car seat in the cabin for possible in-flight use. If cabin stowage is not possible the car seat must be placed in the lower hold. During normal flight conditions, and to aid passenger comfort, the infant, under guidance from the cabin staff, may be seated in the car seat in their allocated seat position.

Due to the late nature of the above scenario, and as there is a possibility of the infant being sat in the car seat during flight, there is no requirement to carry out a mass and balance LMC to change from a child mass to an infant mass of zero.

Lap-seating Option: Although MOD policy states that infants are to be allocated a seat (as above), if circumstances arise where lap-seating is a pre-determined option to be used, i.e. during the planning/check-in phase (to release seats), infants are to be classed as lap-seated throughout the flight and a weight of zero is to be used.

***NOTE 1 (All Flights)**: M/F/C/I masses will normally be used. Where the M/F/C/I distribution cannot be determined the "All Adult" mass should be applied.*

***NOTE 2 (Military Ops/Ex Flights)**: The 'Military (Ops/Ex)' masses are only used when passengers are carried on flights designated as Military Operations or Exercises.*

***NOTE 3 (Military Ops/Ex Flights)**: Passengers may carry both hand baggage and body armour & helmet in the cabin provided:*

- *The total passenger figure does not exceed 150 passengers.*
- *When seating passengers, the maximum seated by cabin compartment must not exceed half the normal cabin seating allowed.*
- *A variation mass of 9kg per passenger must be accounted for as a cabin load on the LDS.*

***NOTE 4 (Mixed Flights)**: Where passengers being carried under the All Flights regulations and Military Ops/Ex regulations are required to travel on the same flight the highest number of passengers by type will dictate the passenger mass value used. However, if the passenger load can be distributed to enable passenger types to be accounted for by cabin compartment, the relevant mass value can be used, taking into account notes 1 to 3.*

5.7.4 Passenger Baggage

Applicable to: All operations

Baggage allowances for passengers can be found at chapter 4.6. Standard practice is for passenger baggage mass to be determined through the check-in process with a final actual total baggage mass being available. If this is not possible the following mass values for **each checked item** may be used:

FLIGHT TYPE	MASS (kg)
Domestic	11
European	13
Intercontinental	15
All others	13

5.7.5 Estimation of Total Baggage Mass (Payload Planning Figures)

For Payload/EZFM planning purposes the following total baggage mass values, for each passenger, may be used.

5.7.5.1 Commercial Operations

Applicable to: Commercial operations

FLIGHT TYPE	MASS (kg)
Standard Scheduled Flights	18

5.7.5.2 Military Operations

Applicable to: Military operations

FLIGHT TYPE	MASS (kg)
Operations & Exercises	55
South Atlantic Schedule	45
All Other Flights	20

The mass values in the above table may be adjusted if experience when handling specific exercise/operations is gained.

5.8 Passenger Seating

5.8.1 Commercial Operations

Applicable to: Commercial operations

In general, commercial operations are fully automated weight and balance linked flights. This may include some longer term ACMI contracted operations when requested. Ad-hoc ACMI operations are not weight and balance linked, however, depending on the notice period, passenger check-in may be automated after upload of the cabin seat map into the carriers check-in system.

Ad-Hoc ACMI Operations

Due to the one-off nature of ad-hoc ACMI flights, these types will not be weight and balance linked. If time permits the cabin seating plan may be uploaded to the carrier systems and used for check-in. If

check-in has been completed without using the seat plan the cabin free seating policy must be adopted.

5.8.2 Military Operations

Applicable to: Military operations

Load Data Sheet (LDS)

The LDS will determine the optimum passenger distribution in relation to aircraft CG. Load control staff may follow the suggested optimum, however, where required e.g. VIP seating, aeromedical configuration limitations, the optimum seating distribution can be overridden. In this case the free seating principles should be considered.

South Atlantic Airbridge

The SA airbridge is a fully pre-seated flight using the free seating policy principles. All passengers are pre-sat prior to check in using the Passenger Name Plan (available on MODNet).

5.8.3 Free Seating Policy

Applicable to: All operations

The free seating policy can be adopted at any time during the departure process. Passenger distribution is calculated forward, mid and aft by using AS.OGW.052 Cabin Seating Guide

See specific aircraft data for the cabin seating guide instructions.

5.9 Cargo and Mail

Applicable to: All operations

Cargo and Mail final figures, built/full ULD's and loose cargo/mail, to be included within the final estimated payload figure.

5.10 Estimated Payload Calculation

Applicable to: All operations

Estimated payload calculation figures, in kilogrammes (kg) are to be communicated to AirTanker Operations. To include the following:

(a) Passenger mass.

(b) Baggage mass (estimated).

(c) Cargo and mail mass.

(d) ULD on-load mass: ULDs to be used plus any empties.

(e) Fly Away Kit (FAK) – if loaded.

(f) Transit load.

AirTanker Operations will only require a total estimated payload. A payload breakdown is not required, however, an estimated passenger figure should be available.

5.11 Estimated Zero Fuel Mass (EZFM)

Applicable to: All operations

An EZFM may be passed to AirTanker Operations if the following information has been obtained:

(a) Aircraft Dry Operating Mass (DOM/APS)

(b) Estimated payload calculation

AirTanker Operations will accept an EZFM and although actual breakdown may not be required, figures should be available on request.

5.12 Loading Instruction & Report (LIR)

Applicable to: All operations

A LIR must be issued for each flight. Accepted types are as follows:

(a) Manual (all operations).

(b) Load Data Sheet version (military operations).

(c) Automated (CLC operations).

The LIR must be signed by the loading supervisor on completion of loading.

See specific aircraft data for LIR details by aircraft type.

5.13 Notification to the Captain (NOTOC)

Applicable to: All Operations

The Notification to the Captain (NOTOC) is used to inform the Pilot in Command (PIC) of any Dangerous Goods or Special Loads (DGSL) carried as cargo or mail.

The cargo department is responsible for providing DGSL information in legible written, printed or digital form and transmitting it to the load controller/load planner. The Load Planner will produce a LIR taking into consideration DGSL information, their compatibility and segregation criteria.

The information contained on the NOTOC must be made available to the supervisor loading the aircraft who will:

(a) Verify that DGSL are not damaged or leaking.

(b) Ensure the correct positioning of DGSL as per the LIR and NOTOC.

(c) Report actual loading position.

(d) Signs the NOTOC.

(e) Deliver the signed NOTOC to PIC for signature.

The NOTOC must be issued in adequate number of copies, in order to provide information to all concerned and for file retention.

In addition, refer to para 5.18.2.

Further information on NOTOC requirements can be found in Chapter 8, Dangerous Goods.

5.14 Load & Trim Sheet (Loadsheet)

Applicable to: All operations

A loadsheet, manual or automated, must be produced for each flight departure. Only the persons/organisations listed below are authorised in the production of a loadsheet:

Manual Loadsheets

- Aircraft Captain (PIC)
- Other trained Flight Deck personnel
- AirTanker Dispatch Staff

Automated Loadsheets (CLC)

- Trained CLC load control staff

Caution:

Under no circumstances shall any other persons produce a loadsheet.

Specific checks must be made that aircraft structural, maximum take-off, landing and ZFM limits have not been exceeded and that the aircraft is within the specified CG limitations.

The loadsheet is to be checked and signed by the PIC.

See specific aircraft data for loadsheet details by aircraft type.

5.14.1 Production of the Loadsheet

Applicable to: All operations

In order to produce the loadsheet, the following criteria must be met:

(a) Passenger acceptance finalised.

(b) All hold load confirmed.

(c) Fuel figures finalised.

(d) Crew configuration confirmed.

(e) All operator requirements are confirmed.

Applicable to: CLC Operations only

(a) Load control may release a Preliminary Loadsheet with one or more of the above criteria not yet finalised.

(b) The load controller must confirm that all aircraft limitations are adhered to before any loadsheet is released.

5.14.2 Delivery of the Loadsheet

Applicable to: All operations

The loadsheet must be delivered and handed over to the PIC. Manual and automated delivery process is that of Dispatcher to PIC.

Applicable to: Commercial operations

EXCEPTION: ACARS loadsheets may be used on specific aircraft/routes and will be sent direct from CLCs to the flight deck printer. Dispatch staff should check the loadsheet has been received.

5.15 Associated Documentation

5.15.1 Load Data Sheet (LDS)

Applicable to: Military operations

The LDS is to be produced by the military GHA, RAF Logistics (Movs) load control staff, or for mobile operations, trained staff of No1 AMW.

See specific aircraft data for LDS details by aircraft type.

5.16 Last Minute Changes (LMC)

Applicable to: All operations

LMCs must be recorded.

Both manual and automated LMC processes must ensure that the LMC limitations as stated in the specific aircraft data annexes are not exceeded.

See specific aircraft data for LMC limitations.

(a) Standard Procedure: The load presented to the PIC should include all LMCs. These will be shown as entries in the LMC box and, if required, as corrections to gross weights, fuel figures and balance conditions.

(b) Alternative Procedure: AirTanker may allow the loadsheet to be handed to the PIC before any LMCs are made. This method must be agreed with the PIC and communicated by the responsible person, either verbally or in writing, to the PIC in accordance with the standard operating procedure.

Using both methods are to be avoided as this may cause confusion and lost time through clarification.

5.16.1 Manual Loadsheet:

Recording on a manual loadsheet is to be in the provided area.

Applicable to: Military operations

If the LDS has been presented to the AirTanker Dispatcher or Flight Deck crew, the LMCs are to be recorded, by hand, on the LDS and discussed with the ATR Dispatcher or FD Crew. In addition, the Load control copy must also be annotated.

Applicable to: Commercial operations

LMCs are to be discussed verbally with the Flight Deck crew. FD crew will annotate accordingly on the manual loadsheet.

5.16.2 Electronic Flight Bag (EFB) Loadsheet:

Applicable to: All operations

LMCs are to be discussed verbally with the Flight Deck crew. FD crew will adjust the EFB mass and balance accordingly.

5.16.3 Automated (DCS) Loadsheet:

Applicable to: All operations

LMCs are to be discussed verbally with the Flight Deck crew. The FD crew will record by hand writing on the automated copy. A new issue of the DCS loadsheet is not required.

5.17 Loadsheet Discrepancies

Applicable to: All operations

Any discrepancies found after loadsheet release or delivery to the flight deck must be reported without delay to the relevant CLC or PIC. For discrepancies found after take-off AirTanker Operations must be informed immediately.

Communications addresses as per the post departure messaging address list.

5.18 Post Departure Messaging

5.18.1 Post Departure Messages

Applicable to: All operations

All relevant post departure messages pertaining to the flight must be sent to all receiving airfields (destination and stop-overs), AirTanker Operations and AirTanker Dispatch. As a minimum the following must be sent:

(a) Movement Message (MVT).

(b) Load Departure Message (LDM).

(c) Container Pallet Message (CPM).

(d) NOTOC (as required).

(e) Special Load Instructions (as required).

Responsibility for delivery of the above is dependent on the type of operation or handling arrangement. See addressees below.

Applicable to: Military operations

EXCEPTION: Actions for unsupported locations (AMW Operations): Due to the nature of some operations and/or locations, transmission of all departure data may be extremely difficult as the loading team may have to re-board for departure. The minimum requirement is a telephone confirmation to AirTanker Operations of the current situation, load details etc. prior to boarding.

5.18.2 Notification to Captain (NOTOC)

Applicable to: All operations

A NOTOC is required for each flight carrying dangerous goods as cargo. The NOTOC is acceptable as a manual document, hand written or typed, or an automated version.

Further information on NOTOC requirements can be found in Chapter 6, Dangerous Goods.

NOTE: In a situation of an unsupported location (see exception above) the NOTOC must be left with the local GHA.

5.18.3 Special Loads

Applicable to: All operations

Special loads must be communicated to the addresses as per the post departure messaging requirements. Special loads may include, but are not limited to:

- VIP / PRM / UNMIN / COMP (mil only)
- AVI / PER / HUM / WPN (mil only)

5.19 AirTanker Contact Details

Applicable to: All operations

	SITA	Email
AirTanker Operations	BZZOOXH	DutyOpsManager@uk.airtanker.co.uk
AirTanker Dispatch	BZZODXH	DispatchCoord@uk.airtanker.co.uk

Additional for Commercial Leasing (TCX/Jet2/ACMI)

Flight Planning Leasing		fpl@uk.airtanker.co.uk

	TELEPHONE
AirTanker Operations	0044 (0) 1993 87 3226 / 3231
AirTanker Dispatch	0044 (0) 1993 87 3222 / 3223

Additional for Commercial Leasing (TCX/Jet2/ACMI)

Flight Planning Leasing	0044 (0) 1993 87 3744

Annex A to Chapter 5

LOAD CONTROL

Aircraft Data Airbus A330-200

Aircraft Data, Load Planning and Mass & CG Calculation

5.20 A330-200 Aircraft Data

Information Owner: Mass & Balance Engineer
massandbalance@uk.airtanker.co.uk

5.20.1 General

This annex contains information relevant to the operation of the A330-200 aircraft. General load control, load planning requirements and load planning data can be found in Chapter 5.

5.20.2 Aircraft Dimensions

The aircraft principle dimensions are shown below.

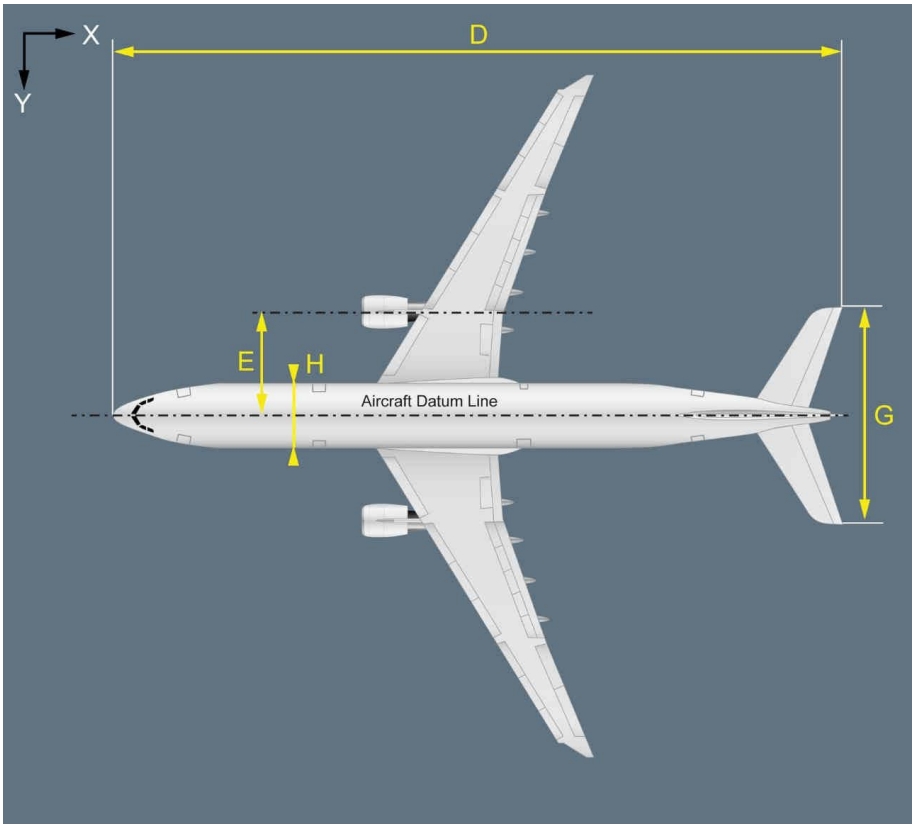


Figure 38 Aircraft Dimensions (top)

Legend	Designation	Dimensions	
		(m)	(in)
D	Overall length	58.362	2,297.72
E	Distance between the a/c datum line and the engine 1 CG	9.370	368.90
G	Span of Horizontal Tail Plane (HTP)	19.404	763.94
H	Fuselage width	5.640	222.05

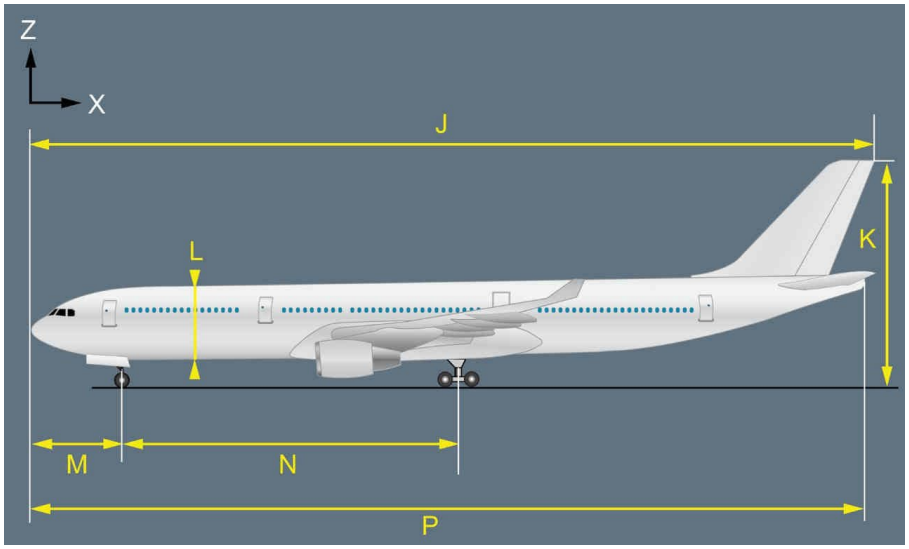


Figure 39 Aircraft Dimensions (side)

Legend	Designation	Dimensions	
		(m)	(in)
J	Distance between the a/c/ nose and the end of the Vertical Tail Plane (VTP)	58.818	2,315.67
K	Overall height from the ground	17.385	684.45
L	Fuselage height	5.640	222.05
M	Distance between the a/c nose and the Nose Landing Gear (NLG)	6.671	262.64
N	Distance between the NLG and the Main Landing Gear (MLG)	22.180	873.23
P	Fuselage length	57.512	2,264.25

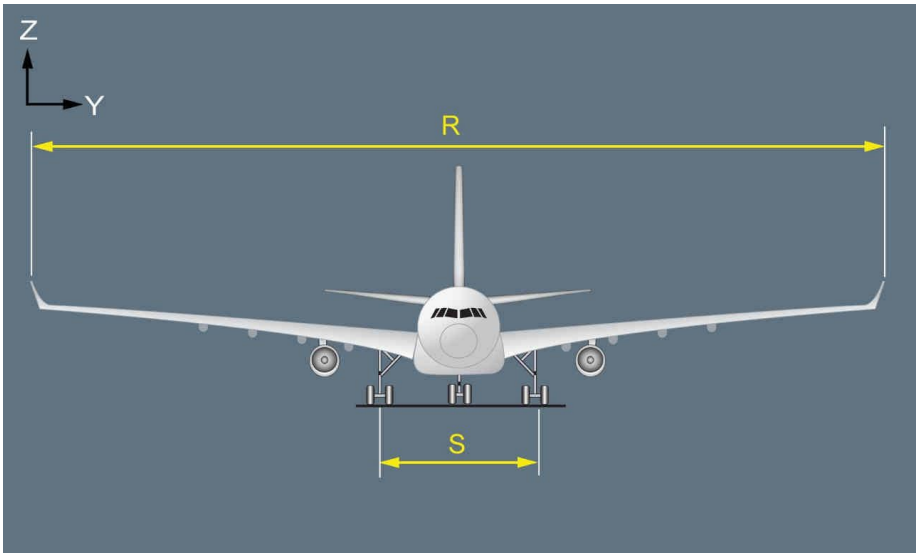


Figure 40 Aircraft Dimensions (front)

Legend	Designation	Dimensions	
		(m)	(in)
R	Wing span	60.304	2,374.17
S	Distance between the MLG right and the MLG left	10.684	420.63

5.20.3 Design Mass Limitations

Applicable to: All A330-200 and Voyager aircraft

The design mass limitations, as shown below, are not to be exceeded.

Max Ramp Mass (kg)	233,900
Max Take-off Mass (kg)	233,000
Max Landing Mass (kg)	182,000
Max Zero Fuel Mass (kg)	170,000

Regulated take-off and Landing Mass; In addition to the above it is common that a regulated take-off (RTOM) and/or landing (RLM) mass may be applied. These may be due to aerodrome elevation, ambient temperature, runway dimensions or conditions, or obstacle clearance limitations. Take-off mass may also be limited on short sectors where fuel burn-off would be insufficient to reduce the mass below the RLM.

NOTE: It is the responsibility if the PIC to establish the RTOM and RLM for each individual circumstance.

Applicable to: G-VYGK, G-VYGL, G-VYGM Only

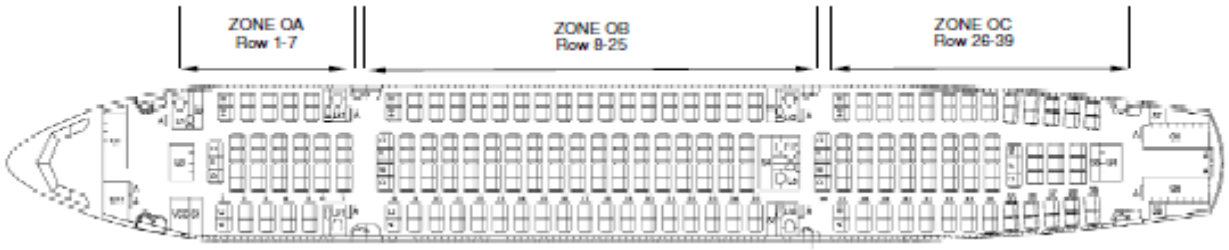
In addition to the above maximums, G-VYGK, G-VYGL and G-VYGM have the availability to enable a reduction of the MTOM to the following:

Max Ramp Mass (kg)	192,900
Max Take-off Mass (kg)	192,000
Max Landing Mass (kg)	182,000
Max Zero Fuel Mass (kg)	170,000

5.20.4 Cabin Seating Configurations – Standard Cabin Seating

5.20.4.1 Cabin Seating 291Y

Applicable to: ZZ330 / ZZ331 / ZZ332 / ZZ333 / ZZ334 / ZZ335 / ZZ337 / ZZ338 / ZZ343 / G-VYGJ

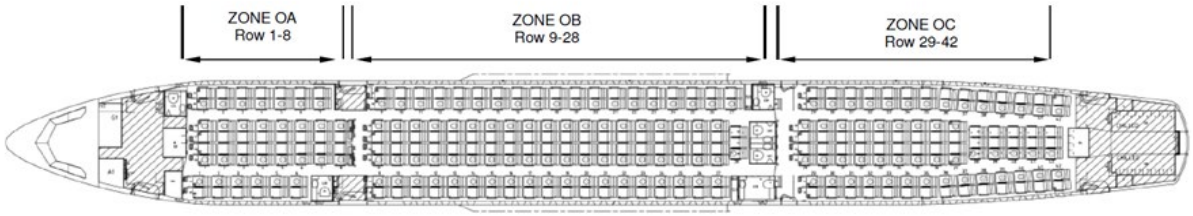


REGISTRATION	MAX SEATS PER ZONE			TOTAL
	Zone A	Zone B	Zone C	
AS APPLCABLE (ABOVE)	47	144	100	291

NOTE: *Aeromedical Role 3 (Overseat Strechers) capable. Stretchers may be installed in Zone C over rows 37-39 port &/or starboard with a loss of 12/6 seats. Zone C reduces to 88/94 seats. Refer to Para 5.20.6.7.*

5.20.4.2 Cabin Seating 320Y

Applicable to: G-VYGK

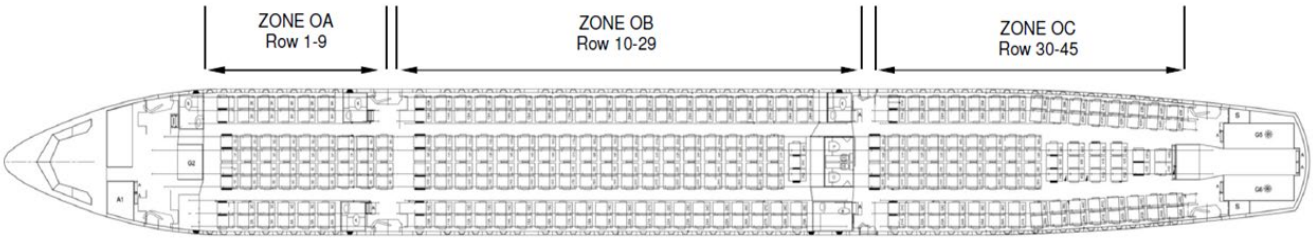


REGISTRATION	MAX SEATS PER ZONE			TOTAL
	Zone A	Zone B	Zone C	
G-VYGK	58	155	107	320

NOTE: *Aeromedical Role 3 (Overseat Strechers) capable. Stretchers may be installed in Zone C replacing seats 40AC-42AC port &/or 40HK-42HK starboard with a loss of 12/6 seats. Zone C reduces to 95/101 seats. Refer to Para 5.20.6.7.*

5.20.4.3 Cabin Seating 327Y

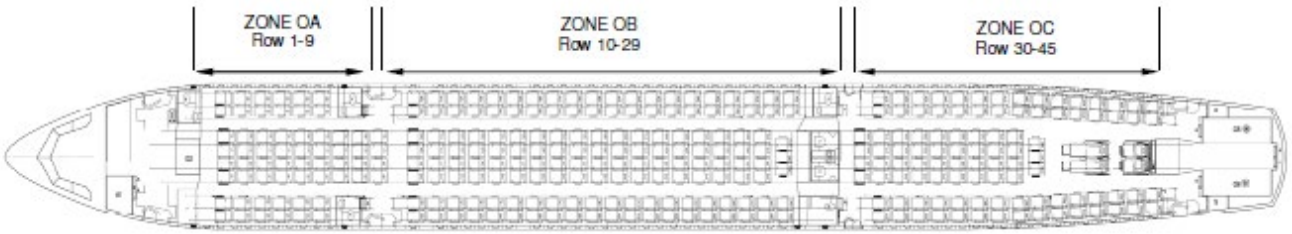
Applicable to: G-VYGL / G-VYGM



REGISTRATION	MAX SEATS PER ZONE			TOTAL
	Zone A	Zone B	Zone C	
G-VYGL / G-VYGM	60	155	112	327

5.20.4.4 Cabin Seating 4CR 314Y

Applicable to: G-VYGL



REGISTRATION	SEAT TYPE	MAX SEATS PER ZONE			TOTAL
		Zone A	Zone B	Zone C	
G-VYGM	CREW REST (CR)			4	318
	PAX	60	155	99	

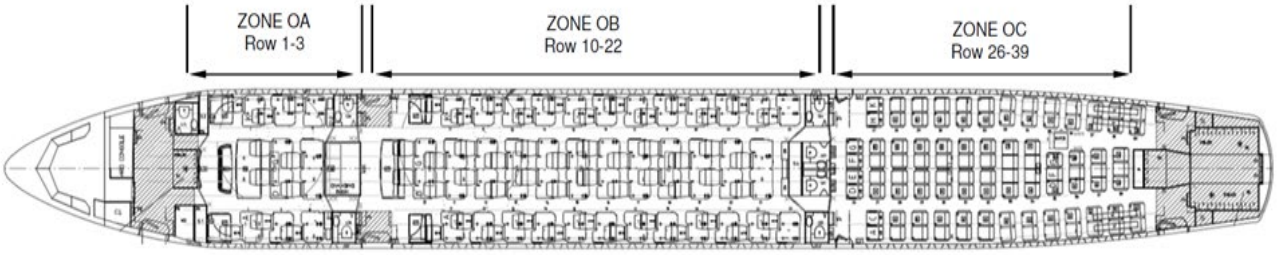
NOTE 1: *CR (Crew Rest) x 4 are not available for passenger use.*

NOTE 2: *Aeromedical Role 3 (Overseat Strechers) capable. Stretchers may be installed in Zone C over seats 43AC-45AC port &/or 43HK-45HK starboard with a loss of 12/6 seats. Zone C reduces to 87/94 seats. Refer to Para 5.20.6.7.*

5.20.5 Cabin Seating Configuration – Enhanced Cabin (ZZ336)

5.20.5.1 Cabin Seating 58BC / 100Y (VIP Role 158 seats)

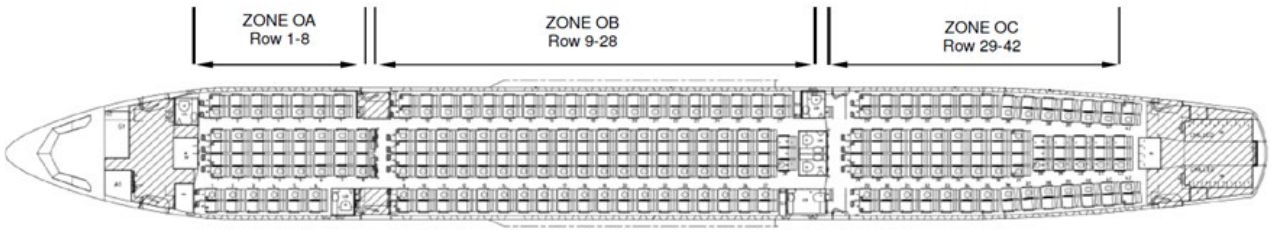
Applicable to: ZZ336



REGISTRATION	MAX SEATS PER ZONE			TOTAL
	Zone A	Zone B	Zone C	
ZZ336	10	48	100	158

5.20.5.2 Cabin Seating 320Y

Applicable to: G-VYGK



5.20.6 Cabin Seating Configurations – Aeromedical Roles

The military (Voyager) aircraft are capable of being configured to many aeromedical configurations (roles) within the main cabin. In addition, ZZ336, GVYGJ, GVYGK and GVYGM are capable of having overseat stretchers installed within cabin OC on a more temporary basis.

Aeromedical configuration is defined as the installation of aeromedical 'modules' within the passenger cabin. To understand the installation process cabin zones and cabin arrangements should be understood

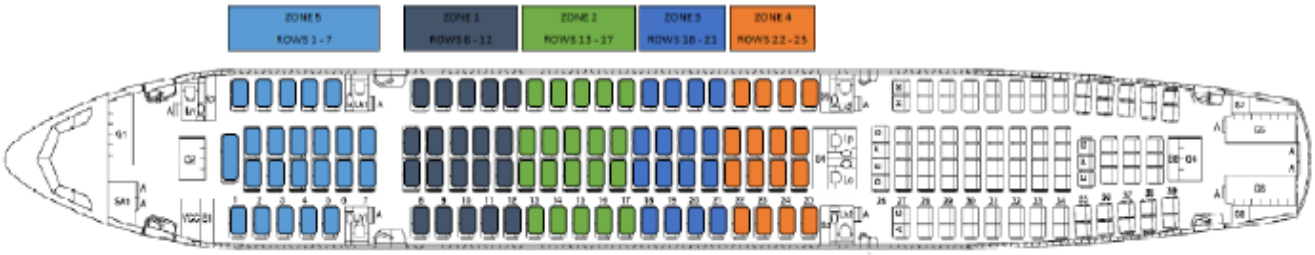
5.20.6.1 Cabin Zones and Cabin Arrangements

Applicable to: ZZ330 / ZZ331 / ZZ332 / ZZ333 / ZZ334 / ZZ335 / ZZ337 / ZZ338 / ZZ343

Cabin Zones

For aeromed purposes the passenger mid and forward cabins are divided into cabin zones (see below).

- Cabin Zone 1 (seat rows 8 to 12)
- Cabin Zone 2 (seat rows 13 to 17)
- Cabin Zone 3 (seat rows 18 to 21)
- Cabin Zone 4 (seat rows 22 to 25)
- Cabin Zone 5 (seat rows 1 to 7)



Cabin Arrangements

Cabin arrangements are created through removal of seat zones in a specific order as shown in the table below. Within each aeromedical configuration there are the following classes of seats:

- Aeromedical Escort Seats
- General Passengers Seats

CABIN ARR.	REMOVE ZONES					SEATS REMAINING			AEROMED ROLES AVAILABLE
						ESCORTS	PAX	TOTAL	
1		Z1				4	251	255	2C, 2D
2		Z1	Z2			8	211	219	2G, 2H, 2I
3		Z1	Z2	Z3		12	179	191	1J, 1K, 2L, 2M, 2N, 2O
4		Z1	Z2	Z3	Z4	16	147	163	2P, 2Q, 2R, 2S
5	Z5	Z1	Z2	Z3	Z4	23	100	123	2T, 2U, 2V, 2W

5.20.6.1.1 Notes to Cabin Arrangements

NOTE 1: *Aeromedical Flights. When the aircraft is in an aeromedical role the 4 passenger seats located at each stretcher row are for use by medical staff during aeromedical flights. Not for general passenger use.*

NOTE 2: *Non-Aeromedical Flights. When the aircraft is not being used as an aeromedical flight the aircraft commander may grant permission for the 4 passenger seats located at each stretcher row to be occupied when additional seating is required.*

NOTE 3: *All military registered aircraft are capable of aeromedical configuration installation..*

NOTE 4: *Aeromedical Role 3 (military registrations and GVYGJ). Overseat stretchers installed over rows 37-39 port &/or starboard with a loss of 12 seats (2 x stretchers installed) or 6 seats (1 x stretcher installed). Where overseat stretchers are not installed, Zone C retains 100 seats.*

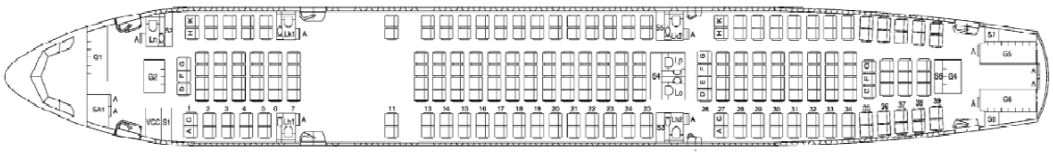
NOTE 5: *Aeromedical Role 3 (GVYGK and GVYGM). Overseat stretchers installed over rows within cabin OC port &/or starboard with a loss of 12 seats (2 x stretchers installed) or 6 seats (1 x stretcher installed). See relevant aircraft details.*

5.20.6.2 Cabin Seating 255Y - Cabin Arrangement 1

Applicable to: ZZ330 / ZZ331 / ZZ332 / ZZ333 / ZZ334 / ZZ335 / ZZ337 / ZZ338 / ZZ343

Cabin Zone	1	**CABIN ARRANGEMENT 1**	Aeromedical Escorts Seats	4
Aeromed Role Configs	2C, 2D	**(ZONE 1) (ROWS 8 - 12)**	Standard Passenger Seats	251

Total Seats	255	FWD	47
		MID	108
		AFT	100



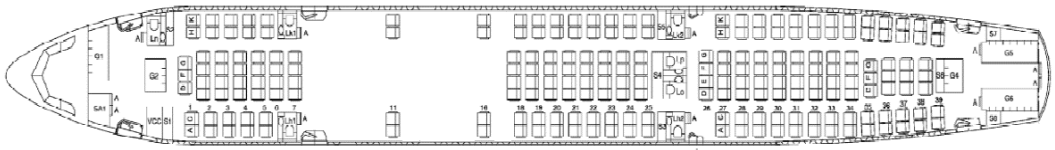
Refer to notes at para 5.20.6.1.1for aeromedical escort and standard passenger seating.

5.20.6.3 Cabin Seating 219Y - Cabin Arrangement 2

Applicable to: ZZ330 / ZZ331 / ZZ332 / ZZ333 / ZZ334 / ZZ335 / ZZ337 / ZZ338 / ZZ343

Cabin Zones	1 to 2	**CABIN ARRANGEMENT 2**	Aeromedical Escorts Seats	8
Aeromed Role Configs	2G, 2H, 2I	**(ZONES 1 - 2) (ROWS 8 - 17)**	Standard Passenger Seats	211

Total Seats	219	FWD	47
		MID	72
		AFT	100



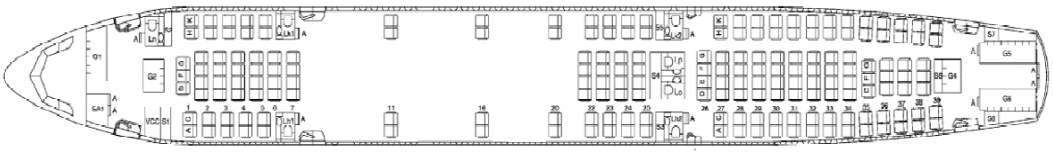
Refer to notes at para 5.20.6.1.1 for aeromedical escort and standard passenger seating.

5.20.6.4 Cabin Seating 191Y - Cabin Arrangement 3

Applicable to: ZZ330 / ZZ331 / ZZ332 / ZZ333 / ZZ334 / ZZ335 / ZZ337 / ZZ338 / ZZ343

Cabin Zones	1 to 3	**CABIN ARRANGEMENT 3**	Aeromedical Escorts Seats	12
Aeromed Role Configs	1J, 1K, 2L, 2M, 2N, 2O	**(ZONES 1 - 3) (ROWS 8 - 21)**	Standard Passenger Seats	179

Total Seats	191	FWD	47
		MID	44
		AFT	100



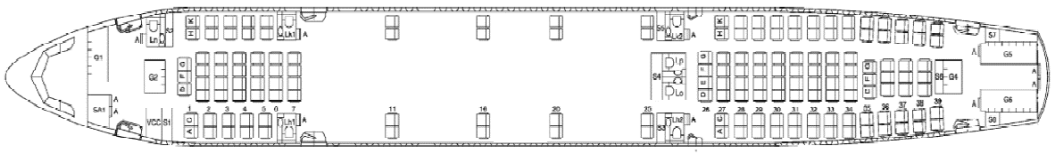
Refer to notes at para 5.20.6.1.1 for aeromedical escort and standard passenger seating.

5.20.6.5 Cabin Seating 163Y - Cabin Arrangement 4

Applicable to: ZZ330 / ZZ331 / ZZ332 / ZZ333 / ZZ334 / ZZ335 / ZZ337 / ZZ338 / ZZ343

Cabin Zones	1 to 4	**CABIN ARRANGEMENT 4**	Aeromedical Escorts Seats	16
Aeromed Role Configs	2P, 2Q, 2R, 2S	**(ZONES 1 - 4) (ROWS 8 - 25)**	Standard Passenger Seats	147

Total Seats	163	FWD	47
		MID	16
		AFT	100



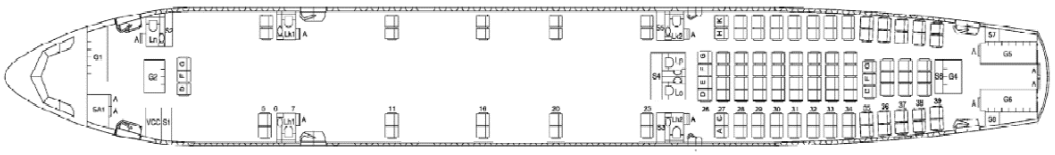
Refer to notes at para 5.20.6.1.1 for aeromedical escort and standard passenger seating.

5.20.6.6 Cabin Seating 123Y - Cabin Arrangement 5

Applicable to: ZZ330 / ZZ331 / ZZ332 / ZZ333 / ZZ334 / ZZ335 / ZZ337 / ZZ338 / ZZ343

Cabin Zones	1 to 5	**CABIN ARRANGEMENT 5**	Aeromedical Escorts Seats	23
Aeromed Role Configs	2T, 2U, 2V, 2W	**(ZONES 1 - 5) (ROWS 1 - 25)**	Standard Passenger Seats	100

Total Seats	123	FWD	7
		MID	16
		AFT	100



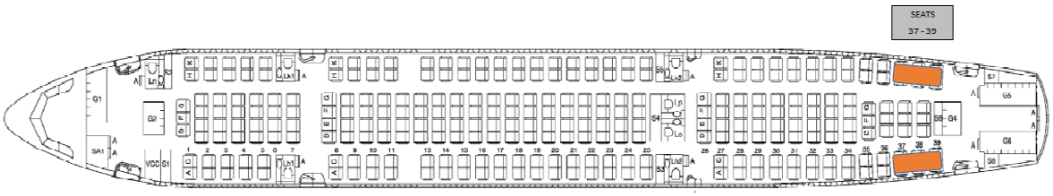
Refer to notes at para 5.20.6.1.1 for aeromedical escort and standard passenger seating.

5.20.6.7 Cabin Seating 279Y Cabin Configuration (Aeromedical Role 3)

Applicable to: ZZ330 / ZZ331 / ZZ332 / ZZ333 / ZZ334 / ZZ335 / ZZ337 / ZZ338 / ZZ343 / G-VYGJ

Cabin Arrangement	N/A	Up To 2 Standard Patients	Aeromedical Escorts Seats	NIL
Aeromedical Role	ROLE 3		Standard Passenger Seats	285 / 279

Total Seats	285 / 279



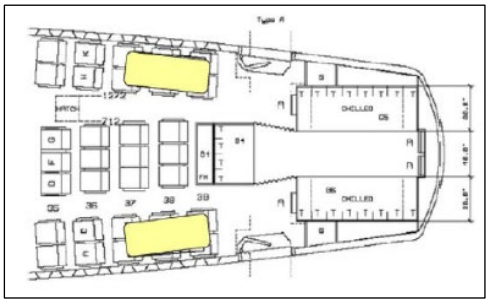
STRETCHER DIAGRAM NOT TO SCALE

Aeromed Escort Seats	To be seated on standard passenger seats as required

Passenger Seats	285	1 Commercial stretcher installed over rows 37-39 port or starboard
Passenger Seats	279	2 Commercial strechers installed over rows 37-39 port and starboard

Refer to notes at para 5.20.6.1.1.

Standard role 3 configuration is of two overseat stretchers installed in the rear cabin located over seat rows 37-39 port and starboard and may be used in addition to cabin arrangements 1 – 5. The South Atlantic Airbridge (SAA) is permanently configured in a role 3 cabin configuration reducing maximum total seating capacity to 279 seats.



There may be circumstances where only one commercial stretcher is required to be installed. One overseat stretcher may be located over seat rows 37-39 port or starboard.

ZZ336, Enhanced Cabin, is capable of aeromedical role 3 installation in cabin OC.

G-VYGM and G-VYGK are capable of aeromedical role 3 installation in cabin OC.

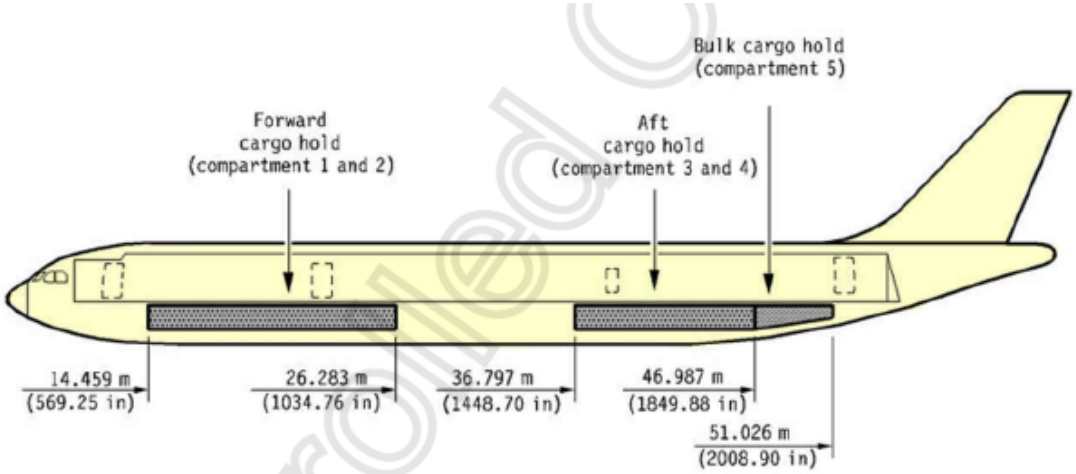
5.20.7 A330-200 Cargo Holds

5.20.7.1 General

Applicable to: All A330-200 and Voyager aircraft

Lower holds are designated forward cargo hold (compartment 1 and 2), aft cargo hold (compartment 3 and 4) and bulk hold (compartment 5). Aft cargo hold (compartment 3 and 4) and bulk cargo hold (compartment 5) are separated by a divider net. The general arrangement of the cargo holds is shown below.

For cargo hold maximums see para 5.20.8.3.



Quick reference notes to the above:
(refer to specific paragraphs for detailed requirements):

- Holds 1 to 4: Equipped with the Airbus Cargo Loading System (CLS).
- Holds 1 to 4: Mixed loading of pallets and containers is allowed.
- Holds 1 to 4: Not heated/temperature controlled.
- Holds 1 to 4: Nil dry ice to be loaded.
- Holds 1 to 4: Max height for a loaded pallet – 64 inches.
- Holds 1 to 4: Locking system/cargo equipment malfunctions – see handling.
- Holds 1 to 4: Prohibited to carry loose bulk cargo or loose baggage within holds.
- Hold 4: Position 44 variation in some aircraft. Referred to as including or excluding Position 44.
- Hold 5: For bulk loading baggage or cargo, divided by inner barrier nets.
- Hold 5: Heated/temperature controlled.
- Hold 5: Not available if a Fuselage Refuelling Unit (FRU) is fitted (Military aircraft only).
- Hold 5: Max Dry Ice loading – 150 kg.
- Hold 5: Restraint Conditions:
  - For bulk loading, if the net restraint system is used, no additional restraints are required except in the following cases:
    - When a bulk item may be hazardous due to its nature, form, or density.
    - When a bulk item has a weight of more than 150 kg.
  - The additional restraint of the above items is achieved if:
    - The applicable net section is filled to at least three quarters of its height.
    - Bulk items are secured individually to the tie-down points of the aircraft.

5.20.7.2 Cargo Hold Variants

Applicable to: Aircraft as below

Cargo hold cargo variation is dependent on whether the aircraft is a 2 point or 3 point (FRU) capable tanker. The hold is described as being including, or not including position 44, in relation to the 2 or 3 point variant. Position 44 is only available on the 2 point tanker variant. The table below relates aircraft registrations to including/not including position 44.

AIRCRAFT REGISTRATION	TANKER CAPABILITY	
ZZ330	2 POINT	INCLUDING POSITION 44
ZZ331	2 POINT	
ZZ343	2 POINT	
G-VYGJ	2 POINT	
G-VYGK	2 POINT	
G-VYGL	2 POINT	
G-VYGM	2 POINT	

AIRCRAFT REGISTRATION	TANKER CAPABILITY	
ZZ332	3 POINT	**NOT** INCLUDING POSITION 44
ZZ333	3 POINT	
ZZ334	3 POINT	
ZZ335	3 POINT	
ZZ336	3 POINT	
ZZ337	3 POINT	
ZZ338	3 POINT	

5.20.7.3 Cargo Hold Maximums

Applicable to: Aircraft as below

INCLUDING ULD POSITION 44 (kg)

2 Point Capable: ZZ330, ZZ331, ZZ343, G-VYGJ, G-VYGK, G-VYGL, G-VYGM

HOLD 1	HOLD 2	HOLD 3	HOLD 4	HOLD 5
10572	8297	7575	9253	1881
COMBINED H1 & 2		COMBINED H3 & 4		*Note 1*
18869		16828		

NOT INCLUDING ULD POSITION 44 (kg)

3 Point Capable: ZZ332, ZZ333, ZZ334, ZZ335, ZZ336, ZZ337, ZZ338

HOLD 1	HOLD 2	HOLD 3	HOLD 4	HOLD 5
10572	8297	7575	7666	3468
COMBINED H1 & 2		COMBINED H3 & 4		*Note 2*
18869		15241		

***NOTE 1**: Hold 5 is available on all 2 point capable tankers.*

***NOTE 2**: Hold 5 is not available when a 3 point capable tanker is fitted with a Fuselage Refuelling Unit (FRU). Under no circumstances must anything be loaded in H5 when in the FRU configuration. Where a FRU is not fitted H5 is fully available.*

5.20.7.4 Unit Load Device (ULD) Maximums

Applicable to: All aircraft hold configurations

ULDs accepted:

- Containers: LD3 (AKE), LD3 (AKN), LD6 (ALF)
- Pallets*: LD9 (PMC), 463L/SL4 (military pallet), LD7 (PAG)

*Constitutes pallet and associated net.

Other container/pallet types may be accepted for loading on approval from AirTanker.

For serviceability checks see the serviceability placard on the ULD. For further information regarding ULD refer to the IATA ULD Technical Manual.

ULD	Tare Weight* (kg)	Max Weight** (kg)	Max Height (inches)
LD3 (AKE)	80	1587	
LD3 (AKN)	155	1587	
LD6 (ALF)	196	3174	
LD7 (PAG)	by manufacturer	4626	
LD9 (PMC)	101	5103	64
LD9 (PMC) Net	9		
463L/SL4	122	4535	64
UK Military Net	40		

*ULD tare weights may vary dependant on carrier or construction materials.

**Warning:

Maximum weights remain the same across all operations irrespective of other carrier regulations/ULD tare weights.

5.20.7.5 ULD No-Fit Positions

Applicable to: All aircraft hold configurations

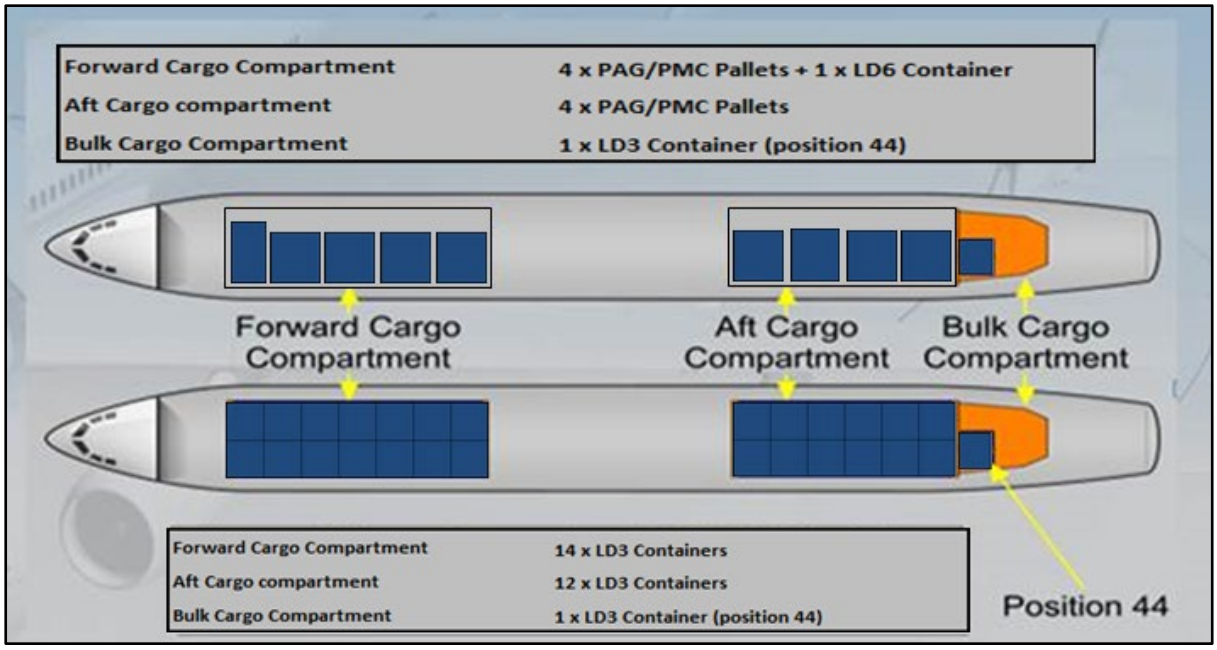
It is not necessary for cargo holds 1 to 4 to be loaded with the maximum number of containers or pallets. Any cargo position may remain unoccupied.

Warning:

Where no-fit positions are present, all latches throughout the respective cargo compartment must be raised to restrict inadvertent movement of a ULD in case of latch failure.

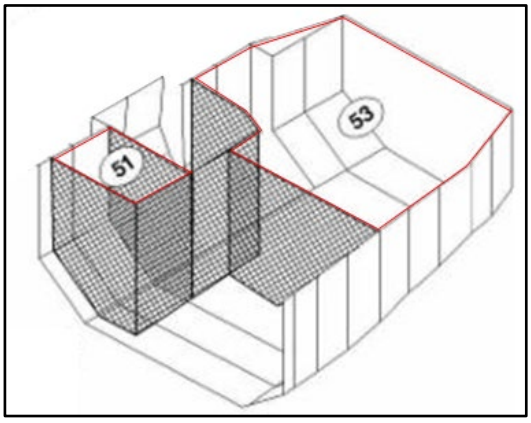
5.20.7.6 Cargo Holds – including Position 44 – Layout & Capacities

Applicable to: ZZ330, ZZ331, ZZ343, G-VYGJ, G-VYGK, G-VYGL, G-VYGM



5.20.7.7 Cargo Hold 5 – Bulk Cargo Compartment (including position 44)

Applicable to: ZZ330, ZZ331, ZZ343, G-VYGJ, G-VYGK, G-VYGL, G-VYGM



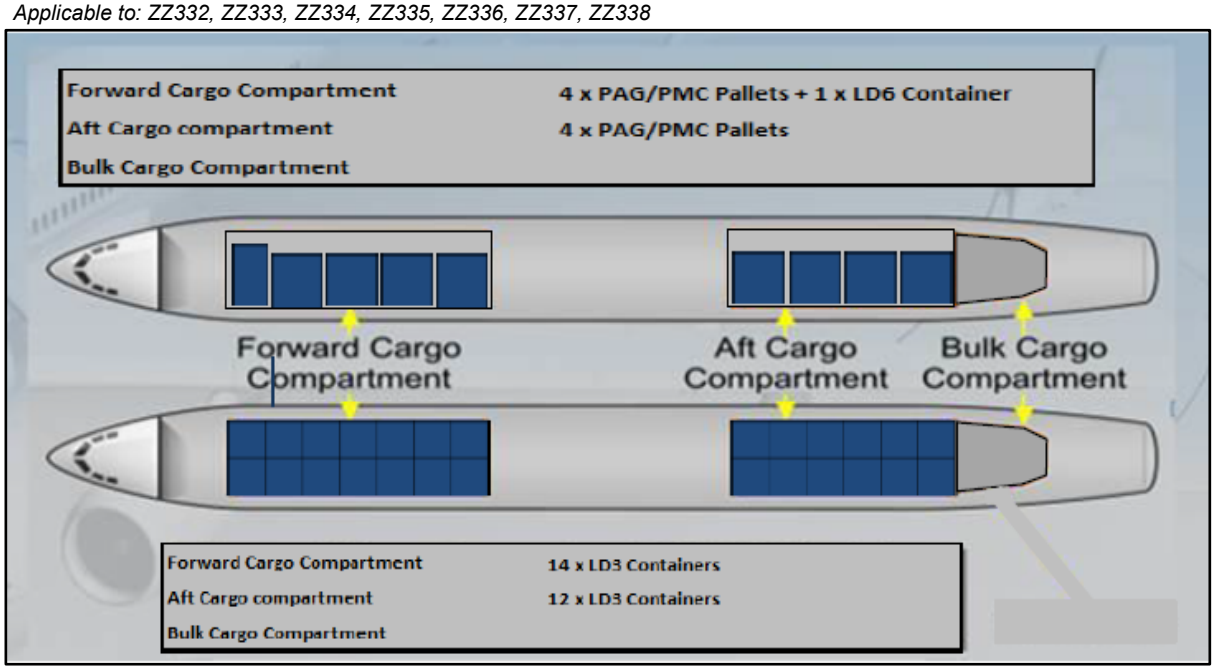
Posn 51 Max – 264 kg
Posn 53 Max – 1617 kg

***NOTE**: Hold 5 Restraint Conditions.*

- *For bulk loading, if the net restraint system is used, no additional restraints are required except in the following cases:*
  - *When a bulk item may be hazardous due to its nature, form, or density.*
  - *When a bulk item has a weight of more than 150 kg.*
- *The additional restraint of the above items is achieved if:*
  - *The applicable net section is filled to at least three quarters of its height.*
  - *Bulk items are secured individually to the tie-down points of the aircraft.*

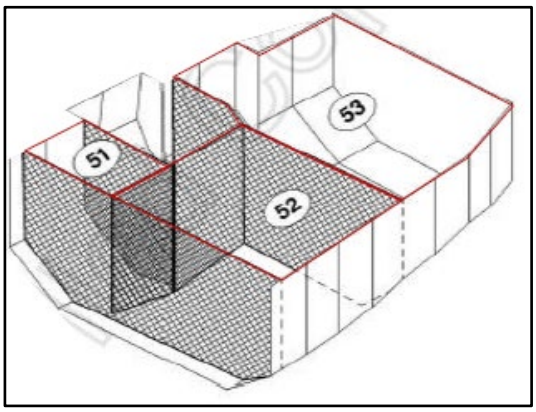
5.20.7.8 Cargo Hold – Not including Position 44 – Layout & Capacities

Applicable to: ZZ332, ZZ333, ZZ334, ZZ335, ZZ336, ZZ337, ZZ338



5.20.7.9 Cargo Hold 5 – Bulk Cargo Compartment (not including position 44)

Applicable to: ZZ332, ZZ333, ZZ334, ZZ335, ZZ336, ZZ337, ZZ338



Posn 51 Max – 339 kg
Posn 52 Max – 1413 kg
Posn 53 Max – 1716 kg

***NOTE**: Hold 5 Restraint Conditions.*

- *For bulk loading, if the net restraint system is used, no additional restraints are required except in the following cases:*
  - *When a bulk item may be hazardous due to its nature, form, or density.*
  - *When a bulk item has a weight of more than 150 kg.*
- *The additional restraint of the above items is achieved if:*
  - *The applicable net section is filled to at least three quarters of its height.*
  - *Bulk items are secured individually to the tie-down points of the aircraft.*
  -

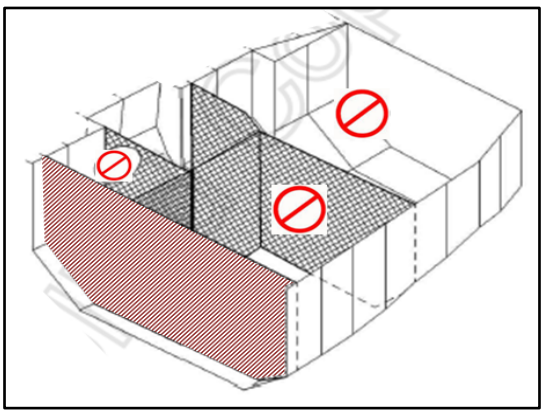
5.20.7.10 Cargo Hold 5 – Fuselage Refuelling Unit (FRU) Installed

Applicable to: ZZ332, ZZ333, ZZ334, ZZ335, ZZ336, ZZ337, ZZ338

When a Fuselage Refuelling Unit (FRU) is installed a divider wall is located between H4 and the bulk loading area (H5).

Warning:

It is forbidden for ground handling staff to load any items within H5 when in this configuration.



5.21 A330-200 Load Planning

Applicable to: Commercial & military operations

The load planning process enables production of instructions to allow the safe loading of the aircraft for operation. The Loading Instruction Report (LIR) gives detailed information regarding the loading sequence and final load positions. A LIR must be prepared for every departure. The following agencies are authorised to carry out load planning:

- Commercial operations: Through CLC procedures (DCS). If required, manual processes at local level can be adopted.
- Military operations: Through local (station) military GHAs (LDS/manual docs).

5.21.1 Crew Seating

There a total of 15 crew seats on the aeroplane as follows:

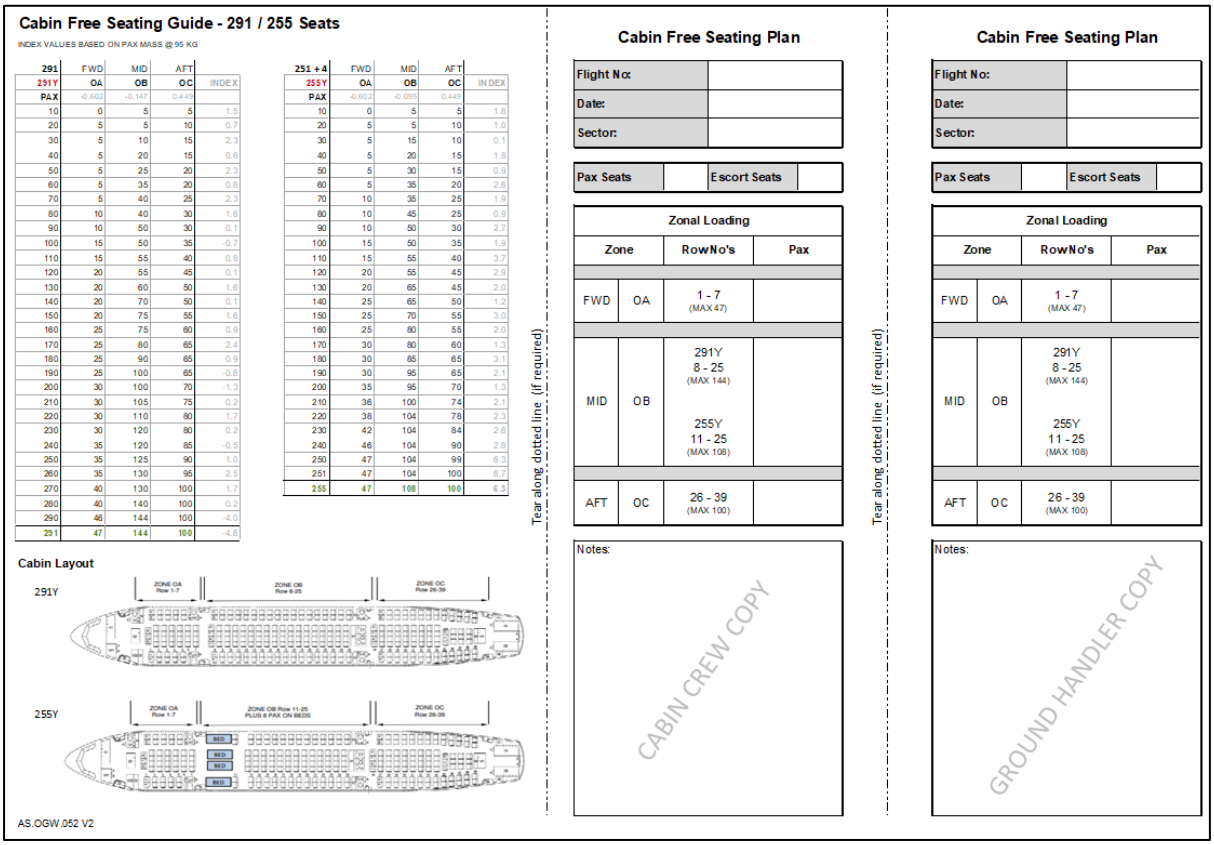
- Flight Deck – 2 pilots seats and 2 observer seats
- Cabin Area – 11 cabin crew seats in defined locations

5.21.2 Passenger Seating

5.21.2.1 Free Seating Distribution

Applicable to: All operations

Standard passenger distributions are to be followed as much as possible, however, where free seating is necessary AS.OGW.052 must be used. See below.



5.21.3 Cargo Hold Loading

5.21.3.1 Standard Distribution

Applicable to: All operations

A330-200 AirTanker recognised standard load distribution is as follows:

Fwd Compartment (%)		Rear Compartment (%)		
Hold 1	Hold 2	Hold 3	Hold 4	Hold 5
← 30 →		← 70 →		Bulk Load
10	20	40	30	

NOTES:

- *Weights throughout holds should be evenly distributed.*
- *Although the above is the AirTanker recognised distribution, deviations are acceptable e.g. rear hold only loading (see warnings below).*
- *For planning purposes, and to allow for passenger embarkation and disembarkation processes, it is recommended that the aircraft CG does not exceed 32% when only the lower hold is loaded.*

5.21.3.2 Aircraft Ground Stability

Applicable to: All operations

Warning:

If deviating from the standard distribution it is the responsibility of the GHA to ensure aircraft ground stability at each stage of loading. When planning a non-standard lower hold load the passenger embarkation and disembarkation sequences must be taken into account.

Applicable to: Military ZZ registrations only

Warning:

Before loading, a check must be made with the flight deck or AirTanker Dispatcher that fuel loading is in a standard configuration. Due to the nature of AAR operations fuel may be unexpectedly in the aircraft trim tank.

Load Data Sheet: The Load Data Sheet (LDS) can be used to determine the aircraft ZFM CG prior to and during passenger embarkation/disembarkation procedures. Using the Zero Fuel Mass Plot graph, the following process can be used:

(a) Insert the DOM mass and index.

(b) Load the lower hold(s) as intended.

(c) Load the passenger number and distribution in sequence of loading/unloading. Note: the warning stating aft index limits are exceeded may display. This warning is for final CG position after all hold

and passengers are loaded. During the embarkation/disembarkation process it is acceptable to exceed aft limits.

Warning:

When deviating from the standard hold distribution, do not exceed 40% during the passenger embarkation/disembarkation process.

5.21.3.3 Aircraft Spares (FAK/FAP)

Applicable to: All operations

Aircraft spares (FAK/FAP) may be carried. If carried, all weight(s) and location(s) can be sought from either the PIC, AirTanker dispatch/operations or the departing airfield load control.

***NOTE**: FAK/FAP must be shown on the LIRS as part of the lower hold load.*

5.21.3.4 Crew Baggage

Applicable to: Commercial operations

Short haul: Nil baggage.
Long haul: Baggage to be located in H5, weight (15 kg each) accounted for in the DOM.

Applicable to: Military operations

All flights: Located in the lower hold and shown (15 kg each) as part of the lower hold LIR load.

EXCEPTION: Circumstances may dictate that crew baggage may be authorised to be located in the passenger cabin. If authorised, the PIC must account for crew baggage weights as follows:

- Request the RAF ground handers to include on the LDS.

or

- Declare weights/locations as cabin load on the loadsheet.

5.21.3.5 Special Load Items – Perishables, Animals, Coffins and DG

Applicable to: All Operations

Planned loading of special load items must be done to ensure specific handling and/or loading requirements are met.

See 7.3 for specific loading requirements.

5.21.4 A330-200 Loading Instruction & Report (LIR) – Accepted Formats

Applicable to: All operations

A Loading Instruction & Report (LIR) must be issued for a departing flight to ensure that all safety parameters and limitations are adhered to.

The Supplementary Information (SI) section is to be used for any information that could affect loading or unloading.

LIR revisions must be immediately communicated via appropriate means to loading teams.

Offloading instructions may be issued prior to aircraft arrival.

5.21.4.1 Manual LIR

Applicable to: All operations

Ensure the correct LIR (including or not including ULD position 44) is selected prior to completion.

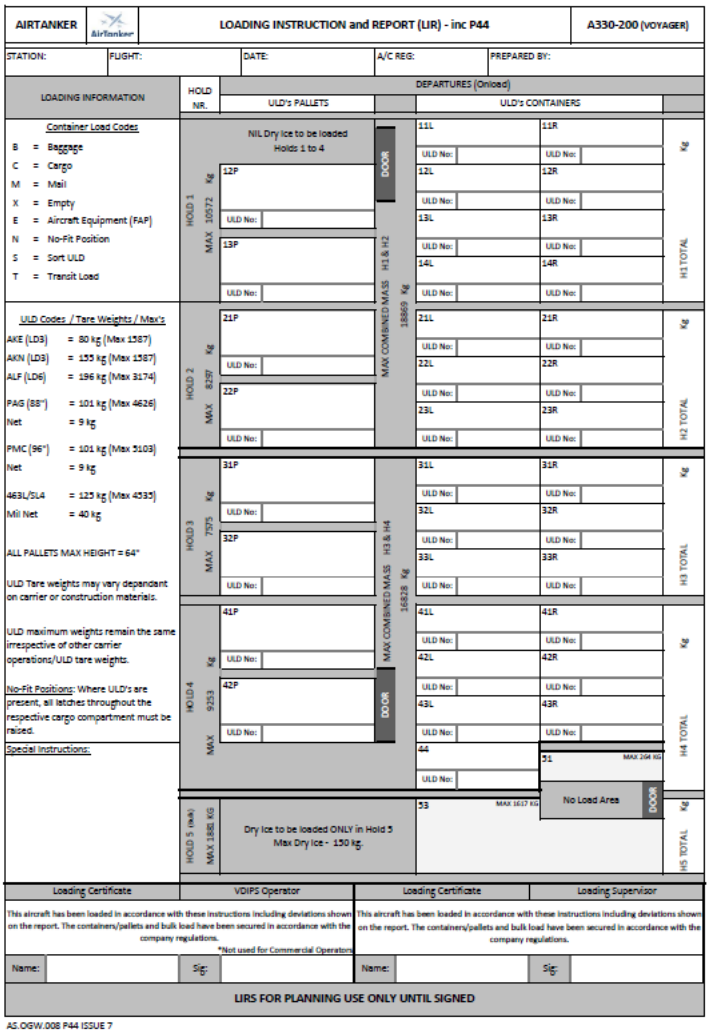
(a) Completed at the local GHA load control.

(b) Signed by the loading supervisor upon completion of loading.

(c) Delivered no later than 40 mins prior to ETD to either:

1. AirTanker dispatcher.
2. PIC.

Late changes occurring after completion must be reported to the AirTanker Dispatcher or PIC before aircraft departure.



Example of LIR including Position 44

NOTE: FAK must be shown on the LIR as part of the lower hold load.

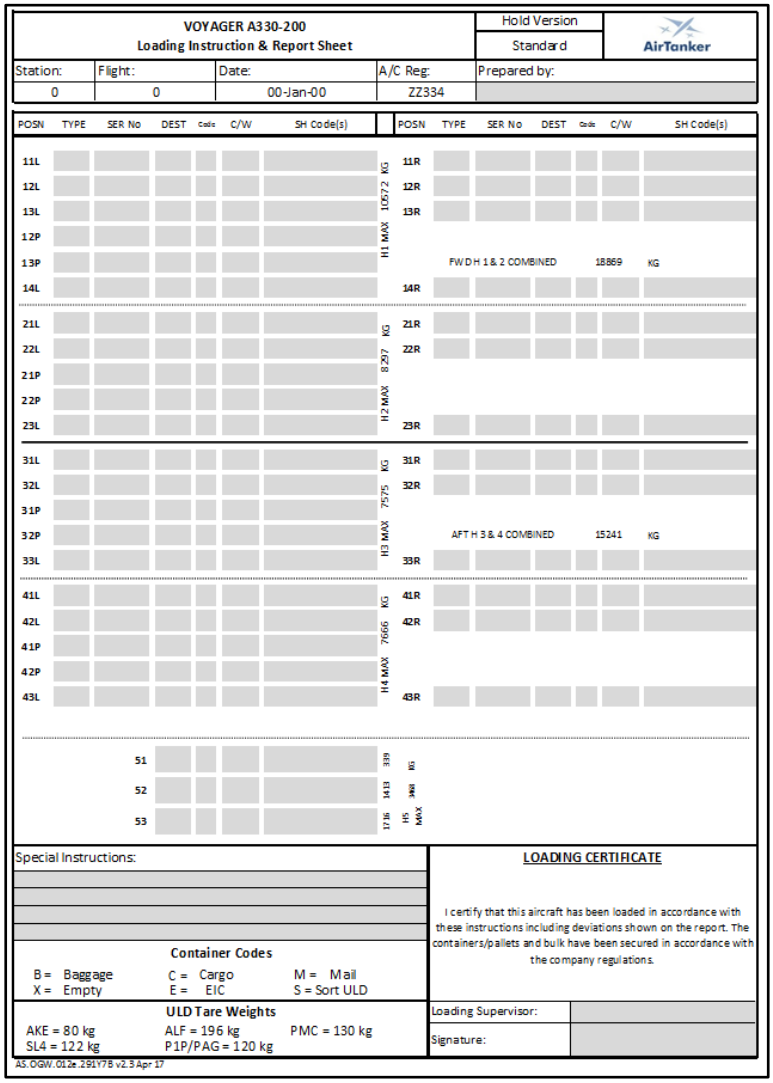
5.21.4.2 Load Data Sheet LIR

Applicable to: Military operations

- LIR completed as part of the LDS load planning and departure process.
- Completed at the local GHA load control.
- Signed by the loading supervisor upon completion of loading.
- Delivered to the aircraft with the LDS (front sheet) and lodged with the cargo documentation.

***NOTE**: The LIR must be presented to the AirTanker Dispatcher or PIC on request.*

Late changes occurring after completion must be reported to the ATr Dispatcher or PIC before aircraft departure.



VOYAGER A330-200
Loading Instruction & Report Sheet

Hold Version: Standard

Station:	Flight:	Date:	A/C Reg:	Prepared by:
0	0	00-Jan-00	ZZ334	

POSN	TYPE	SER No	DEST	Code	C/W	SH Code(s)		POSN	TYPE	SER No	DEST	Code	C/W	SH Code(s)
11L							KG	11R						
12L							10572	12R						
13L								13R						
12P							H1 MAX							
13P									FWD H 1& 2 COMBINED				18869	KG
14L								14R						
21L							KG	21R						
22L							8297	22R						
21P														
22P							H2 MAX							
23L								23R						
31L							KG	31R						
32L							7575	32R						
31P														
32P							H3 MAX							
33L								33R						
41L							KG	41R						
42L							7666	42R						
41P														
42P							H4 MAX							
43L								43R						
51							339	KG						
52							1418	3960						
53							176	15 MAX						

Special Instructions:

LOADING CERTIFICATE

I certify that this aircraft has been loaded in accordance with these instructions including deviations shown on the report. The containers/pallets and bulk have been secured in accordance with the company regulations.

Container Codes

B = Baggage C = Cargo M = Mail
X = Empty E = EIC S = Sort ULD

ULD Tare Weights

AKE = 80 kg ALF = 196 kg PMC = 130 kg
SL4 = 122 kg P1P/PAG = 120 kg

Loading Supervisor:
Signature:

AS.OGW.012e.291Y7B v2.3 Apr 17

Example of a LDS LIR

NOTE: FAP must be shown on the LIR as part of the lower hold load.

5.21.4.3 Automated LIR

Applicable to: Commercial operations

Standard IATA format Electronic data Processing (EDP) – AHM514.

(a) LIR completed as part of the LDS load planning and departure process.

(b) Completed at the local GHA load control.

(c) Signed by the loading supervisor upon completion of loading.

(d) Delivered to the aircraft with the LDS (front sheet) and lodged with the cargo documentation.

5.22 A330-200 Mass & CG Calculation

5.22.1 Aircraft Dry Operating Mass (DOM)

Applicable to: All ATrS A330-200 aircraft

Manual Calculation:

Refer to Flight Deck Aeroplane Mass & Index Information Sheets

ITEM	INCLUDES
Dry Operating Mass (Basic)	Aircraft Basic Mass / Aircraft Docs / 100% Potable Water Crew Compliment
Role Change Equipment*	As defined by aircraft configuration
Potable Water	Water adjustment from 100%
Catering**	Catering mass as defined by specific operations

**Applicable to military contract aircraft only – equipment defined in local ATrS documents.*

*** Catering mass values vary between military operations, long term lease contracts and ACMI (one-off) leases.*

EDP Calculation:

ITEM	INCLUDES
Dry Operating Mass (Basic)	Aircraft Basic Mass / Aircraft Docs / 100% Potable Water
Crew	As defined
Potable Water	Water adjustment from 100%
Catering**	Catering mass as defined by specific operations

*** Catering mass values vary between long term lease contracts and ACMI (one-off) leases.*

***NOTE:** Potable water calculation may vary between lease contracts.*

5.22.2 Load & Trim Sheet (Loadsheet) – Accepted Formats

5.22.2.1 Manual

Applicable to: All operations

Manual loadsheets are accepted for all flights. An example can be found at Appendix 1. All aircraft configurations, military and commercially operated, have specific manual loadsheets designed as per their current cabin or hold configuration.

Warning:

The loadsheet must correspond to the aircraft cabin configuration and lower hold position 44 (inc or not inc). Under no circumstances must any other loadsheet be used in the calculation of mass & balance information.

Only the following may complete a manual loadsheet:

(a) Pilot in Comand (PIC).

(b) Other Flight Deck trained personnel.

(c) AirTanker Dispatch staff.

5.22.2.2 Load Data Sheet (LDS)

Applicable to: Military operations

The Load Data Sheet (LDS) has been designed for use by the military GHA's in support of the manual planning and loadsheet process. It consists of 4 areas as follows:

(a) Load Data Sheet.

(b) Loading Instruction & Report (LIR).

(c) Pre-seat plan.

(d) Flight Deck Sheet.

(e) LDM/CPM.

Load control staff, and where applicable, AMW personnel, are to be trained in the process of LDS completion.

An LDS manual version is available.

Once completed the LDS is to be signed by the military dispatcher and delivered to:

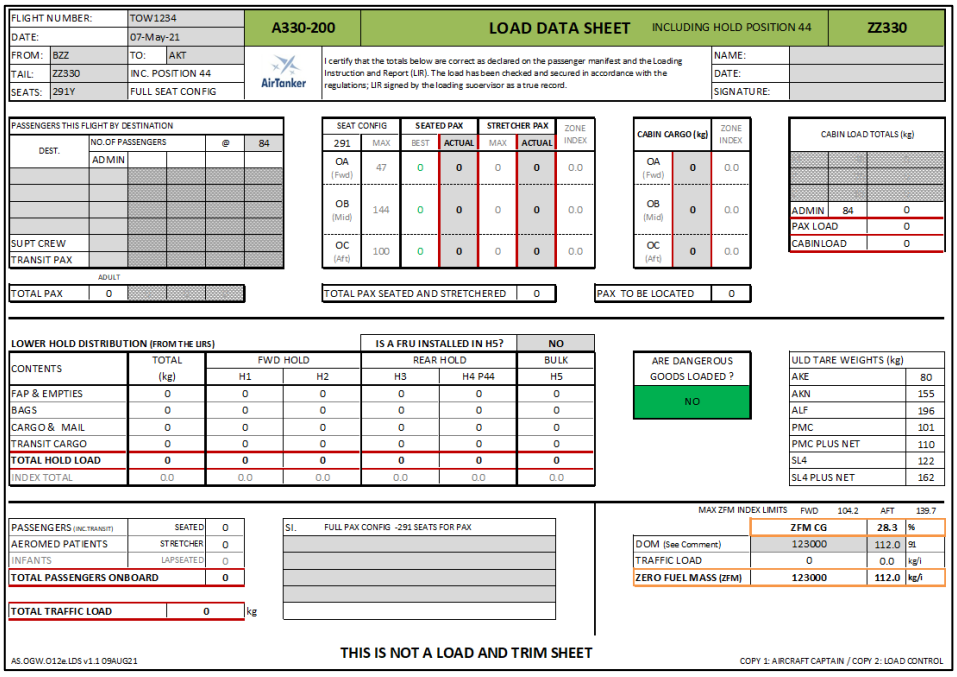
(a) AirTanker dispatcher (RAF BZZ and where down-route supported by an AirTanker dispatcher)

(b) PIC (all other locations)

Warning:

The LDS is not a Loadsheet. Manual loadsheet procedures must be completed prior to departure.

Delivery of the documentation to the aircraft should be no later than 40 minutes prior to ETD.



FLIGHT NUMBER:	TOW1234	A330-200	LOAD DATA SHEET	INCLUDING HOLD POSITION 44	ZZ330		
DATE:	07-May-21					NAME:	
FROM: BZZ	TO: AKT	AirTanker	I certify that the totals below are correct as declared on the passenger manifest and the Loading Instruction and Report (LIR). The load has been checked and secured in accordance with the regulations; LIR signed by the loading supervisor as a true record.			DATE:	
TAIL: ZZ330	INC. POSITION 44					SIGNATURE:	
SEATS: 291Y	FULL SEAT CONFIG						

PASSENGERS THIS FLIGHT BY DESTINATION					
DEST.	NO.OF PASSENGERS		@	84	
	ADMIN				
SUPT CREW					
TRANSIT PAX					
	ADULT				
TOTAL PAX	0				

SEAT CONFIG		SEATED PAX		STRETCHER PAX		ZONE INDEX
291	MAX	BEST	ACTUAL	MAX	ACTUAL	
OA (Fwd)	47	0	0	0	0	0.0
OB (Mid)	144	0	0	0	0	0.0
OC (Aft)	100	0	0	0	0	0.0
TOTAL PAX SEATED AND STRETCHERED			0			

CABIN CARGO (kg)		ZONE INDEX
OA (Fwd)	0	0.0
OB (Mid)	0	0.0
OC (Aft)	0	0.0
PAX TO BE LOCATED	0	

CABIN LOAD TOTALS (kg)		
ADMIN	84	0
PAX LOAD		0
CABIN LOAD		0

LOWER HOLD DISTRIBUTION (FROM THE LIRS)		IS A FRU INSTALLED IN H5?			NO	
CONTENTS	TOTAL (kg)	FWD HOLD		REAR HOLD		BULK
		H1	H2	H3	H4 P44	H5
FAP & EMPTIES	0	0	0	0	0	0
BAGS	0	0	0	0	0	0
CARGO & MAIL	0	0	0	0	0	0
TRANSIT CARGO	0	0	0	0	0	0
TOTAL HOLD LOAD	0	0	0	0	0	0
INDEX TOTAL	0.0	0.0	0.0	0.0	0.0	0.0

ARE DANGEROUS GOODS LOADED ?
NO

ULD TARE WEIGHTS (kg)	
AKE	80
AKN	155
ALF	196
PMC	101
PMC PLUS NET	110
SL4	122
SL4 PLUS NET	162

PASSENGERS (INC.TRANSIT)	SEATED	0
AEROMED PATIENTS	STRETCHER	0
INFANTS	LAPSEATED	0
TOTAL PASSENGERS ONBOARD		0
TOTAL TRAFFIC LOAD	0	kg

SI.	FULL PAX CONFIG -291 SEATS FOR PAX

MAX ZFM INDEX LIMITS FWD 104.2 AFT 139.7

	ZFM CG	28.3	%
DOM (See Comment)	123000	112.0	91
TRAFFIC LOAD	0	0.0	kg/i
ZERO FUEL MASS (ZFM)	123000	112.0	kg/i

THIS IS NOT A LOAD AND TRIM SHEET

AS.OGW.O12e.LDS v1.1 09AUG21 COPY 1: AIRCRAFT CAPTAIN / COPY 2: LOAD CONTROL

Example of a Load Data Sheet (LDS)

5.22.2.3 EDP (Automated)

Applicable to: Commercial operations

Issued by the Centralised Load Control (CLC) or local load control when agreed with AirTanker.

Formats variations, including ACARS formats, are acceptable as per contract agreements and/or DCS e.g. ALTEA, EFRAS, DPlan, HP etc.

***NOTE:** When authorised, CLC may send the ACARS version direct to the flight deck.*

Automated loadsheets can only be used after authorisation from AirTanker. See AHM560 paragraph below.

5.22.2.4 AHM565 data

Applicable to: Commercial operations

Prior to any loadsheet automation, CLCs must undergo the process of AHM565 data loading and associated testing.

Warning:

Under no circumstances are automated loadsheets to be used until authorisation has been given by AirTanker.

DCS/airlines requiring AHM565 data should email massandbalance@uk.airtanker.co.uk for data and Airtanker specific guidance.

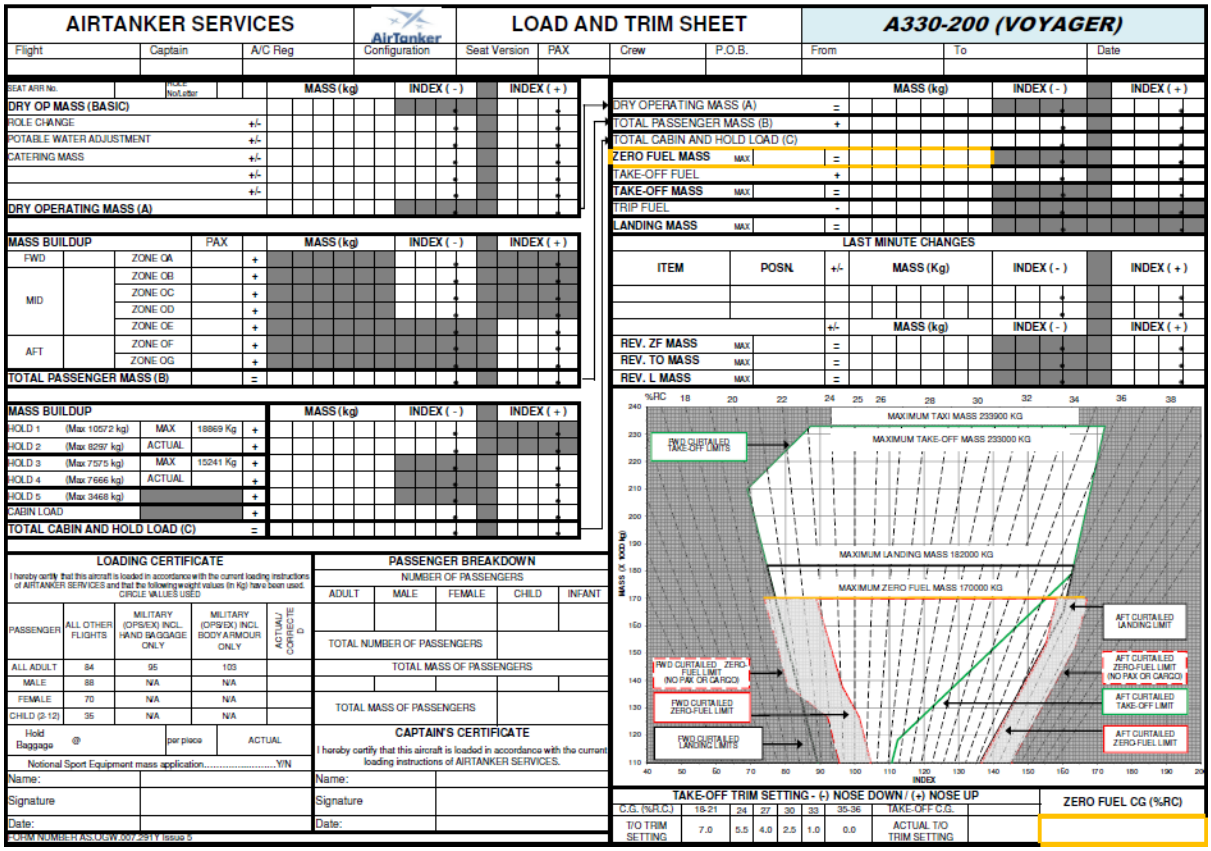
5.22.3 Last Minute Changes (LMC)

Applicable to: All operations

LMC Maximum – 1000 kg plus or minus (accumulated).

5.23 Appendices

5.23.1 Appendix 1 Example of a Manual Loadsheet



AIRTANKER SERVICES — LOAD AND TRIM SHEET — A330-200 (VOYAGER)

Flight | Captain | A/C Reg | Configuration | Seat Version | PAX | Crew | P.O.B. | From | To | Date

	MASS (kg)	INDEX (-)	INDEX (+)
DRY OP MASS (BASIC)			
ROLE CHANGE +/-			
POTABLE WATER ADJUSTMENT +/-			
CATERING MASS +/-			
+/-			
+/-			
DRY OPERATING MASS (A)			

MASS BUILDUP		PAX		MASS (kg)	INDEX (-)	INDEX (+)
FWD	ZONE OA		+			
	ZONE OB		+			
MID	ZONE OC		+			
	ZONE OD		+			
	ZONE OE		+			
AFT	ZONE OF		+			
	ZONE OG		+			
TOTAL PASSENGER MASS (B)			=			

MASS BUILDUP				MASS (kg)	INDEX (-)	INDEX (+)
HOLD 1	(Max 10572 kg)	MAX	18869 Kg			
HOLD 2	(Max 8297 kg)	ACTUAL				
HOLD 3	(Max 7575 kg)	MAX	15241 Kg			
HOLD 4	(Max 7666 kg)	ACTUAL				
HOLD 5	(Max 3468 kg)					
CABIN LOAD						
TOTAL CABIN AND HOLD LOAD (C)						

	MASS (kg)	INDEX (-)	INDEX (+)
DRY OPERATING MASS (A) =			
TOTAL PASSENGER MASS (B) +			
TOTAL CABIN AND HOLD LOAD (C)			
ZERO FUEL MASS MAX =			
TAKE-OFF FUEL +			
TAKE-OFF MASS MAX =			
TRIP FUEL -			
LANDING MASS MAX =			

LAST MINUTE CHANGES

ITEM	POSN.	+/-	MASS (Kg)	INDEX (-)	INDEX (+)

	+/-	MASS (kg)	INDEX (-)	INDEX (+)
REV. ZF MASS MAX	=			
REV. TO MASS MAX	=			
REV. L MASS MAX	=			

TAKE-OFF TRIM SETTING - (-) NOSE DOWN / (+) NOSE UP

C.G. (%R.C.)	18-21	24	27	30	33	35-36	TAKE-OFF C.G.
T/O TRIM SETTING	7.0	5.5	4.0	2.5	1.0	0.0	ACTUAL T/O TRIM SETTING

ZERO FUEL CG (%RC)

LOADING CERTIFICATE

I hereby certify that this aircraft is loaded in accordance with the current loading instructions of AIRTANKER SERVICES and that the following weight values (in Kg) have been used. CIRCLE VALUES USED

PASSENGER	ALL OTHER FLIGHTS	MILITARY (OPS/EX) INCL. HAND BAGGAGE ONLY	MILITARY (OPS/EX) INCL. BODY ARMOUR ONLY	ACTUAL/ CORRECTED
ALL ADULT	84	95	103	
MALE	88	N/A	N/A	
FEMALE	70	N/A	N/A	
CHILD (2-12)	35	N/A	N/A	

Hold Baggage @ per place ACTUAL

Notional Sport Equipment mass application.....Y/N

Name:
Signature
Date:

FORM NUMBER AS.OGW.007.29TY Issue 5

PASSENGER BREAKDOWN

NUMBER OF PASSENGERS

ADULT	MALE	FEMALE	CHILD	INFANT

TOTAL NUMBER OF PASSENGERS

TOTAL MASS OF PASSENGERS

TOTAL MASS OF PASSENGERS

CAPTAIN'S CERTIFICATE

I hereby certify that this aircraft is loaded in accordance with the current loading instructions of AIRTANKER SERVICES.

Name:
Signature
Date:

AIRTANKER SERVICES | AirTanker | **INDEX TABLES FUEL & CARGO HOLDS** | ***A330-200 VOYAGER***

FUEL INDEX TABLE (Standard Fuel Loading)

DENSITY		0.785	
WEIGHT (kg)	INDEX UNITS	WEIGHT (kg)	INDEX UNITS
2000	-1.5	44000	+4.2
4000	-4.2	46000	+2.8
6000	-6.3	48000	+1.4
8000	-8.4	50000	+0.4
(1) 9000	-9.4	52000	-0.6
10000	-7.7	54000	-1.1
12000	-3.7	56000	-1.6
13000	-1.5	58000	-1.7
13500	-0.3	60000	-1.6
14000	+1.0	62000	-1.2
(2) 14731	+3.0	64000	-0.6
15000	+2.7	66000	+0.3
16000	+1.7	68000	+1.5
18000	-0.3	70000	+3.1
20000	-2.2	72000	+5.1
22000	-4.1	(5) 74070	+7.4
24000	-5.9	76000	+7.1
26000	-7.7	78000	+6.6
28000	-9.5	80000	+5.8
30000	-11.3	82000	+4.8
32000	-12.9	84000	+3.9
34000	-14.6	86000	+2.9
35000	-15.5	88000	+2.0
(3) 36500	-16.7	90000	+1.1
36750	-13.6	92000	+0.1
37000	-11.2	94000	-0.8
37250	-8.9	96000	-1.7
37500	-6.4	98000	-2.6
37750	-3.8	100000	-3.4
38000	-1.2	102000	-4.3
38500	+3.2	104000	-5.4
(4) 38900	+8.2	106000	-6.7
40000	+7.3	108000	-8.2
42000	+5.8	(6) 109186	-9.3

ACTUAL FUEL LOADING TABLE (Standard Fuel Loading)

TOTAL FUEL		
TRIP FUEL		
REMAINING FUEL		
TRIP FUEL (INDEX DELTA)		

ACTUAL FUEL LOADING TABLE (NON-Standard Fuel Loading)

INNER (LH)		
INNER (RH)		
OUTER (LH)		
OUTER (RH)		
CENTER		
TRIM		
TOTAL		

FUEL INDEX TABLE (NON-Standard Fuel Loading)

INNER TANKS - PER SIDE		CENTER TANK		TRIM TANK	
DENSITY	0.785	DENSITY	0.785	DENSITY	0.785
WEIGHT (kg)	INDEX UNITS	WEIGHT (kg)	INDEX UNITS	WEIGHT (kg)	INDEX UNITS
1000	-1.0	1000	-0.9	300	+3.2
1500	-1.6	1500	-1.4	500	+5.1
2000	-2.1	2000	-2.0	600	+6.2
3000	-3.2	3000	-3.1	800	+8.3
3500	-3.7	3500	-3.7	900	+9.3
4000	-4.2	4000	-4.2	1100	+11.3
4500	-4.7	4500	-4.8	1300	+13.4
5000	-5.2	5000	-5.5	1400	+14.5
6000	-6.2	6000	-6.7	1600	+16.5
7000	-7.2	7000	-8.0	1700	+17.6
7500	-7.7	7500	-8.7	1900	+19.7
8000	-8.1	8000	-9.4	2000	+20.7
8500	-8.6	8500	-10.0	2200	+22.8
9000	-9.0	9000	-10.7	2400	+24.9
10000	-10.0	10000	-12.0	2500	+26.0
10500	-10.4	10500	-12.7	2700	+28.1
11000	-10.8	11000	-13.4	2800	+29.1
11500	-11.3	11500	-14.0	3000	+31.3
12000	-11.7	12000	-14.7	3100	+32.4
12500	-12.1	12500	-15.4	3300	+34.5
13000	-12.6	13000	-16.1	3500	+36.7
13500	-13.0	13500	-16.7	3600	+37.8
14000	-13.4	14000	-17.4	3800	+40.0
15000	-14.2	15000	-18.7	3900	+41.1
16000	-15.1	16000	-20.1	4100	+43.3
17000	-15.8	17000	-21.4	4200	+44.5
17500	-16.2	17500	-22.1	4400	+46.7
18000	-16.6	18000	-22.7	4600	+48.9
18500	-17.0	18500	-23.4	4700	+50.1
19000	-17.3	19000	-24.0	4891	+52.3
19500	-17.6	19500	-24.7	**OUTER TANKS - PER SIDE**	
20000	-17.9	20000	-25.4	DENSITY	0.785
21000	-18.5	21000	-26.7	WEIGHT (kg)	INDEX UNITS
22000	-19.0	22000	-28.0	300	+0.5
22500	-19.1	22500	-28.7	500	+0.9
23000	-19.2	23000	-29.3	600	+1.0
23500	-19.4	23500	-30.0	800	+1.4
24000	-19.5	24000	-30.7	900	+1.6
24500	-19.5	24500	-31.4	1100	+2.0
25000	-19.5	25000	-32.0	1300	+2.4
26000	-19.4	26000	-33.4	1400	+2.7
26500	-19.3	26500	-34.1	1600	+3.3
27000	-19.3	27000	-34.8	1700	+3.2
28000	-19.0	28000	-36.3	1900	+3.7
28500	-18.7	28500	-37.1	2000	+4.0
29000	-18.5	29000	-37.8	2200	+4.4
29500	-18.2	29500	-38.6	2400	+4.9
30000	-17.9	30000	-39.4	2500	+5.2
31000	-17.1	31000	-41.1	2700	+5.8
32000	-16.1	32000	-42.9	2800	+6.0
32500	-15.5	32500	-43.9	2865	+6.3
32970	-15.0	32625	-44.1		

(1) - INNER TANKS FUELED TO 87.32 sL (45500 Kg PER SIDE (2) - OUTER TANKS FUELED TO HIGH LEVEL SHUT-OFF (3) - INNER TANKS FUELED TO 199.96 sL (150.00 Kg PER SIDE
(4) - TRIM TANK FUELED TO 3087 L (2400 Kg) (5) - INNER TANKS FUELED TO HIGH LEVEL SHUT-OFF (6) - TRIM TANK AND CENTER TANK FULL - A/C FULL

HOLD 1		HOLD 2		HOLD 3		HOLD 4		HOLD 5	
WEIGHT (kg)	INDEX UNITS	WEIGHT (kg)	INDEX UNITS	WEIGHT (kg)	INDEX UNITS	WEIGHT (kg)	INDEX UNITS	WEIGHT (kg)	INDEX UNITS
500.0	-3.1	250.0	-0.9	250.0	+0.6	250.0	+1.1	100.0	+0.6
1000.0	-6.1	500.0	-1.9	500.0	+1.2	500.0	+2.2	200.0	+1.3
1500.0	-9.2	750.0	-2.8	750.0	+1.8	750.0	+3.3	300.0	+1.9
2000.0	-12.2	1000.0	-3.8	1000.0	+2.4	1000.0	+4.5	400.0	+2.5
2500.0	-15.3	1250.0	-4.7	1250.0	+3.0	1250.0	+5.6	500.0	+3.2
3000.0	-18.3	1500.0	-5.7	1500.0	+3.6	1500.0	+6.7	600.0	+3.8
3500.0	-21.4	1750.0	-6.6	1750.0	+4.2	1750.0	+7.8	700.0	+4.4
4000.0	-24.4	2000.0	-7.6	2000.0	+4.8	2000.0	+8.9	800.0	+5.1
4500.0	-27.5	2250.0	-8.5	2250.0	+5.4	2250.0	+10.0	900.0	+5.7
5000.0	-30.5	2500.0	-9.5	2500.0	+6.0	2500.0	+11.1	1000.0	+6.3
5500.0	-33.6	3000.0	-11.3	3000.0	+7.3	3000.0	+13.4	1100.0	+7.0
6000.0	-36.6	3500.0	-13.2	3500.0	+8.5	3500.0	+15.6	1200.0	+7.6
6500.0	-39.7	4000.0	-15.1	4000.0	+9.7	4000.0	+17.8	1300.0	+8.2
7000.0	-42.7	4500.0	-17.0	4500.0	+10.9	4500.0	+20.1	1400.0	+8.9
7500.0	-45.8	5000.0	-18.9	5000.0	+12.1	5000.0	+22.3	1600.0	+10.1
8000.0	-48.8	5500.0	-20.8	5500.0	+13.3	5500.0	+24.5	1800.0	+11.4
8500.0	-51.9	6000.0	-22.7	6000.0	+14.5	6000.0	+26.7	2000.0	+12.7
9000.0	-54.9	6500.0	-24.6	6500.0	+15.7	6500.0	+29.0	2200.0	+13.9
9500.0	-58.0	7000.0	-26.5	7000.0	+16.9	7000.0	+31.2	2400.0	+15.2
10000.0	-61.0	7500.0	-28.4	7500.0	+18.1	7500.0	+33.4	2600.0	+16.5
10572.0	-64.5	8000.0	-30.3	7575.0	+18.3	7666.0	+34.2	2800.0	+17.8
		8297.0	-31.4					3000.0	+19.0
								3200.0	+20.3
								3400.0	+21.6
								3468.0	+22.0

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Loadsheet (Rear)

6 Operational Oversight

Information Owner: Aviation Services Manager

Applicable to: All operations

6.1 Safety

All accidents, incidents and occurrences shall be reported immediately to AirTanker using the agreed reporting methods in compliance with ORO.GEN.160 where appropriate.

An AirTanker Ground Handling Occurrence Report (GHOR) found at Appendix 1 (or local equivalent) is to be submitted as soon as possible, detailing all key facts in relation to the incident, including supporting evidence (photos, documentation etc.). As a guide, it is expected that reports would usually be submitted within 2 hours of the event to the following addressees:

safety@uk.airtanker.co.uk

dutyopsmanager@uk.airtanker.co.uk

aviationservices@uk.airtanker.co.uk

6.2 Compliance

AirTanker operates its management system in accordance with the requirements of ORO.GEN.200, ORO.GEN.205, ORO.GEN.210 and all other applicable requirements to support its AOC and therefore requires all ground handling agents to meet defined standards, be subject to risk assessment and compliance monitoring activities including aerodrome audits, ramp inspections, ground handling audits and management system audits.

Ground Handling Agents are expected to conduct their own compliance monitoring activities, audits and management system activities in compliance with the requirements of this manual to ensure safe operation of AirTanker aircraft.

AirTanker Ground Operations and Compliance departments will also conduct audits and inspections to verify safe, compliant practices in accordance with all applicable regulations and procedures contained within this manual.

7 Cargo Handling Procedures

Information Owner: Dispatch Manager

7.1 General

Various items ranging from small nuts and bolts to large aircraft equipment that are carried by AirTanker aircraft are classed as Air Cargo. A strict procedure for shipping both military and civilian cargo on both military and civil flights is in place.

7.2 Documentation

It is important that all air cargo carried on AirTanker aircraft is correctly documented before acceptance at the departure airfield. For military flights there are two types of documentation required depending upon whether the cargo is being sent routinely or if it is being sent as part of an operation or exercise. For each specific flight, AirTanker will advise the ground handling agent which documentation is required and the requirements for manifesting the cargo.

Civil equivalents of all military documentation are acceptable for AirTanker military flights and military documentation is acceptable for civil flights.

7.2.1 Routine Flight

All air cargo being shipped on routine or scheduled military flights shall be documented on an RAF form 1380 (Air Waybill), or civil equivalent. For all items of dangerous goods, an RAF form F/MOV/569 Shipper's Declaration, or civil equivalent for dangerous goods will also be required and the items shall be appropriately marked (refer to this manual section 6). It is important that all information is accurate and clearly legible. Once all cargo for the flight is accepted at the airhead, all Air Waybills will then be collated onto an aircraft manifest which will either be manually completed on an RAF Form 1256C (Air Cargo Manifest) or computer generated.

7.2.2 Operation or Exercise Flight

All air cargo being shipped on a flight for a particular operation or exercise will be documented as follows:

(a) Non Dangerous Air Cargo – F/Mov/238 and F/Mov/238/A – Summary sheet and Air Load Manifest (Non DG).

(b) Dangerous Air Cargo - F/Mov/239 and F/Mov/239/A – Summary sheet and Air Load Manifest (DG).

As this documentation acts as both the Air Waybill and the manifest, there is no requirement to collate this further onto an additional manifest.

7.3 Special Category Air Cargo

On some AirTanker flights, there will be Air Cargo that requires additional attention when being processed. Such Air Cargo is categorised into groups depending upon type. The following is a list and a brief explanation of consignments and the requirements that are required of the handling agent.

7.3.1 Valuable and Attractive (V and A)

Valuable and Attractive cargo items should not be left unattended with general cargo because of the nature of the consignment. On arrival at the departure airfield, the consignment should be stored in a

suitably secure area. This secure area should have a record log showing items being signed in and signed out.

7.3.2 Classified

Classified cargo items should not be left unattended with general cargo because of the nature of the consignment. On arrival at the departure airfield, the consignment should be stored in a suitably secure area. This secure area should have a record log showing items being signed in and signed out. Classified items should be escorted on the flight as follows

7.3.2.1 Safe Hand of Aircraft Captain

Such items that are classified are to be brought to the attention of the aircraft captain in charge of the flight. The aircraft captain or someone who he appoints is responsible for this item in-flight and is required to sign the necessary paperwork accordingly.

7.3.2.2 Safe Hand of Escort

Such items that are classified will from time to time have a dedicated in-flight escort who will accompany the item and be responsible for it. The escort is required to sign the necessary paperwork accordingly.

7.3.3 Special Loads Notification to Aircraft Captain

When special category cargo is carried on board AirTanker aircraft, the aircraft captain shall be informed. This is carried out by the production of a Special Load Notification to aircraft captain document (NOTOC). The NOTOC may take the form of a computer printout or a special form. The essential information for a NOTOC is given in IATA AHM 384.

7.3.4 Carriage of Dangerous Goods

Dangerous goods are defined as articles or substances which are capable of posing a risk to health, safety, property or the environment when transported by air and which are classified by the ICAO Technical Instructions or the IATA Dangerous Goods Regulations (DGRs). All procedures governing the carriage of dangerous goods on AirTanker aircraft are covered in Chapter 8 of this manual and Section 9 of the AirTanker Operations Manual Part A.

7.3.5 Carriage of Mail

Personal and public mail will be dispatched from time to time on AirTanker aircraft. The processing and allocating of mail is done by the HM Forces Postal Service in conjunction with the Controlling Air Movement Authority. (CAMA) The priority of mail has already been decided depending on whether it is Forces Air Mail (FAM) or Forces Surface Mail (FSM). An RAF Form 1380 (Air Way Bill) is used for the documentation of all mail.

When mail is consigned on AirTanker flights, it will be delivered by the Defence Postal Service. Where possible, mail will arrive as late as possible so it can be delivered direct to the aircraft. If this cannot be achieved then a suitable secure area is to be used to store the mail until it is loaded to the aircraft.

7.3.6 Carriage of Human Remains

AirTanker flights will, from time to time, carry out repatriation of human remains. This is a very sensitive issue and shall be undertaken with great care. The following is a guideline to handling agents.

7.3.6.1 Documentation and Travel Requirements

All human remains are carried as cargo and therefore the following paperwork and requirements are to be met:

(a) Human remains shall be contained in a coffin with a hermetically sealed inner container of bronze, lead or zinc. In case of cremated remains, the casket shall be packed in a sealed outer box or case.

(b) Necessary paperwork to complete is as follows:

1. Airway bill.

2. Cargo Manifest.

3. Death certificate and other paperwork deemed necessary by the funeral agent who is shipping the HUM.

4. NOTOC – Special Load notification to aircraft captain. To include location on aircraft.

7.3.6.2 Handling and Loading

Human remains contained in a coffin will normally be loaded and secured on a pallet in the following manner:

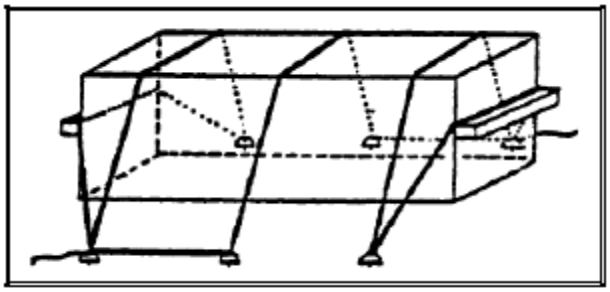


Figure 41 Human Remains Tie-Down Scheme

The loaded pallet can be loaded in any position on the aircraft, however the handling agent may be requested to load the pallet by the hold door so it can be offloaded first at the destination airport. If required for such circumstances and operational reasons, human remains may be loaded in the bulk cargo hold (Compartment 5). Human remains shall never be loaded with the following:

- Animals (see 7.3.7.3);
- Catering / Foodstuffs or other perishable items.

7.3.6.3 Carriage of Ashes

Passengers may carry cremated remains (including remains of pets) as cabin or checked baggage on the following conditions:

(a) A death certificate from the competent authority of the country of departure is held;

(b) The container is made of a material which allows the security screener to see the contents within;

(c) The container is securely sealed to prevent leakage.

7.3.7 Carriage of Live Animals (AVIH)

Caution:

AirTanker carrier exceptions for the carriage of any live animal can be found at www.airtanker.co.uk/ghm

AirTanker is not approved to carry live animals into UK airports, therefore the transportation of live animals as cargo may only be permitted when operating from/to another country other than the UK; carriage of live animals as cargo shall always be authorised by the Head of Ground Operations or nominated deputy. *For leased-out flights, authorisation can be made by the contracting airline following approval of their processes by AirTanker.*

On aircraft undertaking military tasking – including the South Atlantic Airbridge – military working dogs may be accepted for carriage as cargo. Only by exception, and after approval from the Head of Ground Operations will AirTanker, whilst operating military flights, carry other animals such as domestic pets or other animals for commercial purposes.

Animals are to be transported in accordance with the latest *IATA Live Animals Regulations.* The following is a guideline to handling agents for the carriage of live animals on AirTanker aircraft.

7.3.7.1 Documentation and Travel requirements

The animal will be classed as air cargo and therefore the following paperwork and requirements are to be met:

(a) The consignor is to provide an IATA standard container for travel appropriate to the size of the animal.

(b) The animal is in a fit condition to travel.

(c) Necessary paperwork to complete is as follows:

1. Airway bill.

2. Cargo Manifest.

4. Import / Export Licence (if required).

5. Animal Passport.

6. NOTOC – Special Load notification to aircraft captain. To include type of animal, quantity and location on aircraft.

7.3.7.2 Animal Escort

When a military working dog is to be transported, an appropriate escort will be nominated to escort the animal throughout the entire journey. This is usually carried out by a military dog handler. The escort is to have access to the aircraft apron so he can remain with the animal for as long as possible and assist in the loading of the animal to the aircraft. The escort is to be seated on the aircraft as close as possible to a door so he/she can be last on, first off.

7.3.7.3 Handling and Loading

The animal is to be positioned on the aircraft in hold 5 (bulk loading hold). The container that the animal is travelling in shall be pre-positioned empty and loaded onto spreaders and adequately restrained to prevent movement in-flight. The animal is to be loaded as late as possible before departure by the escort and handling agents. The handling agent is to liaise with the aircraft captain to ensure that the hold lights are switched off in-flight and that the temperature is controlled and suitable for the animal's health and comfort. The animal is not to be loaded in the same hold as the following items:

(a) Dry Ice.

(b) Human Remains.

(c) Catering / Foodstuffs.

(d) Natural Enemies (i.e. dogs versus cats).

NOTE: *There appears to be no scientific or technical reason why HUM and AVIH should be segregated in aircraft cargo compartments. However, it may be ethical for cultural reasons to segregate them.*

7.3.8 Carriage of Weapons / Munitions of War

AirTanker Services holds CAA approval for the transport of munitions of war and munitions of war by air.

However, weapons of war and munitions of war can only be carried provided an approval to do so has been granted by all the States concerned before a flight.

Warning:

Weapons of war and munitions of war shall not be carried on any AirTanker aircraft unless such approval has been granted.

Weapons of war and munitions of war shall be carried in the aircraft in a place which is inaccessible to passengers during flight and, in the case of firearms, unloaded, except as specified in 7.3.8.1

7.3.8.1 Stowage Requirements for Munitions of War

In exceptional circumstances, weapons of war and munitions of war may be carried other than in an inaccessible place on the aircraft and may be loaded, provided an approval to do so has been granted by all the States concerned before a flight. These exceptional circumstances are intended primarily to permit the carriage of law enforcement officers, protection officers, etc.

UK Police Protection Officers hold an exemption from the Air Navigation Order that enables them to carry their weapons on their person when accompanying specific named VIPs. A condition on the exemption requires the police to provide the operator with a copy of the relevant exemption in advance of the flight to demonstrate that the exemption applies to them and the person they are accompanying.

Official Record Series 4 approves (see 7.3.8.3) the carriage of weapons by operators in accordance with the exemption issued to UK Police Protection Officers. Should an operator be asked to carry protection officers bearing weapons on their person and the Police do not / cannot provide a copy of

the relevant exemptions (preferably when booking the flight), then their weapons shall be stowed in a location that is inaccessible during flight. When the police officer is not accompanying any of the persons referred to in the exemption, the unloaded arms and ammunition shall be stowed in a location which is inaccessible to passengers on the aircraft. The exemption issued to UK Police Protection Officers and the Official Record Series 4 document each contain additional conditions with which operators shall comply.

There are some limited occasions when the UK CAA may grant one-off exemptions for persons not on the two exemptions held by the Police, such as visiting Heads of State, but these will generally only be when accompanied by UK Protection Officers. In such circumstances, or in the event of a request for non-UK protection officers to carry weapons in the cabin AirTanker Services shall apply to the CAA Dangerous Goods Office.

7.3.8.2 Notification to Captain of the Carriage of Munitions of War

The PIC shall be notified before a flight if weapons of war or munitions of war are to be carried.

NOTE: *This will usually be done by way of a Special Loads NOTOC or similar.*

7.3.8.3 Permitting Armed Police Officers On Board AirTanker Aircraft

The UK CAA authorises the carriage of weapons of war and munitions of war by police officers, specifically arms, ammunition and CS spray on an aircraft other than in the hold, subject to the following conditions:

(a) AirTanker Services has obtained the approval of all States whose airspace is intended to be used in accordance with CAT.GEN.MPA.155;

(b) The weapons of war and munitions of war are carried in accordance with exemption CAA Ref. 017936, granted under Article 242 of the Air Navigation Order 2009 and which provides exemption from Article 134(2)(a) of the Order;

(c) The weapons of war or munitions of war are carried on the person of a police officer when he is accompanying one or more persons specified in exemption CAA Ref. 017936; and

(d) The Commander is informed before a flight begins of the arms, ammunition and CS spray a police officer will have on his person and his seating location.

When the police officer is not accompanying any of the persons referred to in exemption CAA Ref. 017936, the unloaded arms and ammunition shall be stowed in the hold of the aircraft or in a location which is inaccessible to passengers on the aircraft. Before the flight begins the Commander shall be informed in writing of the arms and ammunition stowed on the aircraft and the location. Where inaccessible stowage cannot be achieved, the arms and ammunition may be retained by the police officer.

7.4 Security

To ensure that all air cargo and mail remains secure for dispatch on AirTanker aircraft, the dispatching unit or company are responsible for the contents and packaging of the consignment. To comply with the National Aviation Security Programme (NASP) all cargo loaded to AirTanker aircraft should be from a “known” source. This will ensure that the correct security procedures have already been completed prior to arrival at the air head. If the consignment has arrived from an “un-known” source, then the consignment is required to be scanned by trained security personnel prior to acceptance. Refer to Chapter 10 of this manual for further requirements.

7.5 Suspect Articles

All handling and cargo agents responsible for the acceptance of air cargo at the dispatching airfield are to ensure that the consignment is properly sealed and contained. Any signs of damage, tampering or forced entry are to be classed as suspect and the item is to be rejected.

7.6 Cargo Handling Process

The ground handling agents' responsibilities for ensuring safe carriage of air cargo on AirTanker flights are as follows:

(a) Accept air cargo consignments at the airport by reconciling documentation to consignment and ensuring appropriate security measures are applied to the items;

(b) Consolidate consignments for a flight, build ULDs and prepare cargo manifest;

(c) Load cargo onto aircraft obeying all permitted loading configurations and structural loading limitations given in chapter 5 of this manual;

(d) Reconcile manifest against cargo actually loaded and provide aircraft commander with loadsheet (refer to chapter 5 of this manual); and

(e) Advise aircraft commander of any special cargo or dangerous goods loaded onto the aircraft.

Note that cargo compartment 5 is not routinely used for the carriage of cargo on the AirTanker A330 aircraft (refer to Chapter 4).

Reference Documents
RAF Form 1380 (Air Waybill)
RAF Form F/MOV/569 (Shippers Declaration for Dangerous goods)
RAF Form 1256C (Air Cargo Manifest)
F/Mov/238 Summary Sheet (Non DG)
F/Mov/238A Air Load Manifest (Non DG)
F/Mov/239 Summary Sheet (DG)
F/Mov/239A Air Load Manifest (DG)
IATA AHM Chapter 3 Cargo/Mail Handling
IATA AHM Chapter 4 Aircraft Handling and Loading
IATA Live Animal Regulations
RAF Form 1256C (Air Cargo Manifest)

8 Dangerous Goods Handling Procedures

Information Owner: Dangerous Goods Manager

8.1 Introduction

8.1.1 Definition of Dangerous Goods

Dangerous goods (DG) are defined as articles or substances which are capable of posing a risk to health, safety, property or the environment when transported by air and which are classified by the ICAO Technical Instructions or the IATA Dangerous Goods Regulations (DGRs).

8.1.2 AirTanker – requirements

All procedures carried out by or on behalf of AirTanker **must** comply with the above regulations, however, AirTanker recognise that many airlines and ground handling agencies adopt the IATA DGRs as their working document.

AirTanker holds an approval for the transportation of dangerous goods by air. Within AirTanker, the Head of Ground Operations holds responsibility for the Dangerous Goods Approval held.

The Head of Ground Operations has empowered a Cat 6 Dangerous Goods Post Holder who can be contacted with any queries or for any “approval of the operator” for DG carried by passengers or crew that may be required. Contact details are:

Dangerous Goods Manager
AirTanker
AirTanker Hub
RAF Brize Norton
Carterton
Oxfordshire, OX18 3LX

Tel: +44 (0)1993 873233
Fax: +44 (0)1993 873004
E-mail: dangerousgoods@uk.airtanker.co.uk
and chris.james@uk.airtanker.co.uk

8.2 Approval of the Operator

The AirTanker DG post holder is responsible for the approval of dangerous goods that may be carried by passengers and crew (IATA DG Regs (current edition) Table 2.3.A). However, in the event of the AirTanker DG post holder being un-contactable, responsibility for approval may be delegated to a nominated representative providing the requirements of Table 2.3.A are met.

8.2.1 Approvals for Dangerous Goods carried by Passengers/Crew

An approval is not required for those Dangerous Goods which, according to the IATA Dangerous Goods Regulations, can be carried by passengers or crew members without operator approval.

Where the table at 8.5.5 shows ‘Operator Approval Required’, AirTanker should be contacted directly at chris.james@uk.airtanker.co.uk and dangerousgoods@uk.airtanker.co.uk. Approval applications should be submitted to AirTanker a minimum of 2 days (48hrs) prior to the flight departure. The request must include item description, technical information (e.g. Wh of lithium battery) quantity, volume and where possible, reason for carriage.

NOTE 1: *Where AirTanker is operating for a third-party lessee, approval may be granted by the contracted leasing airline, by prior arrangement with AirTanker.*

NOTE 2: *For all military-tasked flights only, approval is to be sought through the Air Mobility Force Headquarters BZN-Exemptions-PaxandFrt@mod.gov.uk and, once obtained, a note must be made in the passenger booking reference confirming acceptance of the item and who has given approval for carriage.*

(a) Approvals granted will be given in the form of a reference number which should, wherever possible, be annotated on the passenger booking.

(b) In the event of short notice requirement, the pilot in command (PIC) is authorised to make the appropriate approval decision on items not pre-authorised (annotation on the passenger booking at this stage is not required).

(c) When certain dangerous goods permitted in passenger or crew baggage (see 8.5.5) are accepted for carriage the PIC must be given the information as to the item and location on board the aircraft; this must be completed by the Handling Agent.

NOTE 1*: Where a passenger is required to surrender a piece of cabin baggage for stowage in the hold (due lack of space in the Cabin, etc.) then the passenger should be asked to confirm that no item(s) prohibited in Hold Baggage are present within the bag, i.e., Lithium batteries, E-Cigarettes, Fuel Cells, mercurial thermometer. Any prohibited items should be removed and retained by the passenger prior to loading of the bag into the hold.*

NOTE 2: *A report must be made to the appropriate State Authority of AirTanker (see 6.14.4) of any occurrence where Dangerous Goods not permitted for carriage on-board the aircraft are discovered in passenger baggage.*

8.3 Dangerous Goods Not Requiring Approval

8.3.1 General Exceptions

General exceptions apply to dangerous goods that are required to travel aboard the aircraft under the following conditions:

(a) Items for airworthiness or operating reasons or for the health of passengers or crew, such as, such as batteries, fire extinguishers, first aid kits, insecticides, air fresheners, life rafts, escape slides, life-saving appliances, portable oxygen supplies, tritium signs, smoke hoods, passenger services units.

(b) Alcohol-based hand sanitiser and alcohol-based cleaning products carried on board an aircraft by the operator for use on the aircraft during the flight or series of flights for the purpose of passenger and crew hygiene.

(c) Catering or cabin service supplies (consumer goods).

(d) Dry ice intended for use in food and beverage service on board the aircraft.

(e) Electronic devices such as electronic flight bags, personal entertainment devices, credit card readers, containing lithium metal or lithium ion cells or batteries and spare lithium batteries for such devices carried aboard an aircraft by the operator for use on the aircraft during the flight or series of flights, provided that the batteries meet the provisions applicable to the carriage of portable electronic devices containing lithium or lithium ion cells or batteries by passengers (see the entry for batteries in Table 8).

NOTE*: Spare lithium batteries must be individually protected to prevent short circuits when not in use.*

- Veterinary aids – to be used as a humane killer for an animal.
- Medical aid for a patient.

- Excess baggage being sent as cargo.

NOTE: *Detailed information for the carriage of the above can be found in the IATA DGRs (current edition).*

8.4 Training

8.4.1 Requirements

Initial and recurrent training programmes must be established and maintained by ground handling agencies which perform, on behalf of AirTanker, the act of dealing with dangerous goods.

Regulations and guidance for the training of personnel can be found in the IATA DGRs Para 1.5 and Annex H.

Recurrent training must take place within 24 months of previous training to ensure knowledge is current. Training is required for all personnel within ground handling agencies which perform, on behalf of AirTanker:

(a) The acceptance, handling, loading, unloading, transfer or other processing of cargo, mail or stores (including non-hazardous cargo).

(b) Passenger processing – check in and escort duties.

(c) Baggage handling.

(d) Security screening of passengers, their baggage and/or cargo, mail or stores.

(e) Freight forwarders.

(f) Passenger and Freight reservation staff.

An assessment must be undertaken following dangerous goods training to verify understanding of the regulations, and confirmation is required of successful completion of the test.

NOTE: *If recurrent training is completed within the final 3 months of validity of previous training, the period of validity extends from the month on which the recurrent training was completed, until 24 months from the expiry of that previous training (27 months maximum between training period).*

8.4.2 AirTanker Training

Training, as above, will be given to AirTanker personnel within the following roles:

(a) Flight and Cabin Crew.

(b) Dispatchers.

(c) Operations staff.

(d) Engineering.

(e) Logistics.

Personnel must be trained in the requirements commensurate with their responsibilities.

8.4.3 Training Records

A record of training must be maintained which must include:

(a) The individuals name.

(b) The most recent training completion month or qualification expiry date.

(c) A description, copy or reference to training materials used to meet the training requirement.

(d) The name and address of the organisation providing the training.

(e) Evidence which shows that a test has been completed satisfactorily.

Training records must be retained for a minimum period of 36 months from the most recent training completion month and must be held within a location that if required they can be made available upon request to the appropriate National Authority.

8.4.4 Instructor Qualifications

Instructors of initial and recurrent training DG programmes must have adequate instructional skills and have successfully completed a DG training programme in the applicable category (or category 6 of IATA DGRs Table 1.5.A) prior to delivering a DG programme, unless provided for by the appropriate National Authority. Instructors delivering initial and recurrent dangerous goods training programmes must, at least every 24 months, deliver such courses, or in the absence of this attend recurrent training.

8.5 Limitations

8.5.1 General

Some dangerous goods are too dangerous to be carried by aircraft, others may be carried on cargo aircraft only and some are acceptable on both cargo and passenger aircraft. A number of limitations are placed on dangerous goods which are permitted to be transported by air. The following paragraphs state which dangerous goods are forbidden, which dangerous goods may be transported unknowingly as 'hidden dangerous goods' and which dangerous goods are acceptable given shipping limitations imposed upon them.

8.5.2 Forbidden Dangerous Goods

Forbidden dangerous goods are defined as articles or substances which, as presented for transport, are liable to explode, react dangerously, and produce a flame or dangerous evolution of heat or dangerous emission of toxic, corrosive or flammable gases or vapours under conditions normally encountered when being transported by air.

8.5.3 Prohibited Items Signage

Signage *must* be displayed that gives passengers, check-in staff, cargo workers, aircraft loaders and engineers information/warning of the types of prohibited items (e.g. DG or sharp objects) that must not be carried on board an aircraft. Notices *must* be displayed where aircraft boarding areas are maintained and as a minimum, warning signs, notices, posters or placards should be sufficient in number and prominently displayed at all of the places where tickets are issued, or passengers are checked-in. The signs shall also be displayed at boarding gates or gate check-in areas and baggage claim areas.

Such signs must also be displayed at cargo acceptance points.

Examples of the type(s) of signs available are shown below.

Figure 42 Examples of Dangerous Goods posters

8.5.4 Hidden Dangerous Goods

Passenger baggage and cargo may contain hazardous goods that are not apparent. With the aim of preventing any undeclared dangerous goods, either in passenger baggage or cargo, being loaded to an aircraft without prior permission the following must be observed. During the check in process, passenger handling staff must seek confirmation from the passenger that they are not carrying dangerous goods that are not permitted, and where suspicions arise, further confirmation must be sought.

In particular, positive confirmation should be sought by check-in staff that no spare laptop batteries or power banks are packed in checked luggage. If it is necessary to carry large portable electronic devices in checked luggage, they are to be completely switched off and protected from unintentionally switching on. Additionally, large portable electronic devices such as laptops and tablets should not be placed near aerosols or perfumes or other permitted flammable products.

Cargo staff must be alert to any forms of cargo that may contain hidden dangerous goods and must alert appropriately qualified dangerous goods personnel for confirmation. Many innocuous looking items may contain dangerous goods and a list of general descriptions which, experience has shown are often applied to such items in Table 1 (extract from IATA DG Regulations Para 2.2).

Description	Potential Hazard(s)
Aircraft on ground (AOG) spares	See aircraft parts or aircraft equipment
Aircraft spare parts/aircraft equipment	May contain explosives (flares or other pyrotechnics), chemical oxygen generators, unserviceable tyre assemblies, cylinders of compressed gas (oxygen, carbon dioxide, nitrogen or fire extinguishers), paint, adhesives, aerosols, lifesaving appliances, first aid kits, fuel in equipment, wet or lithium batteries, matches, etc
Automobiles/automobile parts	(Car, motor, motorcycle) may contain Ferro-magnetic material which may not meet the definition for magnetised material, but which may be subject to special stowage requirements due to the possibility of affecting aircraft instruments. May also contain engines, including fuel cell engines, carburettors or fuel tanks which contain or have contained fuel, wet or lithium batteries, compressed gases in tyre inflation devices, fire extinguishers, shocks/struts with nitrogen, air bag inflators/air bag modules, flammable adhesives, paints, sealants and solvents, etc
Battery-powered	May contain wet or lithium batteries.

devices/equipment	
Breathing apparatus	May indicate cylinders of compressed air or oxygen, chemical oxygen generators or refrigerated liquefied oxygen.
Camping equipment	May contain flammable gases (butane, propane etc), flammable liquids (kerosene, gasoline etc), flammable solids (hexamine, matches etc), or other dangerous goods.
Cars, car parts	See automobiles etc
Chemicals	May contain items meeting any of the criteria for dangerous goods, particularly flammable liquids, flammable solids, oxidisers, organic peroxides, toxic or corrosive substances.
COMAT (company materials)	Such as aircraft parts, may contain dangerous goods as an integral part (e.g. chemical oxygen generators in a passenger service unit (PSU), various compressed gases such as oxygen, carbon dioxide and nitrogen, gas lighters, aerosols, fire extinguishers, flammable liquids such as fuels, paints and adhesives, and corrosive materials such as batteries. Other items such as flares, first aid kits, lifesaving appliances, matches, magnetised material etc.
Consolidated consignments (groupages)	May contain any of the defined classes of dangerous goods.
Cryogenic (liquid)	Indicates refrigerated liquefied gases such as argon, helium, neon and nitrogen.
Cylinders	May indicate compressed or liquefied gases.
Dental apparatus	May contain flammable resins or solvents, compressed or liquefied gas, mercury and radioactive material.
Diagnostic specimens	May contain infectious substances
Diving equipment	May contain cylinders (such as scuba tanks, vest bottles etc) of compressed gas (air, oxygen etc), high intensity diving lamps which can generate extremely high heat when operated in air. In order to be carried safely, the bulb or battery must be disconnected.
Drilling and mining equipment	May contain explosive(s) and/or other dangerous goods.
Dry shipper (vapour shipper)	May contain free liquid nitrogen. Dry shippers are subject to the IATA DG regulations when they permit the release of any free liquid nitrogen irrespective of the orientation of the packaging.
Electrical equipment/electronic equipment	May contain magnetised materials or mercury in switch gear and electron tubes, wet batteries, lithium batteries or fuel cells or fuel cell cartridges that contain or have contained fuel.
Electrically powered apparatus	Wheelchairs, lawn mowers, golf carts etc, may contain wet batteries, lithium batteries or fuel cells or fuel cell cartridges that contain or have contained fuel.
Expeditionary equipment	May contain explosives (flares), flammable liquids, (gasoline), flammable gas (propane, camping gas) or other dangerous goods.
Film crew or media equipment	May contain explosive pyrotechnic devices, generators incorporating internal combustion engines, wet batteries, lithium batteries, fuel, heat producing items, etc.
Frozen embryos	May contain refrigerated liquefied gases or carbon dioxide solid (dry ice).
Frozen fruit, vegetables etc	May be packed in carbon dioxide solid (dry ice).
Fuels	May contain flammable liquids, flammable solids or flammable gases.
Fuel control units	May contain flammable liquids.
Hot air balloon	May contain cylinders with flammable gas, fire extinguishers, engines, internal combustion, batteries etc.

Household goods	May contain items meeting any of the criteria for dangerous goods including flammable liquids such as solvent based paint, adhesives, polishes, aerosols (for passengers, those not permitted under IATA DG Regulations subsection 2.3), bleach, corrosive oven or drain cleaner, ammunition, matches etc.
Instruments	May conceal barometers, manometers, mercury switches, rectifier tubes, thermometers etc containing mercury.
Laboratory/testing equipment	May contain items meeting any of the criteria for dangerous goods, particularly flammable liquids, flammable solids, oxidisers, organic peroxides, toxic or corrosive substances, lithium batteries, cylinders of compressed gas, etc.
Machinery parts	May contain adhesives, paints, sealants, solvents, wet and lithium batteries, mercury, cylinders of compressed or liquefied gas etc.
Magnets and other items of similar material	May individually or cumulatively meet the definition of magnetised material.
Medical supplies/equipment	May contain items meeting any of the criteria for dangerous goods, particularly flammable liquids, flammable solids, oxidisers, organic peroxides, toxic, corrosive substances, or lithium batteries.
Metal construction material, metal fencing, metal piping	May contain Ferro-magnetic material which may be subject to special stowage requirements due to the possibility of affecting aircraft instruments.
Parts of automobile (car, motor, motorcycle)	May contain wet batteries etc.
Passengers' baggage	May contain items meeting any of the criteria for dangerous goods. Examples include fireworks, flammable household liquids, corrosive oven or drain cleaners, flammable gas or liquid lighter refills or camping stove cylinders, matches, ammunition, bleach, aerosols (those not permitted under sub-section 2.3 of IATA DGRs), etc
Pharmaceuticals	May contain items meeting any of the criteria for dangerous goods, particularly radioactive material, flammable liquids, flammable solids, oxidisers, and organic peroxides, toxic or corrosive substances.
Photographic supplies/equipment	May contain items meeting any of the criteria for dangerous goods, particularly heat producing devices, flammable liquids, flammable solids, oxidisers, and organic peroxides, toxic or corrosive substances or lithium batteries.
Promotional material	See passenger baggage.
Racing car or motorcycle team equipment	May contain engines, including fuel cell engines, carburettors or fuel tanks which contain fuel or residual fuel, flammable aerosols, cylinders, or compressed gases, nitro-methane, other fuel additives, wet batteries, lithium batteries, etc.
Refrigerators	May contain liquefied gases or an ammonia solution.
Repair kits	May contain organic peroxides and flammable adhesives, solvent based paints, resins, etc.
Samples for testing	May contain items meeting any of the criteria for dangerous goods, particularly infectious substances, flammable liquids, flammable solids, oxidisers, organic peroxides, toxic or corrosive substances.
Semen	May be packed with carbon dioxide solid (dry ice) or refrigerated liquefied gases. See also Dry Shipper.
Ship's spares	May contain explosives (flares), cylinders or compressed gas (life rafts), paint, lithium batteries (emergency locator transmitters) etc.

Show, motion picture, stage and special effects equipment	May contain flammable substances, explosives, or other dangerous goods.
Sporting goods/sports team equipment	May contain cylinders of compressed or liquefied gas (air, carbon dioxide, etc), lithium batteries, propane torches, first aid kits, flammable adhesives, aerosols, etc.
Swimming pool chemicals	May contain oxidising or corrosive substances.
Switches in electrical equipment or instruments	May contain mercury.
Toolboxes	May contain explosives (power rivets), compressed gases or aerosols, flammable gases (butane cylinders or torches), flammable adhesives or paints, corrosive liquids, lithium batteries, etc.
Torches	Micro torches and utility lighters may contain flammable gas and be equipped with an electronic starter. Larger torches may consist of a torch head (often with a self-igniting switch) attached to a container or cylinder of flammable gas.
Unaccompanied passenger baggage/personal effects	May contain items meeting any of the criteria for dangerous goods, such as fireworks, flammable household liquids, corrosive oven or drain cleaners, flammable gas or liquid lighter refills or camping stove cylinders, matches, bleach, aerosols, etc. (those not permitted under sub-section 2.3 of the IATA DGRs)
Vaccines	May be packed in carbon dioxide, solid (dry ice).

Table 7. Hidden Dangerous Goods

NOTE: *Articles and substances which do not fall within the definitions of dangerous goods as shown in the IATA DG Regulations and which in the event of leakage, may cause a serious clean-up problem or corrosion to aluminium on a long-term basis must be checked by the shipper to at least ensure that the packaging is adequate to prevent leakage during transportation. These may include brine, powdered or liquid dyes, pickled foodstuffs etc.*

Passenger check-in staff must be provided with information, and this information must be readily available to such staff on:

(a) General descriptions that are often used for items in passenger baggage which may contain dangerous goods.

(b) Other indications that dangerous goods may be present (e.g. labels, marking etc).

(c) Those dangerous goods which may be carried by passengers in accordance with the current issue of the IATA DG Regulations table 2.3.A.

8.5.5 Dangerous Goods Carried by Passengers or Crew

Dangerous goods, including excepted packages of radioactive material, must not be carried by passengers or crew:

(a) As or in checked baggage.

(b) As or in carry-on baggage.

(c) On their person.

except as otherwise stated in Table 8 (extract from IATA DG Regulations Table 2.3.A).

The following table is intended as an easy-to-read table stating goods, any restrictions that may apply, stowage location(s), operator approval requirements and captain's information.

	The pilot-in-command must be informed of the location	Permitted in or as carry-on baggage	Permitted in or as checked baggage	The approval of the operator is required
Alcoholic beverages – when in retail packagings, containing more than 24% but not more than 70% alcohol by volume, in receptacles not exceeding 5L, with a total net quantity per person of 5L.	NO	YES	YES	NO
Ammunition (cartridges for weapons), Securely Packaged – (in Div 1.4S, UN 0012 or UN 0014 only), in quantities not exceeding 5kgs gross weight per person for that person's own use. Allowances for more than one person must not be combined into one or more packages.	YES	YES	NO	NO
Avalanche rescue pack – one (1) per person, containing cartridges of compressed gas in Div 2.2. May also be equipped with a pyrotechnic trigger mechanism containing no more than 200 mg net of Div 1.4S. The backpack must be packed in such a manner that it cannot be accidentally activated. The airbags within the backpacks must be fitted with pressure relief valves.	YES	YES	YES	NO
Baggage with installed lithium batteries non removable batteries exceeding 0.3g lithium or 2.7Wh	Forbidden	Forbidden	Forbidden	Forbidden
Baggage with installed lithium batteries: - non-removable batteries. Batteries must contain no more than 0.3g lithium metal or for lithium ion must not exceed 2.7Wh. - removable batteries. Batteries must be removed if baggage is to be checked in. Removed batteries must be carried in the cabin.	NO	YES	YES	NO
Batteries, spare/loose, including lithium metal batteries, non-spillable batteries, nickel-metal hydride batteries and dry batteries (see IATA DGRs 2.3.5.8 for details) for portable electronic devices must be carried in carry-on baggage only. Articles which have the primary purpose as a power source, e.g. power banks are considered as spare batteries. These batteries must be individually protected to prevent short circuits. Lithium metal batteries: the lithium metal content must not exceed 2g (see IATA DGRs 2.3.5.8.4 for details) Lithium ion batteries: the Watt-hour rating must not exceed 100 Wh. (see IATA DGRs 2.3.5.8.4 for details) Each person is limited to a maximum of 20 spare batteries. The Operator may approve the carriage of more than 20 batteries. Non-spillable batteries: must be 12V or less and 100 Wh or less. Each person is limited to a maximum of 2 spare batteries (see IATA DGRs 2.3.5.8.5 for details)	NO	NO	YES	NO
Camping stoves and fuel containers that have contained a flammable liquid fuel, with empty fuel tank and/or fuel container. Refer to the IATA DGRs 2.3.2.5 for details.	YES	YES	NO	NO
Chemical agent monitoring equipment – when carried by staff members of the Organisation for the Prohibition of Chemical Weapons on official travel. Refer to IATA DGRs	YES	YES	YES	NO

2.3.4.4 for details.				
The pilot-in-command must be informed of the location				
Permitted in or as carry-on baggage				
Permitted in or as checked baggage				
The approval of the operator is required				
Disabling devices such as mace, pepper spray etc. containing an irritant or incapacitating substance are forbidden on the person, in checked and carry-on baggage.	FORBIDDEN			
Dry ice (carbon dioxide, solid), in quantities not exceeding 2.5kg per person when used to pack perishables not subject to DG Regulations in checked or carry-on baggage, provided the baggage (package) permits the release of carbon dioxide gas. Checked baggage must be marked “dry ice” or “carbon dioxide, solid” and with the net weight of dry ice or an indication that there is 2.5kg or less dry ice.	YES	YES	YES	NO

	The pilot-in-command must be informed of the location	Permitted in or as checked baggage	Permitted in or as carry-on baggage	The approval of the operator is required
e-cigarettes – (including e-cigars, e-pipes, other personal vaporisers) containing batteries must be individually protected to prevent accidental activation(see IATA DGRs 2.3.5.8.2 for details).	NO	NO	YES	NO
Electro-shock weapons (e.g. Tasers) containing dangerous goods such as explosives, compressed gases, lithium batteries etc. are forbidden in checked baggage, carry-on baggage or on the person.	FORBIDDEN			
Fuel cells containing fuel, powering portable electronic devices (e.g. cameras, cellular phones, laptop computers and camcorders), see IATA DGRs 2.3.5.9 for details.	NO	NO	YES	NO
Fuel cell cartridges, spare for portable electronic devices, see IATA DGRs 2.3.5.9 for details.	NO	YES	YES	NO
Gas cartridges, small, non-flammable containing carbon dioxide or other suitable gas in Division 2.2. Up to two (2) small cartridges fitted into a **self-inflating safety device** intended to be worn by a person, such as a life jacket or vest. Not more than two (2) device per passenger and up to two (2) spare small cartridges per device, not more than four (4) cartridges up to 50ml water capacity for other devices (see IATA DGRs 2.3.4.2 for details).	YES	YES	YES	NO
Gas cylinders, non-flammable, non-toxic worn for the **operation of mechanical limbs.** Also, spare cylinders of a similar size if required to ensure an adequate supply for the duration of the journey.	NO	YES	YES	NO
Hair styling equipment containing A hydrocarbon gas cartridge, up to one (1) per passenger or crew member, provided that the safety cover is securely fitted over the heating element. This hair styling equipment must not be used on board the aircraft. Spare gas cartridges for such hairstyling equipment are not permitted in checked or carry- on baggage.	NO	YES	YES	NO
Insulated packagings containing refrigerated liquid nitrogen (dry shipper), fully absorbed in a porous material containing only non-dangerous goods.	NO	YES	YES	NO
Internal combustion or fuel cell engines, must meet A70 (see IATA DGRs 2.3.5.12 for details).	NO	YES	NO	NO

	The pilot-in-command must be informed of the location	Permitted in or as carry-on baggage	Permitted in or as checked baggage	The approval of the operator is required
Lithium batteries: Portable electronic devices (PED) containing lithium metal or lithium ion cells or batteries including medical devices such as portable oxygen concentrators (POC) and consumer electronics such as cameras, mobile phones, laptops and tablets, when carried by passengers or crew for personal use (see IATA DGRs 2.3.5.8). For lithium metal batteries the lithium metal content must not exceed 2g and for lithium ion batteries the Watt-hour rating must not exceed 100Wh. Devices in checked baggage must be completely switched off (not in sleep or hibernation mode); unless the device contains only lithium batteries not exceeding: -- for lithium metal batteries, a lithium content of 0.3g; or -- for lithium ion batteries, a Watt-hour rating of 2.7Wh. and must be protected from damage. Each person is limited to a maximum of 15 PED.	NO	YES	YES	NO
Lithium batteries, spare/loose, including power banks, see **Batteries, spare/loose** **Lithium battery-powered electronic devices.** Lithium ion batteries for portable (including medical) electronic devices, a Wh rating exceeding 100Wh but not exceeding 160Wh. For portable medical electronic devices only, lithium metal batteries with a lithium metal content exceeding 2g but not exceeding 8g. Devices in checked baggage must be completely switched off and must be protected from damage.	YES	YES	YES	NO
Lithium batteries, spare/loose with a Wh rating exceeding 100Wh but not exceeding 160Wh. For consumer electronic devices and PMED or with a lithium metal content exceeding 2g but not exceeding 8g for PMED only. Maximum of two spare batteries in carry-on baggage only. These batteries must be individually protected to prevent short circuits.	YES	NO	YES	NO
Matches, safety (one small packet) or a small cigarette lighter that does not contain unabsorbed liquid fuel, other than liquefied gas, intended for use by an individual when carried on the person. Lighter fuel and lighter refills are not permitted on one's person or in checked or carry-on baggage. ***Note:*** *"Strike anywhere" matches, "blue flame" or "Cigar" lighters are forbidden.*	NO	ON ONE'S PERSON		NO
Mobility aids: Battery-powered wheelchairs or other similar				

mobility devices with **non-spillable wet batteries, nickel-metal hydride batteries or dry batteries** (see IATA DGRs 2.3.2.2).	YES	YES	NO	NO

	The pilot-in-command must be informed of the location	Permitted in or as carry-on baggage	Permitted in or as checked baggage	The approval of the operator is required
Mobility aids: Battery-powered wheelchairs or other similar mobility devices with **spillable batteries or with lithium ion batteries** (see IATA DGRs 2.3.2.3 and 2.3.2.4 for details).	YES	YES	NO	YES
Mobility aids: Battery-powered wheelchairs or other similar mobility devices with **lithium ion batteries** where the battery is specifically designed to be removed, the battery must be carried in the cabin (see IATA DGRs 2.3.2.4.3(b)2 for details).	YES	NO	YES	YES
Non-radioactive medicinal or toiletry articles (including aerosols) such as hair sprays, perfumes, colognes and medicine containing alcohol; and	NO	YES	YES	NO
Non-flammable, non-toxic aerosols in Division 2.2, with no subsidiary risk, for sporting or home use. The total net quantity of non-radioactive medicinal or toiletry articles and non-flammable, non-toxic aerosols in Division 2.2 must not exceed 2kg or 2L and the net quantity of each single article must not exceed 0.5kg or 0.5L. Release valves on aerosols must be protected by a cap or other suitable means to prevent inadvertent release of the contents.	NO	YES	YES	NO
Oxygen or air, gaseous, cylinders required for medical use. The cylinder must not exceed 5kg gross weight.	YES	YES	YES	YES
Note: *Liquid oxygen systems are forbidden for transport.* **Permeation devices** must meet A41 (see IATA DGRs 2.3.5.13 for details).	NO	YES	NO	NO
Radioisotopic cardiac pacemakers or other devices, including those powered by lithium batteries, implanted into a person or fitted externally, or radiopharmaceuticals contained within the body of a person as the result of medical treatment.	NO	ON ONE'S PERSON		NO
Security-type attaché cases, cash boxes, cash bags, etc. incorporating dangerous goods, such as lithium batteries and/or pyrotechnic material, except as provided in 2.3.2.6 are totally forbidden. See entry in IATA DGRs 4.2-List of Dangerous Goods.	FORBIDDEN			
Security-type equipment (see IATA DGRs 2.3.2.6 for details)	YES	YES	NO	NO

225The pilot-in-command must be informed of the location				
			Permitted in or as carry-on baggage	
		Permitted in or as checked baggage		
	The approval of the operator is required			
Specimens, non-infectious packed with small quantities of flammable liquid, must meet A180 (see IATA DGRs 2.3.5.11 for details).	NO	YES	YES	NO
Thermometer, medical or clinical, which contains mercury, one (1) per person for personal use, when in its protective case.	NO	YES	NO	NO
Thermometer or barometer, mercury filled carried by a representative of a government weather bureau or similar official agency (see IATA DGRs 2.3.3.1 for details).	YES	NO	YES	YES

Table 8. Provisions for Dangerous Goods carried by Passengers or Crew (IATA DG Regulations Table 2.3.A)

8.5.5.1 Lithium Battery Specification Markings

When carried by passengers and crew, lithium-ion batteries, lithium metal batteries, and power banks that are not legibly marked with the watt-hour (Wh) rating or lithium metal content, or where the watt-hour rating is not readily available via other means, are forbidden.

8.5.6 Passenger Information

8.5.6.1 Ticketing

AirTanker's operation is not based on the majority of passengers purchasing or being issued with tickets in the normal way. However, all civilian fare-paying passengers and some military passengers do receive a ticket or flight notification. On this ticket or flight notification, there will be a link to the AirTanker website which displays information to passengers about the types of dangerous goods which they are forbidden from carrying aboard an aircraft. The website address is:
https://www.airtanker.co.uk/passenger-information

8.5.6.2 Check-In

All handling agents must ensure that passengers are notified at the check-in desk as to the types of dangerous goods which a passenger is forbidden from transporting aboard an aircraft. The means of notifying passengers are by notices, including visual examples, at the check-in desk. See Figure 40 of this manual for examples.

8.6 Classification

8.6.1 UN Dangerous Goods Classification

Dangerous goods are defined as goods which meet the criteria of one or more of the nine United Nations (UN) hazard classes, and where applicable to one of three UN packing groups. The nine

classes indicate the type of hazard, and the packing group indicates the level of danger. Several of the classes are further split into hazard divisions. The nine UN classes and their Sub-Divisions are as follows:

UN Class 1 Explosives

- Division 1.1 Articles and substances having a mass explosion hazard.
- Division 1.2 Articles and substances having a projection hazard but not a mass explosion hazard.
- Division 1.3 Articles and substances having a fire hazard, a minor blast hazard and/or a minor projection hazard but not a mass explosion hazard.
- Division 1.4 Articles and substances presenting no significant hazard.
- Division 1.5 Very insensitive substance having a mass explosion hazard.
- Division 1.6 Extremely insensitive articles which do not have a mass explosion hazard.

UN Class 2 Gases

- Division 2.1 Flammable Gas.
- Division 2.2 Non-flammable, non-toxic gas.
- Division 2.3 Toxic Gas.

UN Class 3 Flammable Liquids

- No sub-divisions.

UN Class 4 Flammable Solids, Substances Liable to Spontaneous Combustion, Substances which, in Contact with Water, Emit Flammable Gases

- Division 4.1 Flammable solids; Self-reactive substance; and Desensitised explosives.
- Division 4.2 Substances liable to spontaneous combustion.
- Division 4.3 Substances which, in contact with water, emit flammable gases.

UN Class 5 Oxidising Substances and Organic Peroxides

- Division 5.1 Oxidising substances.
- Division 5.2 Organic peroxides.

UN Class 6 Toxic and Infectious Substances

- Division 6.1 Toxic substances.
- Division 6.2 Infectious substances.

UN Class 7 Radioactive Material

- No sub-divisions.

UN Class 8 Corrosives

- No sub-divisions.

UN Class 9 Miscellaneous Dangerous Goods

- No sub-divisions.

8.7 Documentation

8.7.1 Shippers Declaration for Dangerous Goods

Shippers of dangerous goods are required to complete a Dangerous Goods Transport document. In practice this has become known as the 'Shipper's Declaration', which is a red hatched A4 document. An example of a Shippers declaration is shown at Figure 41.

This document will provide the following information:

(a) UN Number.

(b) Proper Shipping Name (PSN).

(c) UN Class or Division (Subsidiary Risk).

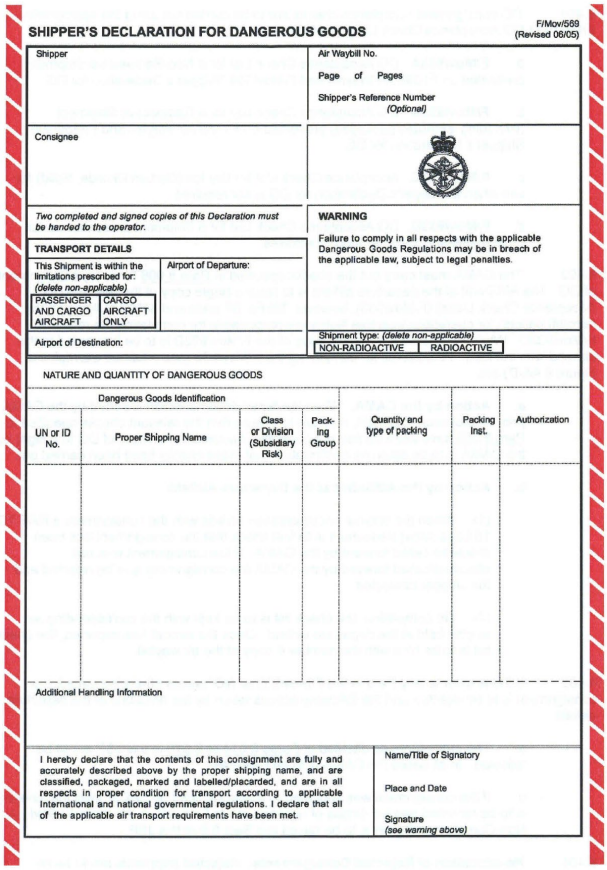
(d) Packing group.

(e) Quantity Per Package and package type.

(f) Packing Instruction.

(g) Additional Handling Information.

The shipper must provide two copies of this document, one of which accompanies the dangerous goods to the final destination, whilst the other is retained by the aircraft operator at the departure location.



SHIPPER'S DECLARATION FOR DANGEROUS GOODS

F/Mov/569 (Revised 06/05)

Shipper

Air Waybill No.

Page of Pages

Shipper's Reference Number *(Optional)*

Consignee

Two completed and signed copies of this Declaration must be handed to the operator.

WARNING

Failure to comply in all respects with the applicable Dangerous Goods Regulations may be in breach of the applicable law, subject to legal penalties.

TRANSPORT DETAILS

This Shipment is within the limitations prescribed for: *(delete non-applicable)*

PASSENGER AND CARGO AIRCRAFT | CARGO AIRCRAFT ONLY

Airport of Departure:

Airport of Destination:

Shipment type: *(delete non-applicable)*

NON-RADIOACTIVE | RADIOACTIVE

NATURE AND QUANTITY OF DANGEROUS GOODS

Dangerous Goods Identification				Quantity and type of packing	Packing Inst.	Authorization
UN or ID No.	Proper Shipping Name	Class or Division (Subsidiary Risk)	Packing Group			

Additional Handling Information

I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labelled/placarded, and are in all respects in proper condition for transport according to applicable International and national governmental regulations. I declare that all of the applicable air transport requirements have been met.

Name/Title of Signatory

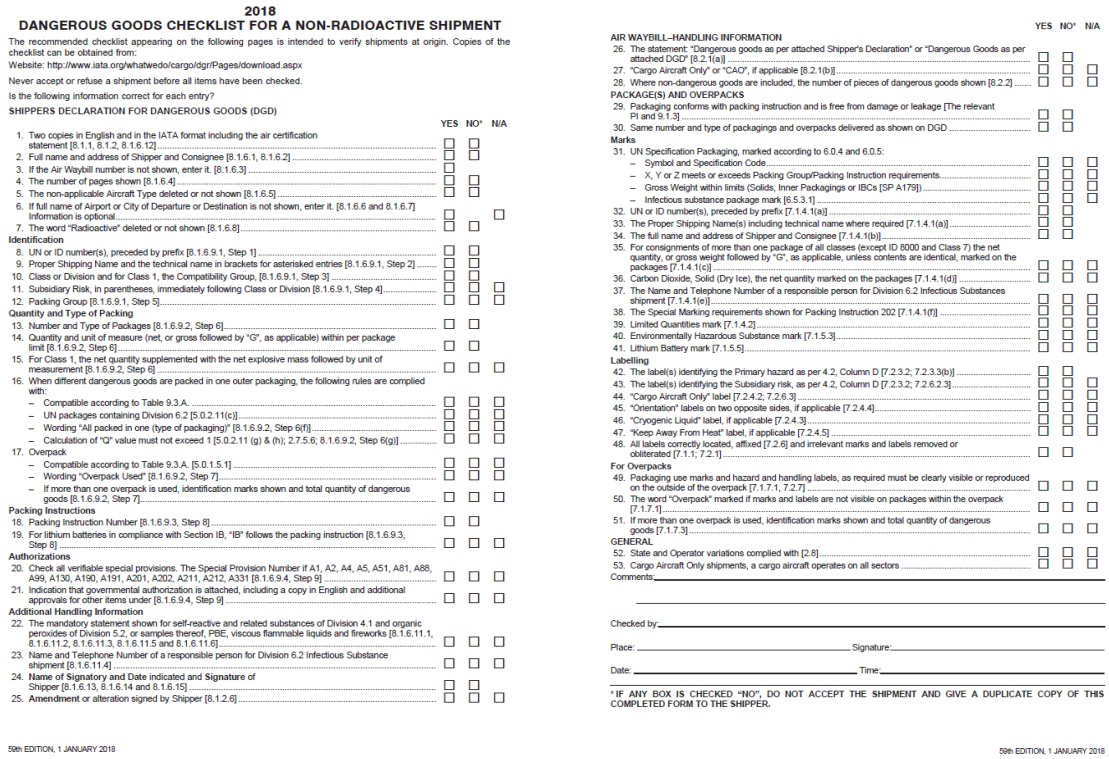
Place and Date

Signature *(see warning above)*

Figure 43 Example of Shippers Declaration of Dangerous Goods

8.7.2 Cargo Acceptance

Before a cargo agent accepts a shipment of dangerous goods for carriage by air, they must complete a dangerous goods acceptance checklist. This is designed to ensure that the shipper has applied the relevant packaging, identification and documentation regulations for the consignment. If any of the questions on the checklist are answered "No", then the consignment must be rejected and returned to the shipper. An example of an acceptance checklist, front and back, is shown at Figure 42.



2018
DANGEROUS GOODS CHECKLIST FOR A NON-RADIOACTIVE SHIPMENT

The recommended checklist appearing on the following pages is intended to verify shipments at origin. Copies of the checklist can be obtained from:
Website: http://www.iata.org/whatwedo/cargo/dgr/Pages/download.aspx

Never accept or refuse a shipment before all items have been checked.

Is the following information correct for each entry?

SHIPPERS DECLARATION FOR DANGEROUS GOODS (DGD)

	YES	NO*	N/A
1. Two copies in English and in the IATA format including the air certification statement [8.1.1, 8.1.2, 8.1.6.12]	☐	☐	
2. Full name and address of Shipper and Consignee [8.1.6.1, 8.1.6.2]	☐	☐	
3. If the Air Waybill number is not shown, enter it. [8.1.6.3]	☐		
4. The number of pages shown [8.1.6.4]	☐	☐	
5. The non-applicable Aircraft Type deleted or not shown [8.1.6.5]	☐	☐	
6. If full name of Airport or City of Departure or Destination is not shown, enter it. [8.1.6.6 and 8.1.6.7] Information is optional	☐		☐
7. The word "Radioactive" deleted or not shown [8.1.6.8]	☐	☐	
Identification			
8. UN or ID number(s), preceded by prefix [8.1.6.9.1, Step 1]	☐	☐	
9. Proper Shipping Name and the technical name in brackets for asterisked entries [8.1.6.9.1, Step 2]	☐	☐	
10. Class or Division and for Class 1, the Compatibility Group, [8.1.6.9.1, Step 3]	☐	☐	
11. Subsidiary Risk, in parentheses, immediately following Class or Division [8.1.6.9.1, Step 4]	☐	☐	☐
12. Packing Group [8.1.6.9.1, Step 5]	☐	☐	☐
Quantity and Type of Packing			
13. Number and Type of Packages [8.1.6.9.2, Step 6]	☐	☐	
14. Quantity and unit of measure (net, or gross followed by "G", as applicable) within per package limit [8.1.6.9.2, Step 6]	☐	☐	
15. For Class 1, the net quantity supplemented with the net explosive mass followed by unit of measurement [8.1.6.9.2, Step 6]	☐	☐	☐
16. When different dangerous goods are packed in one outer packaging, the following rules are complied with:			
– Compatible according to Table 9.3.A.	☐	☐	☐
– UN packages containing Division 6.2 [5.0.2.11(c)]	☐	☐	☐
– Wording "All packed in one (type of packaging)" [8.1.6.9.2, Step 6(f)]	☐	☐	☐
– Calculation of "Q" value must not exceed 1 [5.0.2.11 (g) & (h); 2.7.5.6; 8.1.6.9.2, Step 6(g)]	☐	☐	☐
17. Overpack			
– Compatible according to Table 9.3.A. [5.0.1.5.1]	☐	☐	☐
– Wording "Overpack Used" [8.1.6.9.2, Step 7]	☐	☐	☐
– If more than one overpack is used, identification marks shown and total quantity of dangerous goods [8.1.6.9.2, Step 7]	☐	☐	☐
Packing Instructions			
18. Packing Instruction Number [8.1.6.9.3, Step 8]	☐	☐	
19. For lithium batteries in compliance with Section IB, "IB" follows the packing instruction [8.1.6.9.3, Step 8]	☐	☐	☐
Authorizations			
20. Check all verifiable special provisions. The Special Provision Number if A1, A2, A4, A5, A51, A81, A88, A99, A130, A190, A191, A201, A202, A211, A212, A331 [8.1.6.9.4, Step 9]	☐	☐	☐
21. Indication that governmental authorization is attached, including a copy in English and additional approvals for other items under [8.1.6.9.4, Step 9]	☐	☐	☐
Additional Handling Information			
22. The mandatory statement shown for self-reactive and related substances of Division 4.1 and organic peroxides of Division 5.2, or samples thereof, PBE, viscous flammable liquids and fireworks [8.1.6.11.1, 8.1.6.11.2, 8.1.6.11.3, 8.1.6.11.5 and 8.1.6.11.6]	☐	☐	☐
23. Name and Telephone Number of a responsible person for Division 6.2 Infectious Substance shipment [8.1.6.11.4]	☐	☐	☐
24. **Name of Signatory and Date** indicated and **Signature** of Shipper [8.1.6.13, 8.1.6.14 and 8.1.6.15]	☐	☐	
25. **Amendment** or alteration signed by Shipper [8.1.2.6]	☐	☐	☐

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AIR WAYBILL–HANDLING INFORMATION	YES	NO*	N/A
26. The statement: "Dangerous goods as per attached Shipper's Declaration" or "Dangerous Goods as per attached DGD" [8.2.1(a)]	☐	☐	
27. "Cargo Aircraft Only" or "CAO", if applicable [8.2.1(b)]	☐	☐	☐
28. Where non-dangerous goods are included, the number of pieces of dangerous goods shown [8.2.2]	☐	☐	☐
PACKAGE(S) AND OVERPACKS			
29. Packaging conforms with packing instruction and is free from damage or leakage [The relevant PI and 9.1.3]	☐	☐	
30. Same number and type of packagings and overpacks delivered as shown on DGD	☐	☐	
Marks			
31. UN Specification Packaging, marked according to 6.0.4 and 6.0.5:			
– Symbol and Specification Code	☐	☐	☐
– X, Y or Z meets or exceeds Packing Group/Packing Instruction requirements	☐	☐	☐
– Gross Weight within limits (Solids, Inner Packagings or IBCs [SP A179])	☐	☐	☐
– Infectious substance package mark [6.5.3.1]	☐	☐	☐
32. UN or ID number(s), preceded by prefix [7.1.4.1(a)]	☐	☐	
33. The Proper Shipping Name(s) including technical name where required [7.1.4.1(a)]	☐	☐	
34. The full name and address of Shipper and Consignee [7.1.4.1(b)]	☐	☐	
35. For consignments of more than one package of all classes (except ID 8000 and Class 7) the net quantity, or gross weight followed by "G", as applicable, unless contents are identical, marked on the packages [7.1.4.1(c)]	☐	☐	☐
36. Carbon Dioxide, Solid (Dry Ice), the net quantity marked on the packages [7.1.4.1(d)]	☐	☐	☐
37. The Name and Telephone Number of a responsible person for Division 6.2 Infectious Substances shipment [7.1.4.1(e)]	☐	☐	☐
38. The Special Marking requirements shown for Packing Instruction 202 [7.1.4.1(f)]	☐	☐	☐
39. Limited Quantities mark [7.1.4.2]	☐	☐	☐
40. Environmentally Hazardous Substance mark [7.1.5.3]	☐	☐	☐
41. Lithium Battery mark [7.1.5.5]	☐	☐	☐
Labelling			
42. The label(s) identifying the Primary hazard as per 4.2, Column D [7.2.3.2; 7.2.3.3(b)]	☐	☐	
43. The label(s) identifying the Subsidiary risk, as per 4.2, Column D [7.2.3.2; 7.2.6.2.3]	☐	☐	☐
44. "Cargo Aircraft Only" label [7.2.4.2; 7.2.6.3]	☐	☐	☐
45. "Orientation" labels on two opposite sides, if applicable [7.2.4.4]	☐	☐	☐
46. "Cryogenic Liquid" label, if applicable [7.2.4.3]	☐	☐	☐
47. "Keep Away From Heat" label, if applicable [7.2.4.5]	☐	☐	☐
48. All labels correctly located, affixed [7.2.6] and irrelevant marks and labels removed or obliterated [7.1.1; 7.2.1]	☐	☐	
For Overpacks			
49. Packaging use marks and hazard and handling labels, as required must be clearly visible or reproduced on the outside of the overpack [7.1.7.1, 7.2.7]	☐	☐	☐
50. The word "Overpack" marked if marks and labels are not visible on packages within the overpack [7.1.7.1]	☐	☐	☐
51. If more than one overpack is used, identification marks shown and total quantity of dangerous goods [7.1.7.3]	☐	☐	☐
GENERAL			
52. State and Operator variations complied with [2.8]	☐	☐	☐
53. Cargo Aircraft Only shipments, a cargo aircraft operates on all sectors	☐	☐	☐

Comments: _____

Checked by: _____

Place: _____ Signature: _____

Date: _____ Time: _____

* IF ANY BOX IS CHECKED "NO", DO NOT ACCEPT THE SHIPMENT AND GIVE A DUPLICATE COPY OF THIS COMPLETED FORM TO THE SHIPPER.

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Figure 44 Example of Acceptance Checklist

8.8 Packing

8.8.1 Packing Groups

Dangerous goods are assigned to a packing group according to the degree of hazard they present.

Packing Group 1	High Danger
Packing Group 2	Medium Danger
Packing Group 3	Low Danger

Table 9. Dangerous Goods packing groups

If a substance has more than one class risk, the most stringent packing group is applied.

8.8.2 Packing Requirements

Packing requirements are given within the IATA technical instructions and can consist of single packaging, combination packaging or salvage packaging. The IATA packing instructions are to be used when preparing consignments.

8.8.2.1 Single Packaging

Single packagings can be made up of the following examples:

(a) Steel, aluminium or plastic drums.

(b) Boxes, composites or cylinders.

(c) Jerricans.

8.8.2.2 Combination Packagings

Combination packaging consists of one receptacle inside another such as glass ampoules/bottles inside a cardboard or wooden box. Many different combinations are available dependent on the packing code given to the transported dangerous goods. Combination packaging usually contains an absorbent material that will not react dangerously with the chemical and completely absorb the contents of the inner receptacle should it leak.

8.8.2.3 Salvage Packaging

Salvage packaging is used to transport damaged or leaking packages of dangerous goods and is marked with the letter 'T' to indicate it is permitted for salvage packaging use.

8.9 Marking and Labelling

8.9.1 Marking

Each package containing dangerous goods must be identified by specific markings, hazard labels (see 8.9.3) and, where applicable, handling labels (see 8.9.4).As a minimum each package must be marked with the following:

(a) Proper Shipping Name (PSN).

(b) UN or ID Number(s).

(c) Name & address of the shipper.

(d) Net Quantity of the dangerous goods contained within or where applicable Gross Weight *(only required when a consignment consists of more than 1 package containing identical dangerous goods but the quantity or the contents of the packages differ).*

For other markings applicable to specific dangerous goods types e.g. Dry ice, refer to the IATA DGRs (current edition), Section 7.

For markings applicable to overpacks refer to the IATA DGRs (current edition), Section 7.

8.9.2 Packaging Manufacture Markings

Dangerous goods which are shipped under the provisions of the IATA DG Regulations must be transported within UN approved packagings. These packagings have been tested as per UN requirements and will be marked with a specific UN approved packaging marking. Examples of UN approved packaging markings are as follows:

E.g. for a combination packaging (UN)4G/X20/S/14/GB94767

E.g. for a single packaging (UN)1A1/Y1.4/200/06/GB86357

8.9.3 Hazard Labels

Packages containing dangerous goods are normally identified with hazard labels, intended to alert staff to the risks inherent in the contents. Although most labels will have the text of the hazard on them some may not, but the shape, colour, and symbol of the label will alert staff to the danger. Examples of hazard labels are shown at Table 10 along with their respective cargo interline message procedure (IMP) Codes.

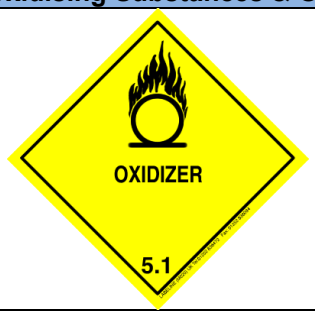
Class 1 - Explosives	
	Name: Explosives Divisions: 1.1, 1.2, 1.3 IMP Codes: REX, RCX, RGX
	Name: Explosives Division: 1.4 IMP Codes: RXB, RXC, RXD, RXE, RXG, RXS
	Name: Explosives Division: 1.5 IMP Code: REX

	Name: Explosives Division: 1.6 IMP Code: REX

Class 2 - Gases	
	Name: Flammable Gas Division: 2.1 IMP Code: RFG
	Name: Non-flammable, non-toxic Gas Division: 2.2 IMP Codes: RNG, (RCL if applicable)
	Name: Toxic gases Division: 2.3 IMP Code: RPG

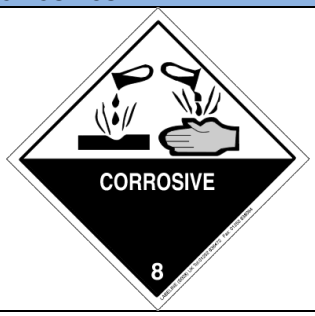
Class 3 – Flammable Liquid	
	Name: Flammable liquids IMP Code: RFL

Class 4 – Flammable Solids, Substances Liable to Spontaneous Combustion, Substances which in Contact with Water, Emit Flammable Gases	
	Name: Flammable solids Division: 4.1 IMP Code: RFS
	Name: Substances liable to Spontaneous Combustion Division: 4.2 IMP Code: RSC
	Name: Substances which in Contact with Water emit Flammable Gases Division: 4.3 IMP Code: RFW

Class 5 – Oxidising Substances & Organic Peroxides	
	Name: Oxidising Substances Division: 5.1 IMP Code: ROX
	Name: Organic Peroxides Division: 5.2 IMP Code: ROP

Class 6 – Toxic and Infectious Substances	
	Name: Toxic Substances Division: 6.1 IMP Code: RPB
	Name: Infectious Substances Division: 6.2 IMP Code: RIS

Class 7 – Radioactive Material	
	Name: Radioactive Material White IMP Code: RRW Category I -
	Name: Radioactive Material Yellow IMP Code: RRY Category II -
	Name: Radioactive Material Yellow IMP Code: RRY Category III -

Class 8 - Corrosives	
	Name: Corrosives IMP Code: RCM

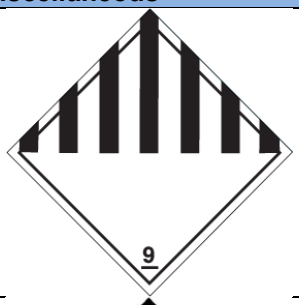
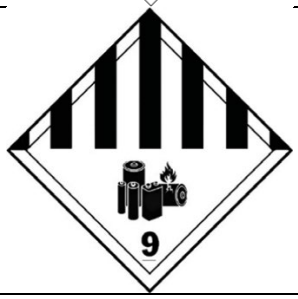
Class 9 – Miscellaneous	
	Name: Miscellaneous Dangerous Goods IMP Codes: RMD, RSB, ICE, as applicable
	Name: Miscellaneous Dangerous Goods (Lithium Batteries and Sodium Ion Batteries) For Section IA and IB Lithium Battery shipments and Section I Sodium Ion Batteries

Table 10. Examples of Hazard Labels

8.9.4 Handling Labels

Handling labels are used on a package to identify a specific way the package requires handling. In certain circumstances it may be necessary to use handling labels in addition to hazard labels however, handling labels may also be used alone.

8.9.4.1 Cargo Aircraft Only

Certain Dangerous Goods may be packaged for Cargo Aircraft only. These packages must not be loaded on board a passenger aircraft. The CAO label is shown below.

Figure 45 Example of cargo aircraft only label

All airline staff, in particular cargo handlers and ramp workers must be vigilant to ensure that any package(s) bearing the CAO label is/are NOT loaded to any passenger flights.

Other Handling Labels

Common handling labels can be found below:

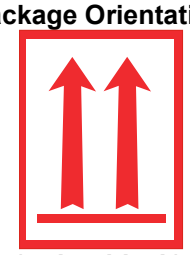
Magnetized Material 	**Package Orientation**  **(red or black)**
Keep Away From Heat 	**Cryogenic Liquid Label**

Table 11. Examples of common handling labels

8.9.5 The Battery Mark

Application of the battery mark to a consignment of lithium or sodium ion batteries (of any type) indicates that the shipper has determined specific requirements have been met. Consignments bearing this mark without the Class 9 label do not need to be accompanied by a Dangerous Goods transport document (Shipper's Declaration) and no acceptance check is required.

Figure 46 The battery mark

** Place for UN number(s)*

8.9.6 Excepted Quantities – Package Mark

Dangerous goods, including Radioactive, may be shipped in such small quantities that they are not be subject to many of the provisions of the IATA DG Regulations. They do not have to be marked or labelled as per normal dangerous goods however, they must be labelled with the relevant Excepted Quantities label as shown below.

Figure 47 Example of excepted quantities mark

** Place for UN number(s)*
*** Place for name of shipper*

8.9.7 Limited Quantities – Package Mark

The IATA DG regulations permits, under certain conditions, the carriage of dangerous goods in such quantities that they do not have to comply with both the marking and labelling provisions laid out for dangerous goods being transported under normal packing regulations. However, Limited quantity dangerous goods are packed under the 'Y' packing instruction. Packages must be marked and labelled as follows:

(a) Proper Shipping Name (PSN).

(b) UN or ID Number(s).

(c) Name & address of the shipper.

(e) Net Quantity of the dangerous goods contained within or where applicable Gross Weight *(only required when a consignment consists of more than 1 package when the contents of the packages differ).*

(f) Limited Quantities Mark.

The Limited Quantities mark can be found at figure 54.

Figure 48 Example of limited quantities mark

8.9.8 GHS labelling (overview)

Some everyday household items bear consumer warning labels which may or may not indicate they are classified as Dangerous Goods in air transport. Throughout the world, there are different laws on how to identify the hazardous properties of chemicals and how information about these hazards is

then passed to users – perhaps through consumer supply labels and safety data sheets for workers. This can be confusing because the same chemical can have different hazard descriptions in different countries.

For example, a chemical could be labelled for supply as 'toxic' in one country, but not in another. For this reason, the UN brought together experts from different countries to create the Globally Harmonised System of Classification and Labelling of Chemicals (GHS).

The UN GHS aims to ensure that information on the hazardous properties of chemicals is available throughout the world in order to enhance the protection of human health and the environment during the handling, transport and use of chemicals. GHS also provides the basis for harmonising regulations on chemicals at national, regional and worldwide level.

8.9.9 GHS Labels

Products bearing the following GHS labels **ARE** classified as Dangerous Goods:

Figure 49 GHS Dangerous Goods labels

***NOTE**: A product bearing the GHS corrosive label (depicted far right above) is NOT classified as Dangerous Goods if the signal word 'Danger' and hazard statement 'causes serious eye damage' applies.*

Products bearing the following GHS labels **ARE NOT** classified as Dangerous Goods:

Figure 50 GHS Non-Dangerous Goods labels

8.10 Handling, Storage and Loading

8.10.1 Acceptance

On receipt of dangerous goods, the handling agent must check the consignment to ensure that it has been packed, marked and documented according to the IATA dangerous goods regulations. These are to be kept for a period of 3 months after the check is completed. To assist them in this, an acceptance checklist is to be completed against the consignment to verify the following:

(a) The documentation complies with the detailed requirements of the Dangerous Goods Regulations (DGR) (current edition) at Section 8.

(b) The quantity of dangerous goods stated on the Shipper's Declaration is within the limits per package on a passenger or cargo aircraft as appropriate.

(c) The marks on package(s) and overpack(s) accord with the details stated on the accompanying Shipper's Declaration and are clearly visible.

(d) Where required, the letter in the packaging specification mark designating the packing group for which the design type has been successfully tested is appropriate for the dangerous goods contained within. This does not apply to overpacks where the specification marks are not visible.

(e) Proper Shipping names, UN numbers, labels and special handling instructions appearing on the interior package(s) are clearly visible or reproduced on the outside of an overpack.

(f) The labelling of the package(s) and overpack(s) is as required by the DGR labelling requirements at Section 7.2.

(g) The outer packaging of a combination packaging or the single packaging is permitted by the applicable packing instruction and when visible is of the type stated on the accompanying Shipper's Declaration.

(h) The package or overpack does not contain different dangerous goods which require segregation according to Table 12.

(i) The package, overpack, or unit load device is not leaking and there is no indication that its integrity has been compromised.

NOTE: *the DG acceptance checklist is to be signed and clearly marked with the signatory's name.*

NOTE: *some exceptions apply; see 9.1.3.1 (Notes) in the IATA DGRs (current edition).*

8.10.2 Damaged Dangerous Goods

If an item of dangerous goods received by the handling agent is found to be leaking, split or giving off fumes, the following general procedure is to be implemented:

(a) Notify supervisor immediately.

(b) Call emergency/environmental services as required.

(c) If article is on board an aircraft or within the apron area, inform the aircraft captain immediately.

(d) Clear passengers and non-essential personnel form the area if required.

(e) Identify the dangerous goods if safe to do so. If it is a known shipment the details will be recorded on the NOTOC.

(f) Where safe to do so, isolate the package by removing other packages or property.

(g) Avoid contact with the contents of the package.

(h) Staff involved in such incidents should stay on site until the names are noted and report taken.

If the contents come into contact with your body or clothes, the following is to be carried out:

(i) Thoroughly wash off body with plenty of water (Checks should be made that the substance does not react with water).

(j) Remove contaminated clothing.

(k) Do not eat or smoke until you have sought medical advice.

(l) Keep hands away from eyes, mouth and nose.

(m) Seek medical advice and assistance as soon as possible.

8.10.3 Handling and Stowage within the Cargo Facility

Once dangerous goods have been received by the handling agent, they should be assigned to a designated dangerous goods area within the cargo facility. This area should include information on dangerous goods classification, segregation and emergency procedures.

Handling agents should ensure that items of Organic Peroxides of division 5.2 and Self Reactive substances of division 4.1 are protected from sunlight, stored away from heat and placed in adequately ventilated areas. This also applies to transit locations. Substances of division 4.3 should be protected from the elements and sources of potential water contamination.

Cargo facility operatives should have sufficient training in the safe transportation of dangerous goods.

8.10.4 Loading to Aircraft

All items of load, including dangerous goods, must be restrained on board aircraft to prevent movement in-flight. Items weighing 100 kgs or more, when packed in certified ULDs should be individually tied down, except when the unit is volumetrically full. Where items are loaded to the bulk hold (H5) they must always be tied down. For the Airbus A330-200, volumetrically full is defined as 80% filled. If dangerous goods are placed on top of a volumetrically full compartment, there would still be the possibility of movement. To prevent movement, dangerous goods must be secured by means of tying/lashing or by placing within the build. Particular attention must be given to the restraint of dangerous goods to ensure orientation labels are observed.

Caution:

Dangerous goods as cargo must only be loaded within the cargo holds and never within the cabin or flight deck area.

8.10.4.1 Dangerous Goods in ULDs

On AirTanker aircraft, dangerous goods should be loaded to ULDs and restrained to ensure no movement of the cargo in flight or any crushing, tipping or damage by other load. To prevent movement, dangerous goods must be secured by means of tying/lashing or by placing within the build of the ULD; where tying/lashing is used, restraint must be provided forward, aft, laterally and upwards. The ULD must be marked as containing dangerous goods by way of an identification tag on its exterior indicating that dangerous goods are contained within the ULD. The identification tag must:

- Have a border of prominent red hatchings on both sides and be visible at all times;
- Have minimum dimensions of 148mm x 210mm;
- Be legibly marked with the primary and subsidiary hazard class(es) or division(s) numbers of such dangerous goods.

Caution:

If the nature of the load (e.g. within a baggage load) is such that there is a possibility that dangerous goods may move in-flight, then an alternative location must be found in order to provide the required level of restraint.

Caution:

All ULDs containing Dangerous Goods shall be inspected prior to loading to ensure there are no signs of damage to, or leaking from the DG items contained within.

8.10.4.2 Segregation

Some categories of dangerous goods potentially react dangerously together and must not be loaded in close proximity to each other. Segregation of incompatible dangerous goods must be applied as stated in segregation table at Table 12. Segregation of load is to be applied to all hazards of a consignment (Primary and secondary). To achieve adequate segregation and separation of incompatible dangerous goods, it is AirTanker policy that any incompatible dangerous goods as listed in the table below will be loaded into separate ULDs. When loading pallets containing incompatible dangerous goods, care must be taken to prevent these substances positioned on the edge of adjacent pallets being loaded next to each other. Segregation must be of a distance that prevents any items that may leak not to interact with each other.

Hazard Label	1 excl. 1.4S	2.1	2.2, 2.3	3	4.1	4.2	4.3	5.1	5.2	8	9 *see IATA DGRs 9.3.2.1.3*
1 excl. 1.4S	DGRs 9.3.2.2.5	x	x	x	x	x	x	x	x	x	x
2.1	x	-	-	-	-	-	-	-	-	-	x
2.2, 2.33	x	-	-	-	-	-	-	-	-	-	-
3	x	-	-	-	-	-	-	x	-	-	x
4.1	x	-	-	-	-	-	-	-	-	-	x
4.2	x	-	-	-	-	-	-	x	-	-	-
4.3	x	-	-	-	-	-	-	-	-	x	-
5.1	x	-	-	x	-	x	-	-	-	-	x
5.2	x	-	-	-	-	-	-	-	-	-	-
8	x	-	-	-	-	-	x	-	-	-	-
9 *see DGRs 9.3.2.1.3*	x	x	-	x	x	-	-	x	-	-	-

Table 12. IATA DGRs Segregation of Packages table

Caution:

Packages and overpacks containing lithium ion batteries prepared in accordance with Section IA or Section IB of PI965 and packages and overpacks containing lithium metal batteries prepared in accordance with Section IA or Section IB of PI968 must not be stowed on an aircraft next to, or in a position that would allow interaction in the event of damage/fire with packages or overpacks containing dangerous goods which bear a Class 1 (other than Division 1.4S), Division 2.1, Class 3, Division 4.1 or Division 5.1 hazard label. To maintain acceptable segregation between packages and overpacks, the segregation requirements shown in Table 12 must be observed. The segregation requirements apply based on all hazard labels applied on the package or overpack, irrespective of whether the hazard is the primary or subsidiary risk.

NOTE: *Special provisions are in place for stowage of UN class 1 items. Should they be carried on AirTanker aircraft, the handling agent will be informed by AirTanker of the segregation requirement.*

NOTE: *An "X" at the intersection of a row and column indicates that the package containing these classes of dangerous goods must be segregated. A "-"at the intersection of a row and column indicates that the package containing these classes of dangerous goods do not require segregation.*

6.10.4.3 Radioactive Materials

Radioactive materials are articles or substances which spontaneously and continuously emit ionising radiation, which can be harmful to the health of humans and animals and can affect photographic or X-Ray film. Whilst packagings used for the transport of radioactive material must provide protection from radiation, there is likely to be residual activity from packages offered for air transport.

A Transport Index (TI) is a number which represents the level of radiation at a distance of 1 metre, assigned to a single package, overpack or freight container. The TI is used to provide control over radiation exposure, to determine categories of radioactive material for the purposes of labelling, declaration, etc., to determine whether transport under exclusive use is required and to determine spacing requirements during storage and transport. The TI for each overpack or freight container must be determined as either the sum of the transport indices of all the packages contained, or by direct measurement of radiation level. See IATA Dangerous Goods regulations current edition for further detail.

Where the expected dose rate of radioactive materials may exceed 1mSv then Radioactive Protection Programme would need to be used. In this instance the Dangerous Goods Manager must be consulted prior to planned loading at:

chris.james@uk.airtanker.co.uk and dangerousgoods@uk.airtanker.co.uk

8.10.5 Wheelchairs or Mobility Aids with Battery Operated Equipment

8.10.5.1 Handling Wheelchairs/Mobility Aids

Apply the following in case of battery operated wheelchairs and mobility aids:

(a) Pre-notification is required, and acceptance is subject to AirTanker approval.

(b) For a wheelchair or mobility aid with an installed battery, inform the pilot in command of the location.

(c) When the battery is removed from the wheelchair or mobility aid, inform the pilot in command of the location of the battery.

(d) Stow and secure the wheelchair/mobility aid to prevent unintentional operation and ensure it is protected from being damaged by the movement of baggage, mail or cargo.

(e) Ensure load control are aware of the carriage of electric mobility aids.

8.10.5.2 Wheelchairs or other Battery Operated Mobility Aids

There are four main types of batteries used with wheelchairs or mobility aid devices:

Type of battery	Description
Non-spillable battery	Dry battery (including integrated battery) Gel-type battery Wet (sealed, non-spillable battery)
Spillable battery	Wet battery
Nickel Metal Hydride	Wet (sealed, non-spillable) Dry
Lithium battery	Lithium ion battery

Lithium Cells/Batteries must meet the UN Manual of tests and criteria, part III, Subsection 38.3.

8.10.5.3 Accepting Wheelchairs/Mobility Aids with Non-Spillable Wet Batteries

Pre-notification is required and acceptance is subject to AirTanker approval.

(a) Battery terminals must be insulated to prevent accidental short circuits, e.g. by being enclosed within a battery container.

(b) Non-spillable wet batteries must comply with IATA DGR Special Provision A67.

(b) Battery must be securely attached to the wheelchair.

8.10.5.4 Accepting Wheelchairs/Mobility Aids with Spillable Batteries

Pre-notification is required and acceptance is subject to AirTanker approval.

(a) Packing rules:

1. wheelchair must be loaded, stowed, secured and unloaded while maintaining an upright position.

2. battery terminals must be insulated to prevent accidental short circuits, e.g. by being enclosed within a battery container.

3. battery must be securely attached to the wheelchair.

(b) Battery must be carried in strong, rigid packaging as follows:

1. the outside packaging must be leak-tight, impervious to battery fluid and protected against spilling by securing to pallets or by securing them in cargo compartments using appropriate means of such as restraining straps, brackets or holders.

2. the battery terminals must be protected against short circuits.

3. the battery must be secured upright in the packaging and be surrounded by compatible absorbent material sufficient to absorb its total liquids.

4. the outside packaging must be marked “battery–wet–with wheelchair”.

5. the outside packaging must be labelled with the “corrosive” label.

(c) Battery must not be loaded if not packaged appropriately.

8.10.5.5 Accepting Wheelchairs/Mobility Aids with Nickel-metal Hydride and Dry Batteries

Pre-notification is required and acceptance is subject to AirTanker approval.

(a) For non-spillable battery;

1. Nickel-metal Hydride batteries must comply with IATA DGR Special Provision 199.

2. Dry batteries must comply with IATA DGR Special Provision A123.

3. Each battery must not exceed a voltage of 12 volts and a Watt-hour rating of 100 Wh.

4. Each battery must be protected from short circuit by the effective insulation of exposed terminals.

5. No more than two spare batteries per person may be carried, and:

6. If contained in equipment, the equipment must be either protected from unintentional activation, or each battery must be disconnected and its exposed terminals insulated.

(b) for a dry battery or nickel-metal hydride battery, each battery must comply with Special Provision A123 or A199, respectively, and:

(c) batteries and heating elements must be isolated in battery-powered equipment capable of generating extreme heat, by removal of the heating element, battery or other components.

8.10.5.6 Accepting Wheelchairs/Mobility Aids with Lithium Batteries

Pre-notification is required and acceptance is subject to AirTanker approval.

(a) The batteries must be of a type which meets the requirements of each test in the UN Manual of Tests and Criteria, Part III, subsection 38.3.

(b) The handling agent must verify:

1. the battery terminals are protected from short circuits, e.g. by being enclosed within a battery container.

2. the battery is securely attached to the wheelchair or mobility aid.

3. electrical circuits have been inhibited.

(c) Mobility aids must be secured against movement in the cargo hold and must be carried in a manner so that they are protected from being damaged by the movement of baggage, mail or other cargo.

(d) Where a battery-powered wheelchair or other similar mobility aid is specifically designed to allow its battery(ies) to be removed by the user (e.g. collapsible) and the mobility aid does not provide adequate protection to the battery:

1. the battery(ies) must be removed. The wheelchair/mobility aid may then be carried as checked baggage without restriction.

2. the battery(ies) must be protected from short circuit by insulating the terminals (e.g. by taping over exposed terminals).

3. the removed battery(ies) must be protected from damage (e.g.) by placing each battery in a protective pouch. The battery(ies) must be carried in the passenger cabin.

4. removal of the battery(ies) from the device must be performed by following the instructions of the manufacturer or device owner.

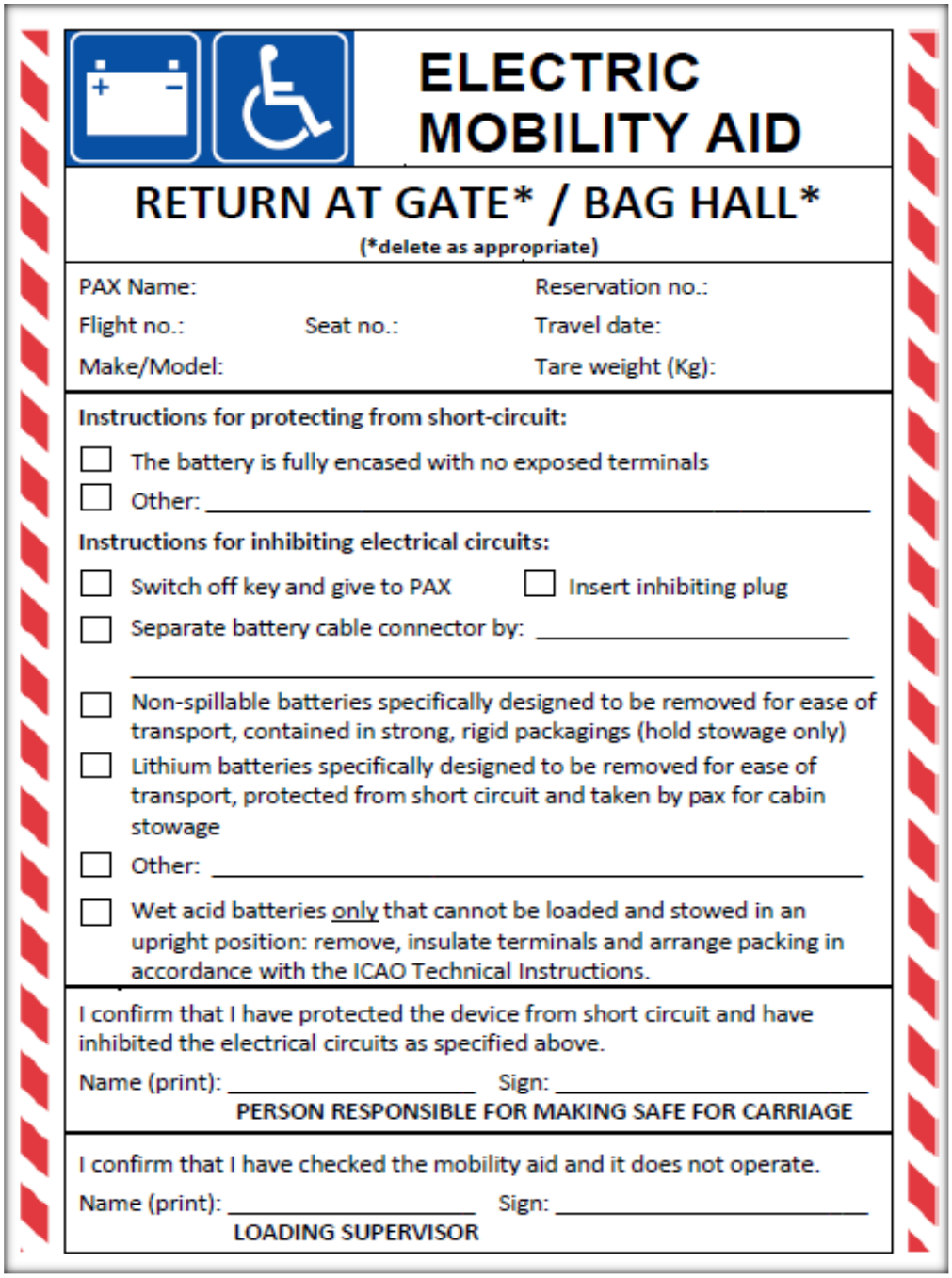
5. a maximum of one spare battery not exceeding 300 Wh or two spares each not exceeding 160 Wh may be carried.

NOTE: *When the Lithium Battery(ies) remain installed in the mobility aid, there is no Watt-hour limit.*

(e) The pilot-in-command must be informed of the location of the mobility aid with an installed battery or the location of the lithium battery when removed and carried in the cabin.

8.10.5.7 Electric Wheelchair/ Mobility Aid – Labelling

Prior to loading, electric wheelchairs or mobility aids must be labelled for identification purposes. This label should conform with, or be similar to, the example shown below.



ELECTRIC MOBILITY AID

RETURN AT GATE* / BAG HALL*

(*delete as appropriate)

PAX Name: Reservation no.:

Flight no.: Seat no.: Travel date:

Make/Model: Tare weight (Kg):

Instructions for protecting from short-circuit:

☐ The battery is fully encased with no exposed terminals

☐ Other: _____

Instructions for inhibiting electrical circuits:

☐ Switch off key and give to PAX ☐ Insert inhibiting plug

☐ Separate battery cable connector by: _____

_____

☐ Non-spillable batteries specifically designed to be removed for ease of transport, contained in strong, rigid packagings (hold stowage only)

☐ Lithium batteries specifically designed to be removed for ease of transport, protected from short circuit and taken by pax for cabin stowage

☐ Other: _____

☐ Wet acid batteries only that cannot be loaded and stowed in an upright position: remove, insulate terminals and arrange packing in accordance with the ICAO Technical Instructions.

I confirm that I have protected the device from short circuit and have inhibited the electrical circuits as specified above.

Name (print): _____ Sign: _____

PERSON RESPONSIBLE FOR MAKING SAFE FOR CARRIAGE

I confirm that I have checked the mobility aid and it does not operate.

Name (print): _____ Sign: _____

LOADING SUPERVISOR

Figure 51 Example of electric mobility aid label

8.10.5.8 Carriage –Permissions & Requirements

AirTanker may carry electric mobility aids subject to the following conditions:

(a) **Prior permission** (min two days' notice) – Must be obtained from AirTanker.

(b) Passengers must declare their requirements for carriage at the time of booking. Booking agents must then contact the nominated airport ground handling agent/airport authority with the following details:

1. Manufacturer of mobility aid.

2. Type of mobility aid.
3. Size (approx. dimensions).
4. Weight (unladen).
5. Power source (battery type).

The nominated ground handling agent/airport authority must advise the passenger of the airline approval process and ensure notification of travel to:

dangerousgoods@uk.airtanker.co.uk and chris.james@uk.airtanker.co.uk

(c) **Day of Travel** – The handling agent must take the following action before accepting for travel:

1. Check booking to confirm prior notification has been given and approval granted by AirTanker.
2. If details are included within the booking the mobility aid can/should be accepted for travel.
3. If not pre-notified the ground handler must contact the AirTanker Duty Dispatch Coordinator (see 1.7) immediately, before accepting for travel.
4. The Duty Dispatch Coordinator will check with both departure and arrival airports to ensure there is suitable provision available for safe handling.
5. The GHA Dispatcher/TCO will be given delegated authority to check the mobility aid to ensure safe carriage requirements are met with regards to loading, weight and dangerous goods.
6. The mobility aid must have the facility to enable its power source to be isolated to prevent inadvertent operation.

The Provisions for Dangerous Goods carried by Passengers or Crew (IATA DG Regulations Table 2.3.A) can be found at Table 8 of this manual.

Warning:

Non-Acceptance for Travel; If the mobility aid cannot be safely immobilised or confirmed that safe provisions are in place for handling, the mobility aid must not be accepted. Non-acceptance reasons should be communicated clearly to the passenger and AirTanker OCC by the handling agent as soon as is practicable.

8.10.5.9 Supplementary Information

The following links contain information that will help in the preparation and handling of EMAs.

Details of the weight and dimensions of many electric mobility aids and how they should be prepared for safe carriage can be accessed via the following website which should be considered for use by all stations as Best Practice.

http://bhta.com/air-transport-advice/

This list identifies many types of electric wheelchairs/mobility aids (it covers most powered wheelchairs and mobility aids available in the UK and a very high percentage of models sold

elsewhere in Europe). It details physical weights and dimensions, battery type, controller type and method of isolation to prevent the risk of inadvertent operation.

For electric wheelchairs or mobility aids weighing more than 60 kg additional handling equipment/resource may be required. Under EU Regulation EC1107 (Annex 1), the airport operator (via the contracted PRM supplier) is required to support this provision if required. This should be in consultation with AirTankers contracted ground handling supplier.

IATA Lithium Batteries:

http://www.iata.org/whatwedo/cargo/dgr/Pages/lithium-batteries.aspx

Find below details of the CAA Publication link to the Flowchart for Electric Mobility Aids Process:

http://publicapps.caa.co.uk/docs/33/ElectricMobilityAidsProcessFlowChart.pdf

8.10.5.10 Securing Electronic Mobility Aids

Heavy mobility Aids represent a risk to in-flight safety if not correctly restrained. All such items must be secured in an upright position and not loaded in the same ULD/Compartment with loose items to prevent them from being damaged by the movement of baggage etc.

Mobility aids must be restrained individually by using an approved method and equipment type e.g. webbing strops, taking into account compartment/ULD loading limitations and restraint values.

8.11 Carriage of Dry Ice on Voyager Aircraft

Dry ice offered carriage is restricted to Compartment 5 only of aircraft **without** the Fuselage Refuel Unit (FRU) fitted.

Carriage is additionally subject to the following quantity limitation:

Compartments 1 & 2: Nil

Compartments 3 & 4: Nil

Compartment 5: 150kg

8.12 Loading of Live Animals with Dangerous Goods

The following restrictions are to be imposed when live animals are to be loaded on the same aircraft as dangerous goods:

(a) Live animals should not be loaded in close proximity of cryogenic liquids or carbon dioxide, solid (dry ice). Live animals should always be stowed above packages containing dioxide, solid (dry ice) and ideally never in the same hold or compartment.

(b) Live animals should never travel in the same aircraft hold or compartment as gases from UN Class 2.3 and toxic and infectious substances from UN Class 6.

Further information on the loading of Live Animals can be found at 7.3.7.3.

8.13 Notification to Captain (NOTOC)

The handling agent or operator of an aircraft carrying dangerous goods must provide the Captain with written or printed accurate and legible information detailing the dangerous goods that are to be carried. This must be by way of a Notice to Captain (NOTOC) form to be completed by the handling

agent. A copy of the AirTanker NOTOC is shown at Figure 50. Handling agents may use their own locally produced NOTOCs; however, any locally produced NOTOCs must comply with the IATA DGR requirements of 9.5.1.

8.13.1 NOTOC - Accessibility

As early as practicable prior to departure of the aircraft, **but in no case later than when the aircraft moves under its own power:**

(a) A NOTOC is to be provided to the pilot-in-command with accurate and legible written or printed information concerning dangerous goods that are to be carried as cargo.

(b) The AirTanker Duty Operations Manager and Dispatch Coordinator are to be provided with the same information that is required to be provided to the pilot-in-command.

The NOTOC is to be emailed to the following personnel at AirTanker:

Duty Operations Manager (24 hrs):

DutyOpsManager@uk.airtanker.co.uk

Duty Dispatch Coordinator (24 hrs):

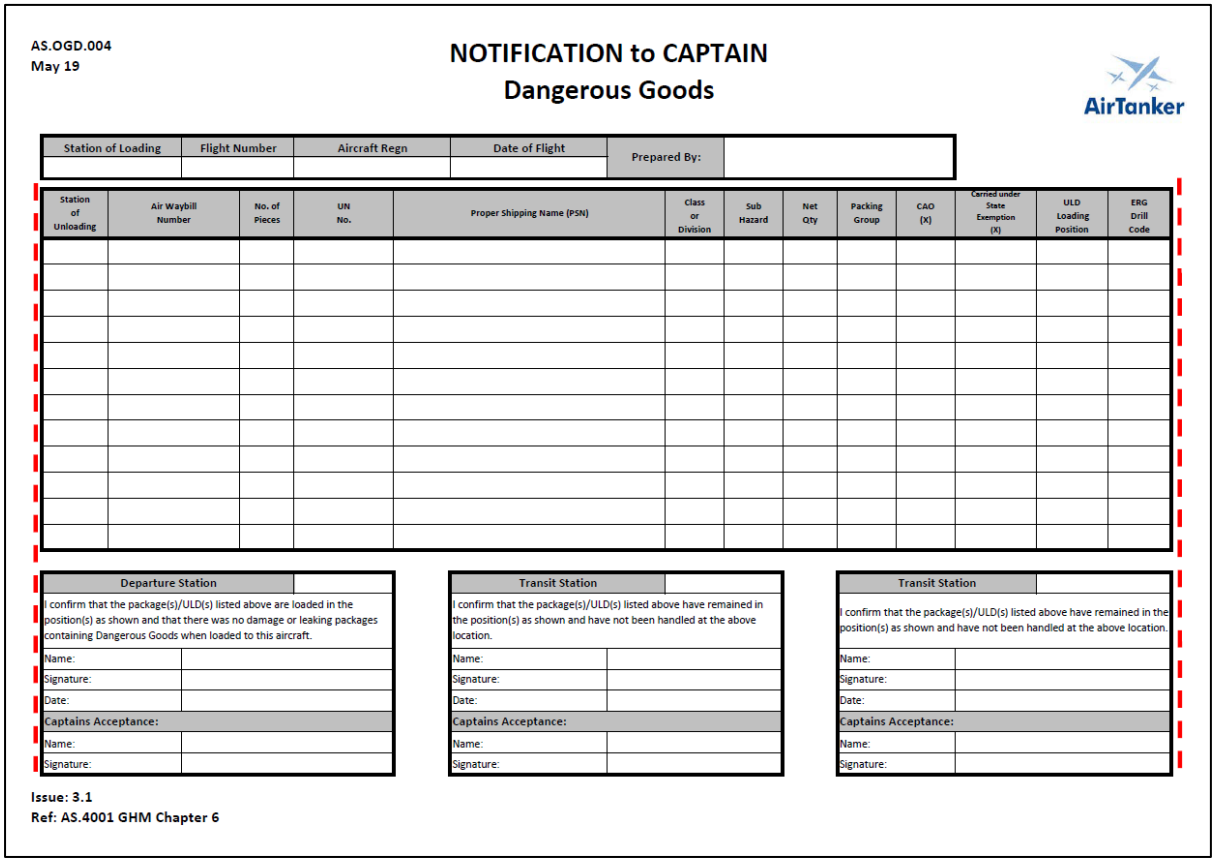
DispatchCoord@uk.airtanker.co.uk

Alternatively, the NOTOC can be addressed to the above and faxed to +44 (0)1993 873004.

***NOTE**: It is the same* **information** *that needs to be provided to the AirTanker Duty Ops Manager and Duty Dispatch Coordinator and whilst a copy of the NOTOC is normally the easiest way, it is also acceptable to provide the information in other formats e.g. free hand text or, as a last resort, by telephone. The purpose of having this information within the OCC is to facilitate any required Emergency Response.*

Additionally, as soon as is practicably possible, a final, ***signed*** copy of the NOTOC is to be sent to the Duty Operations Manager and Dispatch Coordinator.

Furthermore, a copy of the NOTOC is to be held within the departure operations centre in a location easily accessible in case of emergency.



AS.OGD.004
May 19

NOTIFICATION to CAPTAIN
Dangerous Goods

AirTanker

Station of Loading	Flight Number	Aircraft Regn	Date of Flight	Prepared By:	

Station of Unloading	Air Waybill Number	No. of Pieces	UN No.	Proper Shipping Name (PSN)	Class or Division	Sub Hazard	Net Qty	Packing Group	CAO (X)	Carried under State Exemption (X)	ULD Loading Position	ERG Drill Code

Departure Station	
I confirm that the package(s)/ULD(s) listed above are loaded in the position(s) as shown and that there was no damage or leaking packages containing Dangerous Goods when loaded to this aircraft.	
Name:	
Signature:	
Date:	
Captains Acceptance:	
Name:	
Signature:	

Transit Station	
I confirm that the package(s)/ULD(s) listed above have remained in the position(s) as shown and have not been handled at the above location.	
Name:	
Signature:	
Date:	
Captains Acceptance:	
Name:	
Signature:	

Transit Station	
I confirm that the package(s)/ULD(s) listed above have remained in the position(s) as shown and have not been handled at the above location.	
Name:	
Signature:	
Date:	
Captains Acceptance:	
Name:	
Signature:	

Issue: 3.1
Ref: AS.4001 GHM Chapter 6

Figure 52 Example of DG NOTOC

8.14 Dangerous Goods Accident and Incident Reporting

8.14.1 Accidents and Incidents

All accidents and incidents involving dangerous goods must be reported to appropriate authorities of states of the operator and the state in which the accident or incident occurred in accordance with the reporting requirements of those appropriate authorities. This also includes the reporting of all undeclared or miss declared dangerous goods found within cargo or passengers and crew baggage. Ground Handling Agents are to report any accident or incident to AirTanker in relation to its operation.

8.14.2 Definition of an Accident

Definition of dangerous goods accident: An occurrence associated with and related to the transport of dangerous goods by air which results in fatal or serious injury to a person or major property or environmental damage.

8.14.3 Definition of an Incident

Definition of dangerous goods incident: An occurrence other than a dangerous goods accident associated with and related to the transport of dangerous goods by air, not necessarily occurring on board an aircraft, which results in injury to a person, property or environmental damage, fire, breakage, spillage, leakage of fluid or radiation or other evidence that the integrity of the packaging has not been maintained. Any occurrence relating to the transport of dangerous goods which seriously jeopardises an aircraft or its occupants is also deemed to be a dangerous goods incident.

NOTE: *A dangerous goods accident or Incident may also constitute an aircraft accident or incident as specified in ICAO Annex 13 — Aircraft Accident and Incident Investigation.*

8.14.4 Accident/Incident Reporting

In addition to the requirements stated in the ICAO Technical Instructions for the reporting of dangerous goods occurrences, CAT.GEN.MPA.200 and the Air Navigation Order require that **any incident**, accident or occurrence which endangers or which, if not corrected, would endanger an aircraft, its occupants or any other person is reported to **CAA Safety Data.** Dangerous goods occurrences reportable under the Mandatory Occurrence Reporting Scheme include: the CAA (within 72 Hours) and AirTanker (within 48 Hours).

Type of incidents to be reported (but not limited to):

(a) Dangerous Goods are discovered to have been carried when not loaded, segregated, separated or secured in accordance with the requirements of the IATA DGRs.

(b) Damage to packages of dangerous goods.

(c) NOTOC errors where dangerous goods have not been stowed in accordance with loading instructions.

(d) Dangerous Goods found to have been carried without a NOTOC being provided to the Pilot-in-Command.

(e) Failure to prepare electric wheelchairs in order to prevent accidental activation.

(f) Electric wheelchairs found not to have been stowed and secured correctly.

(g) Leakage of dangerous goods from passenger baggage.

NOTE: *A dangerous goods accident or dangerous goods incident not meeting the MOR criteria must be reported to the CAA Dangerous Goods Office within 72 hours unless exceptional circumstances prevent this. If necessary, a subsequent report shall be made as soon as possible giving all the details that were not known at the time the first report was sent. If a report has been made verbally, written confirmation shall be sent as soon as possible. Any type of accident or incident must be reported irrespective of whether the dangerous goods are in cargo, mail, stores, passenger baggage or crew baggage.*

Ground Handling Agents must also report any occasion when undeclared or mis-declared dangerous goods are discovered in cargo, baggage, mail or stores. Such reports must be submitted to:

safety@uk.airtanker.co.uk

on a Ground Handling Occurrence Report (GHOR) (see Appendix 1).

8.15 Removal of Contamination

In the event of a spillage or leakage of dangerous goods within an aircraft, the position where the dangerous goods or ULD was stowed on the aircraft must be inspected for damage or contamination and any hazardous contamination removed. The hazard of the dangerous goods within packages concerned may be established by checking the entry on the NOTOC for that loading position or from hazard labels applied to the packages. The hazard classes and divisions of dangerous goods within a ULD may also be identified from the NOTOC or otherwise, should package labels not be visible, from the ULD tag bearing red hatchings applied to the outside of the ULD. Persons responding in the event of damage to or leakage of dangerous goods from packages must:

(a) Identify the hazards and wear appropriate protective clothing;

(b) Avoid handling the package or keep handling to a minimum;

(c) Inspect adjacent packages for contamination and put aside any that may have been contaminated;

(d) Arrange for decontamination of the aircraft and equipment;

(e) In the case of infectious material, inform the appropriate public health authority or veterinary authority, and provide information to any other countries of transit where persons may have been exposed to danger; and notify the shipper and/or the consignee.

If it is evident that a package containing radioactive material is damaged or leaking, or if it is suspected that the package may have leaked or been damaged, access to the package must be restricted and a qualified person must, as soon as possible, assess the extent of contamination and the resultant dose rate of the package.

The scope of the assessment must include the package, the aircraft, the adjacent loading and unloading areas and, if necessary, all other material which has been carried in the aircraft. When necessary, additional steps for the protection of persons, property and the environment must be taken in accordance with provisions established by the relevant competent authority, to overcome and minimise the consequences of such leakage or damage.

An aeroplane which has been contaminated by radioactive materials must be immediately taken out of service and not returned until the dose rate at any accessible surface and the non-fixed contamination are not more than the values specified in the Technical Instructions. In the event of non-compliance with any limit in the Technical Instructions applicable to radiation level or contamination, the operator must ensure the shipper is informed if the non-compliance is identified during transport; take immediate steps to mitigate the consequences of the non-compliance; and communicate the non-compliance to the shipper and relevant competent Authority(ies), respectively, as soon as practicable and immediately whenever an emergency situation has developed or is developing.

9 Bird and Wildlife Control

Information Owner: Aviation Services Manager

9.1 Introduction

The presence of birds and wildlife presents a serious hazard to aviation. Effective bird control is a complex issue which requires a detailed understanding of the local risk, species, habitats, migratory patterns, etc. Airports shall meet, as a minimum standard, the recommended practices agreed and published by the International Bird Strike Committee (IBSC). Airports in the UK shall comply with the requirements of CAA CAP772 in respect of birdstrike risk management.

Airports shall have in place a management programme which aims to manage and minimise the risks associated with birdstrikes by effective use of bird scaring and habitat management controls appropriate to the particular airport environment.

Examples of expected measures include but are not limited to:

(a) Within the UK (based on climatic conditions), grass on airfields is generally maintained a specific lengths (15-20 cm) to discourage birds, whilst in hotter climates, a 'bare earth' policy is standard.

(b) Local sites (within and outside the airport perimeter) can be managed to varying degrees. Areas of water can be netted to discourage water birds, or for new areas of water (such as the 'balancing ponds' created during LHR Terminal 5 construction) the water can be completely covered with plastic balls which discourages birds altogether.

(c) Gulls are attracted to flat building roofs. Some airports have an element of control around local planning applications where flat roofs are proposed.

Whilst bird control can be a complex issue, at the most basic level even at the smallest airports, there shall be acceptable minimum defined standards in place in relation to effective habitat control and bird scaring activities, with appropriate training and equipment provided.

9.2 Operational Standards

The following minimum standards, as published by the IBSC, are essential for an effective control of the bird/wildlife risk. Appropriate records shall be kept to demonstrate compliance with these requirements.

(a) A properly trained and equipped bird/wildlife controller shall be present on the airfield for at least 15 minutes prior to any aircraft departure or arrival. The controller should have no duties other than bird control during this time.

(b) At night, active runways and taxiways shall be checked for the presence of birds/wildlife at regular intervals and the dispersal action taken as needed.

(c) Bird control staff shall be equipped with bird deterrent devices appropriate to the bird species expected in the area and to the forecast numbers of birds present. The ground handling agent shall demonstrate that bird/wildlife control personnel have received proper training in the use of bird control devices.

(d) As a minimum, airport bird/wildlife controllers shall record the following at least every 30 minutes:

1. areas of the airport patrolled.

2. numbers, location, species of birds/wildlife seen.

3. action taken to disperse the birds/wildlife, and:

4. results of the action.

(e) A named member of the senior management team shall be responsible for the implementation of necessary habitat management programmes.

(f) An airport shall undertake a review of the features on its property that attract hazardous birds/wildlife and develop a plan to eliminate them or deny birds access to them as far as possible.

(g) Professional support from a bird/wildlife strike prevention specialist should be sought where appropriate. Documentary evidence of this process, its implementation and outcomes shall be kept.

(h) Airports shall establish a mechanism to ensure that they are informed of all bird/wildlife strikes reported on or near their property.

(i) Airports shall ensure that the identification of the species involved in birdstrikes is as complete as possible. Airports shall conduct a formal assessment of their birdstrike situation at least annually and use the results to help target their bird management measures and to monitor their effectiveness.

(j) Airports shall conduct an inventory of bird attracting sites within the ICAO defined 13 km bird circle. A risk assessment shall be conducted and, if necessary, risk management action should be carried out. Where national laws permit, airport authorities should seek to have an input into planning decisions and land use practices within the 13 km bird circle.

Reference documents
IBSC Recommended Practices No.1 – Standards for Aerodrome Bird/Wildlife Control
CAA CAP 772 Birdstrike Risk Management for Aerodromes
ICAO Doc 9137 Airport Services Manual Part 3 Bird Control and Reduction

10 Security

Information Owner: Aviation Security Manager

10.1 Introduction

The provisions in this chapter are based on AS.76, the Air Carrier Security Programme. It summarises security requirements relevant for Ground Handling personnel. Should doubt regarding any part of this chapter arise, the original wording of the Air Carrier Security Programme prevails.

Security procedures shall be complied with and any additional security requirements imposed by local states/airport authorities in their territory shall also be observed.

The AirTanker point of contact for all aviation security matters is the Aviation Services Manager in the first instance.

In all cases of security directly affecting the operation of an AirTanker aircraft, the Pilot-in-Command (PIC) shall be informed.

All security information shall be protected; key areas are reproduced in this chapter but are to be read in conjunction with AS.76.

10.2 Training Requirements

All personnel with access to security restricted areas shall have received security training as specified in the requirements according to their responsibilities and as specified in the UK NASP (National Aviation Security Programme).

The training requirements shall include initial and recurrent training and enable personnel to react in the most appropriate manner to minimise the consequences of acts of unlawful interference and disruptive passenger behaviour.

Security training and awareness training programmes should incorporate the following components:

(a) Security systems, access and control.

(b) Ground and in-flight security.

(c) Pre-boarding screening.

(d) Baggage and cargo security.

(e) Aircraft security and searches.

(f) Weapons and prohibited articles.

(g) Overview of terrorism.

(h) Handling of threats.

(i) Procedures in case of unlawful acts of interference.

(j) Confidentiality of security information.

(h) Reporting.

(i) Emergency Response Plan.

(j) Other areas and measures relating to security that are considered appropriate to enhance security awareness.

10.3 Recruitment and Employment of Staff

All staff recruited and employed on Aviation Security Duties or within/requiring access to the Security Restricted Area are to be vetted in accordance with national regulations. In the United Kingdom these regulations are set by the Department for Transport (DfT). This includes the employment of permanent, fixed contract and temporary employees.

10.4 Passenger Check In / Boarding

The check in of passengers shall be a personal, individual check in (i.e. Passengers cannot be checked in by proxy). Passengers with boarding passes and their hand luggage have to clear the official security controls imposed by the responsible authorities. This requirement applies for all passengers, including wheelchair and stretcher passengers (subject to condition), deportees and inadmissible passengers.

Screening of passengers and their cabin baggage is mandatory and is carried out in accordance with UK NASP regulations to prevent or deter passengers from bringing unauthorised/prohibited items on board an aircraft, which may be used for acts of unlawful interference. The responsibility for screening usually rests with the local authorities, however it is the responsibility of the airline to ensure through the handling agent that screening always takes place.

A number of categories of people and their hand baggage are exempt from search prior to boarding (subject to local regulations). A comprehensive list of such individuals can be found in the AirTanker Air Carrier Security Programme (available on request). Diplomatic bags of all nationalities are also exempt, but not the personal belongings of a diplomatic courier.

Hold baggage will only be accepted for transportation if it is security screened to the standards of the respective authority.

10.4.1 Procedure

During the check in of passengers and their baggage, the check in staff shall be aware of a number of rules and guidelines that apply:

(a) Ask passengers about liquids in their cabin baggage to ensure that it has been correctly packed. If not, ask the passengers to re-pack in the hold baggage.

(b) Check that posters are in place in check in areas regarding:

1. Prohibited articles not to be carried into the security restricted area or on board an aircraft.

2. Dangerous Goods.

3. Cabin baggage limitations.

(c) Ensure the passenger is identifiable against the passport photograph and the name stated in the ticket matches the identity documents produced for flight. Acceptable forms of passenger identification for international travel are:

1. Valid passport supported by visas as necessary.

2. Valid national ID card supported by visas as necessary.

NOTE: *When there is any doubt about a passenger's identity or the validity of documents presented, check-in should be discontinued until the doubt has been cleared.*

(d) Ensure that all passengers to be checked in present themselves at the check in desk.

(e) Make sure the baggage tag permits the identification of the passengers, alternatively a name label shall be attached to the hold baggage. A register of the items connecting them to a specific passenger shall be compiled.

(f) When boarding a remote parked aircraft, supervise the boarding of the passengers on their way between the terminal building and the aircraft. This also applies to arriving passengers.

(g) When passengers wish to leave the aircraft to collect personal belongings left behind, escort them until re-boarding and via security screening if applicable.

(h) Deliver for loading into the cargo compartments, only items marked with baggage tags.

(i) Unload baggage belonging to passengers wishing to leave or discontinue the flight prior to departure.

10.4.1.1 Check In Precautions

(a) Store blank boarding passes and baggage tags in a secure location inaccessible to unauthorised persons.

(b) Make sure that all handling material cannot be used by unauthorised persons.

(c) Destroy or invalidate discarded materials in such a way that unauthorised access or use is not possible.

(e) Prevent unauthorised access to check-in systems (excluding self check-in where utilised) at all times, especially when being unattended.

(f) Feed baggage directly into the baggage make up area to prevent it from manipulation by third parties.

10.5 Passenger Baggage

10.5.1 Checked (Hold) Baggage

Every item of passenger baggage loaded into the hold of an AirTanker aircraft is to be screened using equipment and procedures meeting the standards set out in UK NASP Regulations.

Each item of hold baggage shall be identified as 'accompanied' or 'unaccompanied'. It is the responsibility of the Ground Handling Agent to match the baggage and its respective passenger.

10.5.1.1 Procedure

(a) Passenger checks in hold baggage, and is questioned as to the contents and integrity of their baggage.

(b) Checked bags are tagged using IATA approved tags and transported to Hold Baggage Screening.

(c) Checked bags are screened in accordance with the National Aviation Security Programme (NASP).

(d) Bags which have cleared screening are transported to a secure baggage make-up area.

(e) Bags are loaded to the ULDs with loaders cross-checking the baggage tags against the flight information (Passenger Name, Date, Flight Number, Destination).

(f) Hold Baggage Manifest (HBM – See Appendix 8) is produced; Passengers reporting to the gate are checked against the HBM to ensure all baggage is accompanied;

(g) Where items brought into the cabin are unable to be safely stowed (such as excess cabin baggage and passenger pushchairs used to bring children to the gate), these items require placing in the hold. Items are to be tagged and noted on the Gate Baggage Manifest (GBM – See Appendix 11);

(h) On boarding of all pax, the HBM Declaration Form (see Appendix 9) is signed by the authorised person and given to the Captain of the flight along with the, GBM and Rush Baggage Certificate (RBC) (see Appendix 10).

Caution:

Passengers surrendering cabin baggage at the gate shall be subject to questions regarding prohibited items and hidden dangerous goods. *See 8.5*

Caution:

Handling staff should ensure any medication which may be required by a passenger during the flight is kept on the person of the passenger.

(i) On boarding of all passengers, the HBM Declaration Form is signed by the authorised person and given to the PIC of the flight along with the HBM, GBM and RBC forms.

In addition to the general requirements to screen hold baggage described in section 10.5.1.1, there are two sets of circumstances where additional searching is necessary. These are:

1. When baggage is unaccompanied (see 10.5.3), and

2. As a result of questioning.

10.5.1.2 Articles Prohibited in Checked (Hold) Baggage

In addition to the list of forbidden articles (Dangerous Goods), the following articles may not be carried in checked baggage:

(a) Replica or imitation explosive devices;

(b) Fireworks and other pyrotechnics;

(c) Smoke generating canisters and smoke generating cartridges.

10.5.2 Cabin (Hand) Baggage

Every item of passenger cabin baggage (also known as Carry-On or Hand Baggage) brought onto an AirTanker aircraft is to be screened using equipment and procedures meeting the standards set out in UK NASP regulations.

10.5.2.1 Procedure

(a) Passengers report to Central Search/Central Screening following Check-In.

(b) Passengers and their cabin baggage are screened in accordance with the National Aviation Security Programme (NASP).

(c) Passengers and cabin baggage proceed into the Security Restricted Area (SRA).

10.5.2.2 Articles Forbidden in the Cabin or Cabin Baggage

In addition to the list of forbidden articles (Dangerous Goods), items listed at Appendix 12 may not be carried by passengers in the cabin of an AirTanker Aircraft.

10.5.3 Rush / Expedite and Unaccompanied Hold Baggage

Hold baggage which has been identified as being 'unaccompanied' shall go through a further screening process before being permitted to be transported on AirTanker aircraft to its destination station. The further screening and treatment of unaccompanied hold baggage depends on the reasons for separation of the passenger and their checked baggage.

10.5.3.1 Reasons beyond the Passenger's Control

For the purposes of the transport of unaccompanied hold baggage, the following may be considered as factors beyond the passenger's control:

(a) The passenger was denied boarding and he/she did not volunteer to give up their seat.

(b) The passenger and/or their baggage was re-routed onto another flight and it was not at their request.

(c) The baggage failed to transfer between two flights due to unforeseen reasons, causing it to miss the departing flight.

(d) There was a malfunction of the baggage system, causing the baggage to miss the departing flight.

(e) The baggage was loaded onto an aircraft other than that for which it was checked in for.

(f) The airline decides not to load or unload a bag for operational reasons and the passenger has not influenced the decision by changing their travel itinerary.

In the case of points (c)-(f), the air carrier shall establish that the passenger did travel on the flight on which they were checked in. If the passenger did not travel on the flight for which they were checked in, then the baggage shall be subjected to additional security controls as set out by the UK NASP regulations.

10.5.3.1.1 Procedure

Identifying and Removing Unaccompanied Baggage:

(a) Baggage identified by boarding staff as being unaccompanied;

(b) Loaders requested to remove baggage from the aircraft hold;

(c) Baggage returned to the lost and found department.

Procedure for Loading Rush Bags:

(d) The owner of unaccompanied baggage and destination identified by lost and found department – The baggage is taken directly to screening;

(e) The baggage is screened in accordance with the Unaccompanied Baggage Screening Procedure in the UK NASP regulations;

(f) The baggage is clearly marked to identify it as being a Rush Bag;

(g) The next available flight to the initial intended location is identified – the rush bag is included in the baggage for the flight;

(h) When the bag is loaded, it is noted on the Rush Baggage Certificate (RBC – See Appendix 10);

(i) RBC (along with HBM) is signed by the responsible person and given to aircraft captain.

10.5.3.2 Reasons within the Passenger's Control

In cases where the separation of the passenger and their baggage could have been initiated by the passenger, removing and re-screening to the standards set out in the UK NASP regulations shall take place.

If the result of re-screening is successful, the baggage should fly on the initially intended flight if possible without causing the carrier any delays.

10.5.3.3 Expedite / Unaccompanied baggage of Other Airlines

Do not accept Expedite/Unaccompanied Checked Baggage of another carrier in case this airline has imposed a general embargo for expedite baggage on their own flights. Should this method be identified for use, ensure there is no embargo in place and permission is received from both carriers before proceeding.

In the case the baggage can be forwarded, observe that a written record is obtained that the security controls have been carried out to the standards set out in the UK NASP.

Warning:

Do not forward any baggage where the identity of the owner or confirmation of travel cannot be obtained.

10.6 Security Search of the Aircraft Holds

Pursuant to the UK Single Consolidated Direction, a security check or search for prohibited or misplaced items on the aircraft shall be conducted. AirTanker crew members are responsible for conducting the search or check in the Cabin areas. The search of the aircraft holds is the

responsibility of the contracted Ground Handling Agent, and shall be conducted prior to loading. The search shall be conducted by the Loading Supervisor or contracted Supervisory Agent.

10.6.1 Procedure

(a) Search the hold by hand for any items which do not belong in the hold. This includes misplaced baggage, cargo, items and prohibited articles.

1. In the case where baggage or cargo remains in the hold during a transit stop, perform a visual check of the ULD and its associated paperwork.

(b) If any suspicious item is found, inform the appropriate authorities, the aircraft captain (if at the aircraft) and the AirTanker OCC Duty Operations Manager.

(c) Once the search is complete, the AS.OGX.006 Aircraft Hold Security Declaration (Appendix 13) is to be completed in duplicate, with one copy being handed to the flight crew and the other copy being retained by the Ground Handling Agent for at least 24 hours after departure.

10.6.2 Exceptions

Within the European Union and United Kingdom, security search of the aircraft holds is not necessary where both of the following conditions are met:

(a) The aircraft arrived from an EU Member State or Third Country recognised as having equivalent security standards, as listed in Attachment 3-B of EU 2015/1998.

(b) The aircraft is parked within the Critical Part of the Airport.

Caution:

If there is any doubt over whether the conditions above have been met, the Ground Handling Agent is to assume the conditions have not been met and conduct a search of the aircraft holds.

10.7 Bomb Threat Warnings

Bomb threat warnings are often made by telephone but are occasionally received in writing. They are almost always anonymous. Although they are usually intended to cause a nuisance, warnings do occasionally precede acts of terror. Each warning shall therefore be taken seriously and assessed methodically to determine its significance and the risk it presents so that an appropriate response may be made.

Whilst Airport Authorities and Ground Handling agents should have their own procedures for dealing with bomb threats, the information contained in this chapter are the minimum requirements to be adhered to.

10.7.1 Phases of an Incident

Although the detailed circumstances of bomb threat warnings vary from case to case, the handling of warnings will always be in five distinct phases. These are:

(a) Receipt of the warning

(b) Assessment of the warning

(c) Action in response to the warning

(d) Investigation to identify the people responsible

(e) Follow up action

10.7.2 Receipt of Warnings

10.7.2.1 General

Telephoned bomb threat warnings may be received by staff anywhere in the airline. Information may be received directly from the people issuing the warning or indirectly through airport authorities, ground handling agents, police or the news media. It is vital that members of staff receiving warning calls obtain as much information as possible about the warning. The quality of the information gained from the caller is central to the accurate assessment of the warning and, quite possibly, to the apprehension and conviction of those responsible.

10.7.2.2 Staff Training

All Managers are to ensure that staff in appointments where bomb threat warning calls may possibly be received are fully trained on the handling of such calls. Key elements to be covered in the training are:

(a) Dealing with the call so as to gain as much relevant information as possible;

(b) Passing on information to the AirTanker Duty Operations Manager;

(c) Completion of Bomb Threat Warning Report Forms.

10.7.2.3 Bomb Threat Warnings

On receipt of a bomb threat warning, a report form is to be compiled during or as soon after the telephone call as is practicable. These details are to be passed to the AirTanker Duty Operations Manager immediately in order to permit business bomb threat assessors to conduct DfT approved Positive Target Identification (PTI). This process will categorise the warning and may lead to additional security measures being introduced.

Contact Details for the AirTanker Duty Operations Manager:

+44-(0)1993-873-236

10.7.2.4 Bomb Threat Warning Categories

- **Category RED** – A specific warning where the threat is of a nature which permits identification of a specific target, or where the caller has positively identified himself or the organisation involved and is judged credible.
- **Category AMBER** – A warning that can be related to one or more targets but where there is doubt about its credibility or about the effectiveness of existing countermeasures.
- **Category GREEN** – A warning which may not identify a target or a specific group of targets, or which otherwise lacks credibility.

10.7.2.5 Responses to Bomb Threat Warning Categories RED or AMBER

Category **RED** or **AMBER** warnings made against an aircraft on the ground may justify some or all of the measures in the following list:

(a) Disembarkation of passengers and crew with all hand baggage by steps or airbridges. Only in extreme emergencies should escape slides be used.

(b) Removal of aircraft to a remote part of the airport.

(c) Unloading of hold baggage.

(d) Checking the integrity of catering and aircraft stores.

(e) Searching the aircraft.

(f) Requiring passengers to identify their baggage.

(g) Re-screening or searching hold baggage before reloading.

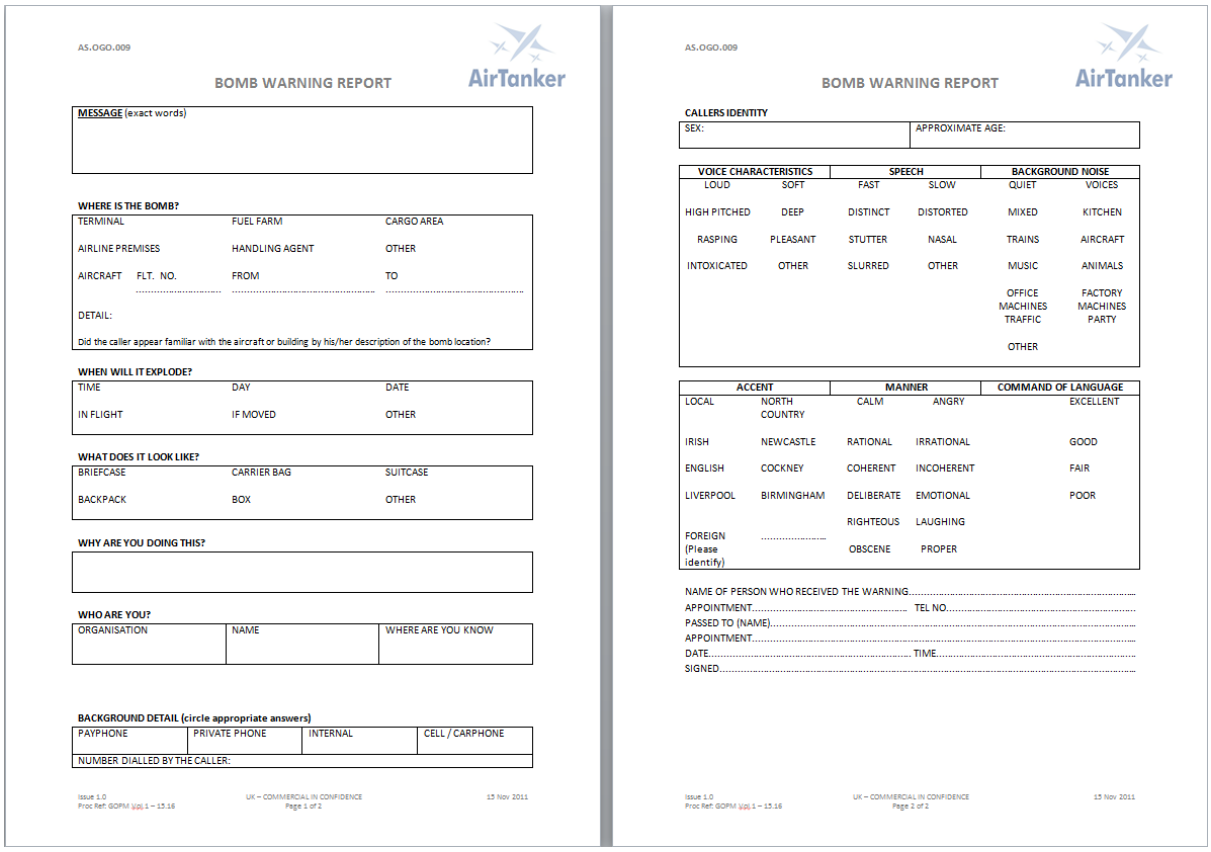
(h) Re-screening and searching passengers and hand baggage before re-loading.

10.7.2.6 Preservation of Evidence

Every bomb threat warning is potentially a criminal act and is therefore investigated by the police. It is AirTanker policy to co-operate fully with police investigations. Consequently, it is important that any item that may assist an investigation or be used as evidence in a trial is preserved and handed to the investigating officers. This includes tape recordings of warning calls, notes and envelopes in the case of written warnings. Papers should be handled as little as possible and sealed in plastic bags until handed over to the investigating officers.

10.7.3 AirTanker Bomb Threat Warning Report Form

It is acceptable to use Airport Authority or your own locally produced Bomb Threat Warning Report Forms **IF** it contains the same or greater detail.



AS.OGO.009

BOMB WARNING REPORT

AirTanker

MESSAGE (exact words)

WHERE IS THE BOMB?

TERMINAL	FUEL FARM	CARGO AREA
AIRLINE PREMISES	HANDLING AGENT	OTHER
AIRCRAFT FLT. NO.	FROM	TO .....
DETAIL:		
Did the caller appear familiar with the aircraft or building by his/her description of the bomb location?		

WHEN WILL IT EXPLODE?

TIME	DAY	DATE
IN FLIGHT	IF MOVED	OTHER

WHAT DOES IT LOOK LIKE?

BRIEFCASE	CARRIER BAG	SUITCASE
BACKPACK	BOX	OTHER

WHY ARE YOU DOING THIS?

WHO ARE YOU?

ORGANISATION	NAME	WHERE ARE YOU KNOW

BACKGROUND DETAIL (circle appropriate answers)

PAYPHONE	PRIVATE PHONE	INTERNAL	CELL / CARPHONE
NUMBER DIALLED BY THE CALLER:			

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BOMB WARNING REPORT

AirTanker

CALLERS IDENTITY

SEX:	APPROXIMATE AGE:

VOICE CHARACTERISTICS		SPEECH		BACKGROUND NOISE	
LOUD	SOFT	FAST	SLOW	QUIET	VOICES
HIGH PITCHED	DEEP	DISTINCT	DISTORTED	MIXED	KITCHEN
RASPING	PLEASANT	STUTTER	NASAL	TRAINS	AIRCRAFT
INTOXICATED	OTHER	SLURRED	OTHER	MUSIC	ANIMALS
				OFFICE MACHINES TRAFFIC	FACTORY MACHINES PARTY
				OTHER	

ACCENT		MANNER		COMMAND OF LANGUAGE
LOCAL	NORTH COUNTRY	CALM	ANGRY	EXCELLENT
IRISH	NEWCASTLE	RATIONAL	IRRATIONAL	GOOD
ENGLISH	COCKNEY	COHERENT	INCOHERENT	FAIR
LIVERPOOL	BIRMINGHAM	DELIBERATE	EMOTIONAL	POOR
		RIGHTEOUS	LAUGHING	
FOREIGN (Please identify)	.....	OBSCENE	PROPER	

NAME OF PERSON WHO RECEIVED THE WARNING.....
APPOINTMENT..... TEL NO.....
PASSED TO (NAME).....
APPOINTMENT.....
DATE..... TIME.....
SIGNED.....

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Figure 53 AirTanker Form AS.OGO.009 – Bomb Threat Warning Report

11 Crisis Management / Emergency Procedures

Information Owner: Operations Risk Manager

11.1 Introduction

Ground Handling Companies are required to ensure they are familiar with AirTanker' Emergency Procedure and that local Emergency procedures exist for their airport, fully involving the handling company, to support the possibility of a major incident.

Inevitably, the exact response to an incident will depend on the nature of that incident. However, the core structure as to how an incident would be managed should be clearly defined. It should include details in relation to:

How an accident site would be managed, in the event of an incident occurring on, or near, the airport.

How the handling agent and airport would structure and manage people and communications within the airport environment, including for example:

- Local incident coordination centre(s).
- Friends and relatives reception centre.
- Survivors reception centre.
- Family assistance centre.
- Local medical/hospital arrangements, and/or:
- Arrangements for dealing with the press/media.

11.2 Handling, Notifying and Reporting of Occurrences

11.2.1 Accidents, incidents and other occurrences

11.2.1.1 Definitions

The definitions that follow are taken from ICAO Annex 13 – Aeroplane Accident and Incident Investigation, Council Directive 94/56/EC of 21 November 1994 establishing the fundamental principles governing the investigation of civil aviation accidents and incidents and the UK's Civil Aviation (Investigation of Air Accidents and Incidents) Regulations 1996.

11.2.1.2 Accident

An occurrence associated with the operation of an aircraft which, in the case of a manned aircraft, takes place between the time any person boards the aircraft with the intention of flight until such time as all such persons have disembarked, or in the case of an unmanned aircraft, takes place between the time the aircraft is ready to move with the purpose of flight until such time as it comes to rest at the end of the flight and the primary propulsion system is shut down, in which:

(a) A person is fatally or seriously injured as a result of:

1. Being in the aircraft, or

2. Direct contact with any part of the aircraft, including parts which have become detached from the aircraft, or

3. Direct exposure to jet blast,

except when the injuries are from natural causes, self-inflicted or inflicted by other persons, or when the injuries are to stowaways hiding outside the areas normally available to the passengers and crew; or

(b) The aircraft sustains damage or structural failure which:

1. Adversely affects the structural strength, performance or flight characteristics of the aircraft, and

2. Would normally require major repair or replacement of the affected component,

except for engine failure or damage, when the damage is limited to the engine, its cowlings or accessories; or for damage limited to propellers, wing tips, antennas, tires, brakes, fairings, small dents or puncture holes in the aircraft skin; or

(c) The aircraft is missing or is completely inaccessible.

NOTE: *AirTanker additionally defines an accident as when significant damage is caused to the property of AirTanker or any third party." 'Significant' damage in this respect may be taken to mean any damage caused which may be subject to an insurance claim.*

11.2.1.3 Incident

An Incident is an occurrence, other than an accident, associated with the operation of an aeroplane which affects or could affect the safety of operation. Following is a list of examples of incidents that are deemed as reportable occurrences. This list is not comprehensive and any other occurrences which are judged by those involved to meet the criteria should also be reported.

11.2.1.3.1 Aerodrome and Aerodrome Facilities

(a) Significant spillage during fuelling operations.

(b) Loading of incorrect fuel quantities likely to have a significant effect on aircraft endurance, performance, balance or structural strength.

(c) Failure or significant deterioration of aerodrome aircraft operating surfaces.

11.2.1.3.2 Handling of Passengers, Baggage and Cargo.

(a) Significant contamination of aircraft structure, systems and equipment arising from the carriage of baggage or cargo.

(b) Incorrect loading of passengers, baggage or cargo, likely to have a significant effect on aircraft mass and/or balance.

(c) Incorrect stowage of baggage or cargo (including hand baggage) likely in any way to endanger the aircraft, its equipment or occupants or to impede emergency evacuation.

(d) Inadequate stowage of cargo containers or other substantial items of cargo.

(e) Carriage or attempted carriage of dangerous goods in contravention of applicable regulations, including incorrect labelling and packaging of dangerous goods.

11.2.1.3.3 Aircraft Ground Handling and Servicing

(a) Failure, malfunction or defect of ground equipment used for the testing or checking of aircraft systems and equipment when the required routine inspection and test procedures did not clearly identify the problem, where this results in a hazardous situation.

(b) Non-compliance or significant errors in compliance with required servicing procedures.

(c) Loading of contaminated or incorrect type of fuel or other essential fluids (including oxygen and potable water).

(d) Unsatisfactory ground de-icing/anti-icing.

11.2.1.4 Serious Incident

A Serious Incident is an incident involving circumstances indicating that an accident nearly occurred.

NOTE: *The difference between an accident and a serious incident lies only in the result*

11.2.1.5 Fatal Injury

A Fatal Injury is an injury which is sustained by a person in an accident and which results in his/her death directly in the accident or within 30 days of the date of the accident.

11.2.1.6 Serious Injury

A Serious Injury is an injury which is sustained by a person in an accident causes any of the following:

(a) Requires hospitalisation for more than 48 hours, commencing within seven days from the date the injury was received.

(b) Results in a fracture of any bone (except simple fractures of fingers, toes or nose).

(c) Involves lacerations which cause severe haemorrhage or nerve, muscle or tendon damage.

(d) Involves injury to any internal organ.

(e) Involves second or third degree burns, or any burns affecting more than 5 per cent of the body surface.

(f) Involves verified exposure to infectious substances or harmful radiation.

11.2.2 Immediate Post Accident Procedures

In the event of an aircraft accident or serious incident (as defined in section 11.2.1.2, 11.2.1.3) involving an AirTanker aircraft, AirTanker will implement their own emergency response procedures which involve the setting up of the Crisis Management Team (CMT) and the Incident Response Centre (IRC). The CMT will coordinate all activity within AirTanker Emergency Response Procedure AS.4400, a copy of which will be supplied to the Ground Handling Agent if requested or required.

The Ground Handling Agent is required to have in place its own accident and emergency procedures and facilities. The procedures shall include a process for managing the emergency response within their area of operations communicating information. Following an accident the Ground Handling Agents are required to make contact with AirTanker through the contacts detailed in Table 24, and accommodate any requirements requested by AirTanker CMT.

A list of personnel can be contacted is shown in below.

Title	Contact	24 hr
Head of Ground Operations	01993 873201 (M) 07738 740072	No
Duty Operations Manager	01993 873226 (M) 07713 318446	Yes
Duty Dispatch Coordinator	01993 873222/873223 (M) 07584 680590	Yes

Table 13. Crisis Management Contacts

After all information has been passed, the contact details of the ground handling emergency response manager or equivalent should be provided to the AirTanker CMT. This contact should remain available should AirTanker require any further information at a later stage.

11.2.3 Incidents Reporting Process

The Ground Handling Agent is required to report the following within 48 hours of the incident:

(a) Any incident that is described at 11.2.1.2.

(b) Failure or inadequacy of facilities or services on the ground, used, or intended to be used for, or in connection with, the operation of the aeroplane.

(c) Any incident arising from the loading or the carriage of passengers, cargo or fuel.

(d) Any incident which involves, for example, a defective condition or unsatisfactory behaviour or procedure which did not immediately endanger the aeroplane but which, if allowed to continue uncorrected, or if repeated in different, but likely, circumstances, would create a hazard.

NOTE: *The reporter is left to determine whether endangerment is a factor and thus determine whether the incident should be reported. The overriding criterion to determine whether an occurrence is reportable is if it: 'endangered, or if not corrected, would have endangered, the aeroplane, occupants, or other persons'.*

The Ground Handling Agent should report any reportable occurrence (as detailed above) of which he has positive knowledge, even though this may not be first hand, unless he has good reason to believe that appropriate details of the occurrence have already been, or will be, reported by someone else.

All ground incidents should be reported to the AirTanker safety investigations team

E-mail: safety@uk.airtanker.co.uk

The following information should be supplied:

(a) Organisation

(b) Date of Incident

(c) Time of Incident

(d) Aircraft Registration

(e) Flight Number

(f) Ground phase: Arrival / Disembarkation / Unloading\Loading / Embarkation / Pushback

(g) Incident Description

(h) Contact Details

(i) Passenger Manifest (if applicable)

(j) Cargo Manifest (if applicable)

(k) Notice To Aircraft Captain Of Dangerous Goods (NOTOC)

For handling agents at RAF Airfields a copy of the ASIMS report will be sufficient.

For all other agencies, if the ground handling agent has its own ground handling incident reporting form then a copy of this can be sent to AirTanker. If not, then a form AS.6508 Ground Handling Occurrence Report (GHOR) form (see Appendix 1) should be used.

The objectives of reporting an incident are as follows:

(a) To ensure that AirTanker is advised of hazardous or potentially hazardous incidents and defects, jointly referred to as 'Occurrences';

(b) To ensure that knowledge of these occurrences is disseminated so that other persons and organisations may learn from them;

(c) To enable an assessment to be made by those concerned, of the safety implications of each occurrence, both in itself and in relation to previous similar occurrences, so that they may take or initiate any necessary action;

(d) To comply with the requirements of the CAA's Mandatory Occurrence Reporting (MOR) Scheme.

11.3 Communication in the Event of an Incident/Accident

Effective communication is critical in ensuring an accident or serious incident is correctly managed, and communicated to the appropriate people to support AirTanker' management of an incident/accident.

11.4 Immediate Communication / Notification of Incident / Accident

In the event of being the first person to be aware of an incident or accident, you are to immediately advise the AirTanker OCC (see Crisis Management Contacts)

Immediately after notification of an incident, the Ops team will initiate the Emergency Response Manual Procedures.

11.5 Communication Once Crisis Centre is Activated

Regardless of where the incident/accident has occurred, both the schedule departure airport, and scheduled arrival airport, and possibly an en route/diversion airport, will be required to activate some or all of their crisis management processes, and establish communication with AirTanker.

Airports will communicate initially with the Voyager OCC until the Incident Response Centre (IRC) has been stood up. All airports would be advised of the details of the IRC and contact numbers when up and running.

11.6 Handling Company Responsibilities

The efficiency of the entire crisis response will rest on effective, rapid, and accurate communication and liaison. This will be achieved by the Handling Agent establishing a Local Incident Coordination Centre (LICC) as the local command centre, on behalf of AirTanker, to coordinate the local response to the incident.

In the immediate aftermath of an incident, an initial LICC will be established at the airport of the emergency or accident or, if off-airport, at temporary premises acquired near the scene of the event (e.g. in a village hall, hotel, local government offices, private house or commercial premises). The LICC will require temporary communications provided by the local telephone company because mobile phone communications are insecure, and more likely to be affected by system overload.

When surviving passengers are moved away from the scene of the event, a Family Assistance Centre (FAC) will be established close to where the survivors and relatives are located. This is normally established in a hotel. When the AirTanker support teams arrive, they will be based and accommodated nearby and will assume control of the FAC.

If applicable, AirTanker will mobilise a site team to assist although it may be 12-24 hours before they are in attendance.

11.7 Local Incident Coordination Centre (LICC)

The Handling Agent is required to have a defined Emergency Plan (which may be incorporated into the Airport Authority's plan), which includes a defined location and structure for the LICC.

Overall command of the LICC will be the responsibility of the Handling Agent.

The handling agent will be responsible to AirTanker's IRC for implementing AirTanker' emergency procedures, providing updated information and implementing its decisions, as well as maintaining liaison with the Police, Airport Control Centre and Local Authorities.

11.7.1 LICC Facilities and Security

The LICC should have rapid access to the following equipment:

- photocopier
- 4/5 telephones (ex-directory or unlisted numbers)
- fax machines
- mobile radios
- SITA
- Means to monitor local media reports, TV, and radio

Access to the LICC should be controlled and restricted to selected management and staff, police, and airport authority. On no account should the media or members of the public be able to gain access.

11.7.2 Additional LICCs

It is possible that more than one LICC will be needed. If the incident occurs at the airport of intended arrival, families and friends may gather at the departure airport in their search for information. If their numbers are sufficiently large, special arrangements will be needed locally to deal with them and an LICC will need to be established. The same is true if the reverse were to happen. If the aircraft diverts to a third airport, additional LICCs may be required.

Inevitably these additional LICCs are not required for the long-term, but AirTanker will need to be represented at the earliest possible moment.

AirTanker will send support team personnel supplemented by Blakes Emergency Services staff to the additional LICCs.

11.8 Handling Company Immediate Actions

Appendix 3 contains a check list of immediate actions.

(a) Record and log all actions (see Appendix 1). This will need to be available in the aftermath of the incident.

(b) Open a Local Incident Coordination Centre (LICC).

(c) Ensure a confirmed passenger list is sent to the Voyager OCC (and JCCC) at the earliest opportunity but no later than two hours after the incident was called.

(d) Impound all flight documentation pertaining to that flight. Documentation will need to be passed to the IRC ASAP.

(e) In coordination with the Airport Authority, prepare areas for the reception of non-hospitalised survivors, Survivors Reception (SRC), Friends and Relatives Reception Centre (FRRC) and Reunion Centre (RC) and allocate staff. The handling agent should collect as many details as possible and pass to the IRC.

(f) Assist in booking hotel accommodation/transport for the arrival of the AirTanker Site Team.

(g) Arrange for access and parking facilities for the AirTanker Site Team.

NOTE: *Hotel accommodation for the support team shall not be in hotels used by AirTanker/Voyager crews or for the survivors or the next of kin.*

NOTE: *Crew should not be accommodated in the same hotel as survivors and relatives.*

11.9 Family Assistance Centre (FAC)

The FAC will need to be established once surviving passengers are moved from the Survivors Reception Centre (SRC) to hotel accommodation. When the support teams arrive they will be based and accommodated nearby. The FAC is a location and operation usually established at a hotel close to the incident site, which affords lodging, meals, travel coordination, security, and areas for group and private information updates. As part of their emergency plans it is incumbent upon Handling Agents, in consultation with the accountable AirTanker manager, to maintain a list of suitable locations at or near their airports.

11.10 Access to Aircraft and Removal of Baggage

When an accident occurs, no person other than authorised personnel shall have access to the aircraft involved in the accident and the aircraft shall not, except under the authority of the inspector, be removed or otherwise interfered with. In all States, the authority for the removal of an aircraft rests solely with the Director of Civil Aviation.

Exceptions are:

(a) The aircraft may be moved or interfered with so far as may be necessary for the purpose of extracting persons or animals involved, removing any mail carried by the aircraft, or preventing any danger or obstruction to the public, to air navigation or to other forms of transport.

(b) Goods or passengers' baggage may be removed from the aircraft under supervision of the Police but, if the aircraft has originated from a place outside the country of occurrence, they may not usually be removed from the vicinity of the aircraft except on clearance by or with the consent of an Officer of Customs.

(c) If an aircraft is wrecked on water, the aircraft or any contents thereof may be removed to such an extent as may be necessary to bring it or them to a place of safety.

When possible complete an Accident Aircraft Location Form (see Appendix 6).

11.11 Handling Public Telephone Calls

All public telephone enquired concerning the emergency should be directed to the Joint Casualty and Compassionate Cell (JCCC) at Imjin Barracks, who are the focal point for all casualty administration and notification in respect of the British Armed Forces. The initial contact number, which is manned 24/7, is +44 (0) 1452 519 951.

11.12 Liaison and Support to AirTanker Site Teams

The anticipated initial deployment of the AirTanker Site Team will include:

(a) Site Team Manager

(b) Site Team Log keeper

(c) Additional Blakes representatives

(d) An AirTanker Exec representative

These will travel to the incident location by the quickest means possible. On arrival at the event location the teams will require transport, administration assistance, an office, and sleeping accommodation.

(e) It may also be necessary to supplement the Support Teams communications with local mobile telephones and mobile radios on local approved frequencies. There will also be a requirement to provide a fax or SITA as well as a delivery service for company mail.

(f) The Teams may require additional funds or facilities and these should be arranged through the LICC in consultation with AirTanker.

(g) Further members of teams may arrive at a later date and these should be accommodated in the same hotel or at least one in close proximity to the rest of their colleagues.

11.13 Actions at Airport of Passenger Origin

The Handling Company at the airport of passenger origin may also be required to establish a Local Incident Coordination Centre (LICC). This LICC will be required to:

(a) Prepare a list of all passengers boarded at that location and send by fax to the Voyager OCC and secure all information relating to passengers.

(b) Secure all documentation relating to the flight for the Investigating Authority and restrict access to the flight in local computer based systems.

(c) The following documents are to be immediately impounded and copies faxed to the Voyager OCC and secure until the arrival of the AirTanker Site Team:

1. Technical Log/Sector Record Page

2. Fuel Delivery Receipt

3. Load/Trim Sheet

4. CONFIRMED passenger boarding list

5. Cargo manifest, air waybills, mail summary sheet and hazardous/dangerous cargo details (if applicable)

6. Copies of communications transcripts (if available from ATC).

(d) Redirect all telephone enquiries concerning those on board the aircraft to the JCCC.

(e) Arrange suitable secure accommodation to facilitate handling of any friends and relatives in comfort and privacy (FRRC). A crisis statement is available at 0.

(f) Allocate staff to the FRRC to complete the Passenger Enquiry Forms (PEF) (see Appendix 5).

(g) Arrange for first aid staff and religious representatives to be present to assist in handling the friends and relatives.

(h) In the UK and most European countries it is the responsibility of the Police to notify next of kin of injuries of civilian personnel. For all military personnel this will be coordinated through the JCCC.

(i) Monitor local media cover and only release statements authorised by AirTanker.

11.14 Handling Survivors and Next of Kin

It is vitally important that a high standard of care and welfare is provided to survivors and their friends, relatives, and next of kin. Staff involved will be required to be empathetic and patient and shall continually monitor the situation in the areas in which they are working, ensuring that:

(a) The supervisor or manager is made aware of problems as and when they arise.

(b) It will be necessary to document survivors and next of kin in conjunction with Police authorities. This documentation will probably be completed by the Police utilising their own documentation. However, the Passenger Enquiry Form (see Appendix 5) may be used.

(c) Copies of the documentation shall be sent by fax without delay to the Voyager OCC (or IRC as directed).

(d) After documentation, survivors and next of kin will be anxious for further information and action in reuniting them on being released from the Reception Area. This can only be carried out after the Police have given their agreement, however it shall be controlled and carried out with maximum compassion in a secure environment avoiding media or public intrusion.

(e) The situation shall be closely monitored to watch for signs of stress. Staff should ensure that medical or first aid assistance is available as well as religious representatives and that refreshments are also always available. Access to toilets and telephones shall be available at all times.

(f) If delays become prolonged, consideration shall be given to moving friends, relatives, and next of kin to an off-airport location into a hotel conference or meeting facility where a higher level of privacy and comfort can be provided, as well as meals and sleeping accommodation if necessary (Family Assistance Centre).

(g) When the reuniting of selected uninjured survivors and next of kin does take place, it shall be completed in privacy and assistance provided in escorting those concerned out of the airport or hotel.

(h) There may be some next of kin who have to be informed of the hospitalisation or death of a passenger. This will usually be a Police responsibility (in most European countries), but if this is declined, assistance should be sought from a religious representative and the next of kin advised jointly in a private area.

(i) It may also be necessary to provide funds, clothing, or toiletries to survivors. These requirements should be dealt with in conjunction with the LICC or Information Centre.

(j) Staff, particularly those handling next of kin and friends and relatives shall do everything possible to control access to the Reception Area and to prevent invasion of privacy by the media.

(k) Those being held in the Reception Areas should preferably not have direct views of the accident site nor have access to radio or television.

12 Aircraft De- icing / Anti-icing Procedures and Winter Operations

Information owner: Aviation Services Manager

12.1 General

AirTanker requires Ground Service Providers (GSPs) to adhere to Society of Automotive Engineers (SAE) Global Standards for Aircraft Ground De-icing / Anti-Processes (current edition of AS6285) when de-icing/anti-icing AirTanker or RAF Voyager aircraft. The turnaround coordinator in consultation with both the Pilot In Command (PIC) and the de-icing agent is to ensure correct procedures are applied. Where GSPs wish to use alternative standards, formal written approval shall first be provided by AirTanker Aviation Services department.

During freezing weather conditions that are likely to produce frost, snow, slush or ice, the aircraft shall be de-iced and/or anti-iced before it can depart. The PIC has overall responsibility for determining the aircraft de-icing/anti-icing requirements. Ground Handling agents have a responsibility for arranging aircraft de-icing/anti-icing operations. De-icing and anti-icing procedures shall be carried out exclusively by personnel trained and qualified on this subject. In addition to the standards for de-icing / anti-icing, GSPs are to follow the SAE Aerospace Standard for Aircraft Ground De-Icing/Anti-Icing Training and Qualification Program (current edition of AS6286).

12.2 Regulatory Requirements

The requirement to ensure that all aircraft are free of all frozen contamination at take-off is enforced by the aviation authorities, including:

- The U.S. Federal Aviation Administration (FAA)
- Transport Canada (TC)
- The European Aviation Safety Agency (EASA)
- The Civil Aviation Administration of China (CAAC)
- The UK Civil Aviation Authority (CAA)

SAE International publishes standards for the aviation industry. For aircraft ground de-icing/anti-icing, the group that specifically deals with this area within the SAE is the G-12 group.

12.3 Potential Weather Effects on Aircraft Operations

Winter operation in harsh winter climates is bound to affect the punctuality of any airline. Not only is ground operation impaired, but also snow and ice on apron, taxiway, and runway areas affect aircraft operations.

Warning:

There is no shortcut permitted for a safe de-icing/anti-icing procedure on the ground. This “window” of departure causes undue pressure for the completion of ground procedures, but this shall not cause any diversions from normal and safe de-icing/anti-icing procedures undertaken on AirTanker aircraft.

12.4 Personal Health and Safety

De-icing operations is many times subjected to harsh elements. There are cold temperatures, wind, some sort of precipitation, loud noises from aeroplane engines /APU, jet blast, marginal sunlight/airport lighting at wintertime, manoeuvring a large de-icing vehicle in narrow areas between aeroplane and the de-icing spraying itself.

Despite all of these items (and others) the de-icing operation can be performed safely and efficiently with the proper training, equipment and safety gear. De-icing vehicles are basically divided into open-basket and closed-basket de-icers. A closed-basket protects the de-icing operator from many of the mentioned elements but if there are procedures performed outside the vehicle, the appropriate PPE shall be used.

When de-icing from an open-basket the de-icing operator is also subjected to glycol mist while spraying and proper protective clothes and equipment should be used.

Rubber gloves, water proof clothing, water proof shoes (safety footwear), hearing protector and safety harness are items that should be used for sufficient protection under such conditions. Sufficient washing of hands, neck and face (any areas subjected to outside elements) should be remembered in order to minimise any possible skin irritation caused by glycols.

Figure 54 Example of a Safety Harness

Caution:

Safety harnesses should be subject to pre-use checks, detailed inspections, and (as appropriate) more detailed interim inspections. These should be carried out by competent persons to identify defects or damage that may affect safety.

12.5 Clean Aircraft Concept

A clean aeroplane is considered to be either totally clean or cleaned and protected with de-icing/anti-icing fluids that still protect the surface and are able to perform aerodynamically correctly.

The aircraft shall be completely clean of all frost, ice, slush, and snow accumulations prior to departure.

(a) A light coating of frost up to 3mm in thickness may be present on the wing lower surfaces in areas cold soaked by fuel.

(b) Thin hoar frost is acceptable on the upper surface of the fuselage provided all vents and ports are clear. Thin hoar frost is a uniform white deposit of fine crystalline texture, which usually occurs on

exposed surfaces on a cold and cloudless night, and which is thin enough to distinguish surface features underneath, such as paint lines, markings or lettering.

(c) Frost is permitted on the engine cowls.

Caution:

Contamination other than frost i.e. snow, slush and ice deposits SHALL be removed from the nose RADOME areas prior to departure, in order to prevent deposits from blowing back and obstructing the pilots vision on take-off.

Whenever practical, cabin windows should be free of frozen contaminants. The cabin windows are an important part of the safe operation of an aircraft.

12.6 Tasks Prior to De-icing/Anti-Icing Treatment

Before a de-icing operation begins, a check of the equipment and supplies should be made. This check should include all relevant aspects for the proper functioning of the equipment, personal safety gear, and the fluids to be used. After these have been checked, a verification of the latest procedures for de-icing/anti-icing should be performed; the appropriate procedures *will vary according to the method of the de-icing/anti-icing operations needed*.

The determination of the need for de-icing/anti-icing can be made by qualified persons other than the de-icing crew. Once an affirmative determination is made, a verification of the de-icing/anti-icing procedures to be used shall be performed with the flight crew in order to ensure that there are no misunderstandings.

The information to be verified with the flight crew includes:

(a) Areas of the aircraft that will be de-iced and anti-iced

(b) The fluids and mixtures to be used

(c) The start clearance for de-icing

(d) The results of checks

(e) Any aircraft-specific information the crew wishes to note.

12.7 Definitions

ACTIVE FROST: Condition when frost is forming. Active frost occurs when (1) the aircraft surface temperature is at or below the frost point or (2) there is water in liquid form (e.g. dew) on the aircraft surface and the surface falls to/or below 0 °C (frozen dew).

AERODYNAMIC ACCEPTANCE TEST: A laboratory test establishing whether de-icing and anti-icing fluids meet flow off requirements during take-off ground acceleration and initial climb.

ALLOWANCE TIME: Estimated time that a Type III/IV fluid is expected to protect against precipitation such as ice pellets, small hail, or mixed precipitation with both (light or moderate intensity only). Types I/II are excluded until further testing has been performed. The allowance time begins at the start of the final application (anti-icing procedure). Allowance times are derived from aerodynamic fluid flow off

performance data and visual inspection of fluids exposed to these precipitation types. A pre-take-off contamination check cannot be used with allowance times, as failure with small hail or ice pellets may not be visible. Allowance times are published in the FAA and Transport Canada Holdover Time Guidelines.

ANTI-ICING: Procedure by which fluid is applied to provide protection against the formation of frost or ice or the accumulation of snow or slush on treated surfaces of an aircraft for a limited period.

ANTI-ICING FLUID: 1. Mixture of water and Type I fluid. 2. Premix Type I fluid. 3. Type II, III, or IV fluids. 4. Mixture of water and Type II, III, or IV fluids.

***NOTE**: For de-icing/anti-icing purposes in a one-step procedure, fluids in 1, 2, and 4 shall be heated to ensure a temperature of 60 °C (140 °F) minimum at the nozzle.*

ANTI-ICING CODE: Report given to the flight crew that de-icing/anti-icing has been carried out and the details of the anti-icing procedure that was applied. Also known as post-de-icing/anti-icing report.

BRIX (DEGREES BRIX or °BRIX): Unit of measurement of refraction. See “refraction” and “refractometer.”

BUFFER: See “freezing point buffer.”

CERTIFICATE OF ANALYSIS: A document, issued by a manufacturer, attesting that a lot or batch of a product fulfils the manufacturer’s sales specification requirements, listing the tests, the test requirements, the test results on that lot or batch, the lot or batch number, and a date.

CERTIFICATE OF CONFORMANCE: A document declaring that a product fulfils the requirements of a standard. Also known as a certificate of conformity.

CHECK: Examination against a relevant standard by a trained and qualified person to ascertain satisfactory condition.

CHEMICAL CONTAMINATION: Condition when substances (chemicals) are present where they should not be or are at concentrations higher than they should be.

CLEAR ICE: Ice that is transparent or translucent, difficult to detect visually. It is normally formed in the area of the wing fuel tanks by cold soaking. Clear ice may break loose during or after take-off and poses a hazard, particularly to aircraft with rear-mounted engines.

COLD-SOAKING: Ice can form on aircraft surfaces even when the outside air temperature (OAT) is well above 0 °C (32 °F). An aircraft equipped with wing fuel tanks may have fuel that is at a sufficiently low temperature such that it lowers the wing skin temperature to below the freezing point of water. The low temperature of the fuel may come from flying at a high altitude, where cold temperature prevails, for a period of time or from fuelling with cold fuel. This phenomenon is known as cold-soaking. While on the ground, the cold-soaked aircraft will cause ice to form when water as rain or as vapor (humidity) encounters cold-soaked surfaces.

CONTAMINATION: All forms of frozen or semi-frozen deposits on an aircraft, such as frost, snow, slush, or ice (also known as frozen contamination).

CONTAMINATION CHECK: A check of aircraft surfaces and components for contamination to establish the need for de-icing.

DEICING: Procedure by which frost, snow, slush, or ice are removed from an aircraft to provide clean surfaces and components.

DEICING/ANTI-ICING: Combination of or referring to both procedures for “de-icing” and “anti-icing”. It may be performed in one or two steps.

DEICING FLUID:

1. Heated water.

2. Heated mixture of water and Type I fluid.

3. Heated premix Type I fluid.

4. Heated Type II, III, or IV fluids.

5. Heated mixture of water and Type II, III, or IV fluids.

NOTE: *Unheated fluids are ineffective to deice.*

DEICING SERVICE PROVIDER: The company responsible for the aircraft de-icing/anti-icing operations on an airfield.

DEICING PERSONNEL: Groundcrew personnel with roles and responsibilities associated with aircraft ground icing operations.

DEWPOINT: Temperature at which unsaturated air must be cooled to cause saturation with respect to liquid water. The moisture condenses to liquid water either on surfaces as dew or as tiny liquid droplets suspended in air.

FREEZING DRIZZLE: Fairly uniform precipitation composed exclusively of fine drops (diameter less than 0.5 mm [0.02 inch]) very close together, which freeze upon impact with the ground or other exposed objects.

FREEZING FOG: A suspension of numerous very small water droplets that freeze upon impact with the ground or other exposed objects; generally, reduces the horizontal visibility at the earth’s surface to less than 1 km (5/8 mile).

FREEZING POINT: Temperature at which a liquid starts to become a solid.

FREEZING POINT BUFFER: The difference between the OAT and the freezing point of the fluid used.

FREEZING POINT BUFFER, NEGATIVE: Condition when the freezing point of a de-icing/anti-icing fluid is above the OAT.

FREEZING POINT DEPRESSANT: A component, usually a glycol, used in the formulation of de-icing or anti-icing fluids to lower the freezing point of water.

FREEZING RAIN, LIGHT: Scattered drops that do not completely cover a surface. Freezing rain with a rate up to 2.5 mm/h (0.10 in/h) or 25 g/dm2/h, with a maximum of 0.25 mm/h (0.01 in/h) in 6 minutes.

FREEZING RAIN, MODERATE: Precipitation of liquid water particles that freeze upon impact with the ground or other exposed objects. Moderate freezing rain may appear in the form of large drops or can appear to fall in sheets where individual drops are not identifiable. Moderate freezing rain has a measured rate between 2.5 to 7.5 mm/h (0.10 to 0.30 in/h) or 25 g/dm2/h and 75 g/dm2/h.

FREEZING RAIN, HEAVY: Precipitation of liquid water particles that freeze upon impact with the ground or other exposed objects. Heavy freezing rain can seem to fall in sheets, and individual drops

may not be identifiable. Heavy freezing rain has a measured intensity of more than 7.5 mm/h (0.30 in/h) or 75 g/dm2/h.

FROST/HOARFROST: Tiny ice crystal formed on a surface at or below the frost point. Frost generally occurs with clear skies at temperatures below freezing point. Frost can also occur from the freezing of dew.

FROST, LOCAL: The limited formation of frost in localized wing areas cooled by cold fuel or large masses of cold metal in the wing structure; this type of frost does not cover the entire wing.

FROST POINT: Temperature, at or below 0 °C (32 °F), at which air undersaturated with moisture must be cooled (at constant pressure) to cause saturation with respect to ice. The moisture directly deposits, without going through the liquid phase, as frost on exposed surfaces, providing nucleation sites. The frost point is higher (warmer) than the dewpoint by about 10% at a given humidity level in air. Air temperature readings given by a thermometer are applicable to the height above ground of the thermometer itself. Because cool air sinks and the ground often cools very quickly, especially on clear nights, the ground temperature on clear, still nights are invariably lower than the temperature only a few feet higher. Thus, frost can form even when a thermometer gives a reading above freezing. The same happens with aircraft - frost can form on aircraft when the thermometer air temperature reading is above 0 °C (32 °F).

FUEL FROST: Frost, normally in the area of the wing fuel tanks, caused by the cold-soaking. Also known as non-environmental frost or cold-soaked fuel frost.

GLYCOL: A class of organic compounds with two hydroxyl groups (-OH) attached to different carbons, for example, ethylene glycol, propylene glycol, diethylene glycol, polyethylene glycol, polypropylene glycol. In aircraft de-icing, glycol usually refers to ethylene glycol or propylene glycol.

GROUNDCREW: Personnel with responsibilities for the handling, maintenance, and servicing of an aircraft while on the ground, as well as the coordination of these activities. HAIL: Precipitation of small balls or pieces of ice with a diameter ranging from 5 to 50 mm (0.2 to >2.0 inches) falling either separately or agglomerated.

HIGHEST ON-WING VISCOSITY (HOWV): Highest viscosity of a thickened de-icing/anti-icing fluid which is still aerodynamically acceptable.

HOARFROST: A synonym for frost. See “frost/hoarfrost.”

HOLDOVER TIME: Estimated time for which an anti-icing fluid will prevent the formation of frost or ice and the accumulation of snow on the treated surfaces of an aircraft.

ICE PELLETS: Precipitation of transparent (grains of ice) or translucent (small hail) pellets of ice, which are spherical or irregular, and have a diameter of 5 mm (0.2 inch) or less. Ice pellets usually bounce when hitting hard ground.

LOWEST ON-WING VISCOSITY (LOWV): Lowest viscosity of a thickened de-icing/anti-icing fluid for which the applicable holdover timetable can still be used.

LOWEST OPERATIONAL USE TEMPERATURE (LOUT): For fluids, whose glycol concentration is equal to or less than the concentration at which the aerodynamic acceptance test was performed. The fluid’s LOUT is the higher (warmer) of either:

• The lowest temperature at which the fluid meets the aerodynamic acceptance test (according to AS5900) for a given type (high speed, middle speed, or low speed) of aircraft.

• The freezing point of the fluid plus the buffer of 10 °C (18 °F) for Type I fluid and 7 °C (13 °F) for Type II, III, or IV fluids.

POST-DEICING CHECK: A check by qualified ground personnel to ensure that all critical surfaces are free of adhering contamination after the de-icing procedure has been completed.

POST-DEICING/ANTI-ICING CHECK: A check by qualified ground personnel to ensure that all critical surfaces are free of adhering contamination after the de-icing/anti-icing procedure has been completed.

POST-DEICING/ANTI-ICING REPORT: Report given to the flight crew confirming that de-icing/anti-icing has been carried out and the details of the de-icing/anti-icing procedure that was applied.

POST-DEICING REPORT: Report given to the flight crew confirming that de-icing (removal of contamination only) has been carried out and the details of the de-icing procedure that was applied and no holdover time is applicable.

PRE-DEICING PROCESS: A process to remove large quantities of frozen contamination prior to the regular de-icing/anti-icing process with the objective of reducing the quantity of de-icing fluid to be used.

PRE-FLIGHT CONTAMINATION CHECK: A check performed by the flight crew or groundcrew prior to departure to verify the presence of adhering contamination to establish the need for de-icing/anti-icing. It may be part of the flight crew walk-around before the flight.

PRE-TAKEOFF CHECK: A check by the flight crew prior to take-off and within holdover time. This check is normally conducted from inside the flightdeck. It is normally accomplished by a continuous assessment of the conditions that affect holdover time and includes an assessment and adjustment of holdover time.

PRE-TAKEOFF CONTAMINATION CHECK: A check of the critical surfaces for adhering contamination. This check is accomplished after the holdover time has been exceeded and must be completed within 5 minutes prior to the beginning of take-off.

PROXIMITY SENSOR: A proximity sensor is a safety feature on some models of de-icing equipment that, upon activation, disengages relevant systems, preventing equipment movement and damage from occurring due to physical contact between equipment components (e.g., spray nozzle, forced air nozzle, operator basket, etc.) and aircraft surfaces. As a safety mechanism, the proximity sensor is designed to prevent damage from occurring to aircraft surfaces, normally while the equipment chassis is in a stationary position (not manoeuvring). Where equipped, the type of sensor used may vary by design and may activate either by physical contact (e.g., a proximity switch with contact mechanism) or by nonphysical activation (e.g., infrared, radar, etc.).

QUALIFIED STAFF: Trained staff who have passed theoretical and practical training tests and have been qualified for performing this type of job; refer to AS6286.

QUALITY ASSURANCE (QA): It is process-oriented and focused on preventing quality issues. It is a proactive approach. An audit is done to validate QA processes, the quality procedures to be followed (e.g., “documented”).

QUALITY CONTROL (QC): It is product-oriented and focused on identifying quality issues in manufactured products and performance of service. It is a reactive approach. Inspections/checks/tests are done as part of the QC procedure to verify the quality of the available procedures and operations (e.g., “implemented”).

REFRACTION: The bending of light as it passes from one transparent substance into another. For solutions, the refraction will vary upon the concentration of the solute in the solvent. Using a calibration curve, it is possible to determine the concentration of the solute in the solvent. For example, for aqueous glycol solutions, it is possible to determine the concentration of the glycol in water by measuring refraction with a refractometer and comparing the result to the calibration curve.

Refraction can be expressed as a dimensionless number (index of refraction) or as a scale of concentration, e.g., degrees Brix (°Brix) or freezing point (°C or °F). See “refractometer.”

REFRACTIVE INDEX: Unit of measurement of refraction expressed in the form of a dimensionless number. See “refraction” and “refractometer.”

REFRACTOMETER: An instrument to measure refraction. Result of measurement with a refractometer can be expressed as a dimensionless number (index of refraction) or as a scale of concentration, e.g., degrees Brix (°Brix) or freezing point (°C or °F).

RESIDUE/GEL: A buildup of dried out thickened fluids typically found in aerodynamically quiet areas of the aircraft.

RIME ICE: Small, frozen, spherical water droplets, opaque/milky and granular in appearance, which look like frost in a freezer; typically, rime ice has low adhesion to the surface and its surrounding rime ice particles.

RISK ASSESSMENT: An evaluation based on engineering and operational judgment and/or analysis methods to establish whether the achieved or perceived risk is acceptable or tolerable, then, if required, implementing reasonable control and mitigating measures to remove or reduce the identified risk(s).

SLUSH: Snow or ice that has been combined with water.

SNOW: Precipitation of ice crystals, most of which are branched, star-shaped, or mixed with unbranched crystals. At temperatures higher than -5 °C (23 °F), the crystals are generally agglomerated into snowflakes.

SNOW GRAINS: Precipitation of very small white and opaque particles of ice that are flat or elongated with a diameter of less than 1 mm (0.04 inch); when snow grains hit hard ground, they do not bounce or shatter.

SNOW PELLETS: Precipitation of white, opaque particles of ice. The particles are round or sometimes conical, their diameters range from approximately 2 to 5 mm (0.08 to 0.2 inch), they are brittle and easily crushed, and they do bounce and may break upon contact with hard ground.

STORAGE TANK: A vessel for holding fluid that can be fixed or mobile; includes rolling tanks (ISO tanks), totes, tank trucks, or drums.

TACTILE CHECK: Process by which a person touches specific aircraft surfaces. Tactile checks, under certain circumstances, may be the only way of confirming the critical surfaces of an aircraft are not contaminated. For some aircraft, tactile checks are mandatory as part of the de-icing/anti-icing check process to ensure the critical surfaces are free of frozen contaminants.

THICKENED FLUID: A fluid that contains polymeric thickeners. AMS1428 Type II, III, and IV fluids are thickened fluids; AMS1424 Type I fluids are not thickened.

12.8 Airport Winter Operations

12.8.1 Winter Ops Plans

The airport authority should have in place a published winter operations plan which is appropriate to the airport and any anticipated weather conditions. When ground icing conditions are predicted, special precautions should be taken to ensure that equipment and infrastructure remains functional.

Wherever reasonably practicable, snow and ice formations should be removed from equipment and working surfaces prior to the start of operations.

The safety of any passenger or public areas should always be assured prior to use.

Personnel should allow more time to complete activities, drive all equipment more slowly, and ensure that a greater stopping distance is allowed when manoeuvring around aircraft.

Prior to all aircraft movements, passenger boarding/disembarking, or other ground handling activities, handling agents should ensure (in consultation with the airport authority/aerodrome operator) that the taxiway, apron, manoeuvring areas and equipment (i.e. steps) are in a suitable condition to allow for safe operations.

If a safe operation cannot be assured, the operation should be stopped and AirTanker OCC informed. Contact details can be found at 0.7 and 0.9 of this manual.

12.8.1.1 De-Icing Flight operations Plan

Identifying the person who will be authorised to enter into agreements with the manager of the ATCT at each airport regarding air traffic control (ATC) procedures affecting dispatch during ground icing conditions, and with each airport's manager regarding where aircraft may conduct pre-flight contamination checks.

12.8.2 Snow and Ice Clearance

Airports should have suitable winter plans in place which make provision for the clearance of Runway, Taxiway and Stands. The plans, which shall be part of an overall station winter plan, shall identify what action is required and who is accountable for that action to be carried out.

12.8.3 Aircraft Stands

Stands shall be clear of ice and snow to give safe movement and access for airport personnel, vehicles, passengers, airline staff, and ground service personnel.

The following should be clear:

(a) The head of stand should be clear of snow and ice so as not to impede aircraft push back or arrival functions.

(b) The centre line shall remain clear to ensure it is fully visible to flight crews.

(c) The stand should be clear of contamination and all practicable efforts to ensure its safe use should be made.

12.9 Qualification and Training

AirTanker require that all de-icing personnel employed on AirTanker de-icing/anti-icing operations have received initial and annual refresher training to a standard described under SAE AS6286 Aircraft Ground De-icing/Anti-Icing Training and Qualification Program.

12.9.1 Training Requirements

The Head of De-icing Training is responsible for the de-icing training program. The Head of De-icing Training shall have sufficient knowledge in de-icing/anti-icing operations and training to be qualified for this position.

The Head of De-icing Training qualification shall be renewed annually and will be renewed automatically as long as the responsibilities remain with the same person. These responsibilities

include keeping up to date with the latest recommendations and standards involving relevant de-icing/anti-icing issues.

The Head of De-icing Training shall have received de-icing instructor training and shall have sufficient knowledge in basic instructional methods (e.g. train the trainer) for this level of qualification. An annual refresher course is recommended but keeping up to date with de-icing industry news and operational elements, as well as preparing the training program (and/or acting as an instructor), is sufficient.

For all personnel performing the actual de-icing/anti-icing treatment on aircraft, practical training with the de-icing/anti-icing equipment shall be included.

Training subjects shall include, but are not limited to, the following (when applicable):

- Common standards, regulations, and recommendations.
- Basic knowledge of aeroplane performance.
- Effects of frost, ice, snow slush and fluids on aeroplane performance.
- Meteorological considerations on ice formation.
- Basic characteristics of aircraft de-icing/anti-icing fluids, including causes and consequences of fluid remaining on surfaces, and dried and/or rehydrated residues.
- General techniques for removing deposits of frost, ice, slush and snow from aeroplane surfaces and for anti-icing.
- De-icing/anti-icing procedures in general and specific measures to be performed on different aircraft types and de-icing using hot air.
- Aeroplane in general and common critical areas.
- De-icing procedures for A330 family of aircraft..
- Special provisions for contract de-icing/ anti-icing (if applicable).
- Types of checks required.
- De-icing/anti-icing equipment and facilities.
- Operating procedures including actual operation.
- Safety precautions and basic understanding of human factors.
- Emergency Procedures.
- Fluid application and limitations of holdover time tables.
- De-icing/anti-icing codes and communication procedures.
- Knowledge of the English language.
- Special provisions and procedures for contract de-icing/anti-icing.
- Environmental considerations (i.e. where to de-ice, spill-reporting, hazardous waste control etc.).
- Conditions which can lead to the formation of ice on the aeroplane.
- Local rules and restrictions.
- Responsibility of Pilot-in-Command and other operations personnel.
- Airport operational procedures and ATC.
- Quality Control.
- Company and customer procedures.
- De-icing coordination procedures in general.
- De-icing/anti-icing procedures in general and specific measures to be performed on different aircraft types.
- New procedures, development and lessons learned from previous winters.
- Importance of symmetrical de-icing.
- Communication and pre/post de-icing/anti-icing check procedures.

- How to examine the aircraft critical flight surfaces (wings, vertical stabiliser, and horizontal stabilisers), top fuselage, undercarriage, nose radome shall be clean and have no ice ridges, pitot-static orifices, angle of attack devices, windscreens.
- How to perform a pre-flight contamination check of the aircraft to make sure that no contamination (frozen deposits) remain after deice/anti-ice, the aircraft is clean and in proper condition for flight.
- Different contaminations on the aircraft.
- Clear Ice checks, tactile check.
- Reporting/communication.
- Final release, anti-icing code.
- Safety elements, human factors.

12.9.1.1 Special aspects of aircraft de-icing/anti-icing operations

- Safety Precautions and Human Factors
- Environmental Impact and Litigation
- De-icing Facility Operation
- Learning from season operations, audit findings and updated standards for next season
- Local rules and restrictions and airport procedures

NOTE: *Personnel who have not carried out duties related to de-icing/anti-icing for a period of four months shall have practical refresher training or additional supervision in addition to annual recurrent training to ensure no skill fade for the operator.*

Theoretical training, both initial and annual recurrent, for ground de-icing crews shall be conducted to ensure that all such crews obtain and retain a thorough knowledge of aeroplane de-icing/anti-icing policies and procedures, including new procedures and lessons learned.

Training success shall be proven by an examination/assessment which shall cover all training subjects laid down in this document.

The theoretical examination shall be in accordance with Part 66 or any equivalent requirements. The pass mark shall be 75% and only persons passing this examination can be qualified.

Practical Training (Initial). For personnel performing the actual de-icing/anti-icing treatment on aeroplanes for the first time, practical training with the de-icing/anti-icing equipment and de-icing of an actual aeroplane shall be included.

An aeroplane is required in order to familiarise new trainees with the relevant typical aeroplane surfaces/ components and identification of no spray areas.

Prior to receiving final qualification, personnel performing de-icing/anti-icing operations (driving and/or spraying) shall demonstrate competence in removing frozen contamination under operational conditions, to a qualified trainer or supervisor.

Attendance at training sessions shall be recorded and kept for verification of the qualifications of each person. Records of theoretical sessions and exams, as well as records of practical training and training while working (where applicable) shall be retained for each person qualified. The record shall clearly show that instruction has been given and received with signed documents the usual evidence. A training schedule for each qualified person shall be maintained. The record shall identify the date when the particular subject matter was delivered to the trainee. The trainer shall sign or initial the training has been delivered. The trainee shall, as an acknowledgement and understanding of the training, sign or initial the appropriate subject matter on the training record form. Training content and records shall be made available for review by an authorised AirTanker representative or regulatory authority. Where electronic or computer-based training record systems are maintained, the content

shall include, as a minimum, the trainee's name, test mark achieved, date of training, and course reference. The same procedure shall be followed where contract de-icing is used. Names, dates, and the scope of training shall be clearly stated.

NOTE: *Practical evaluation and demonstration of skills for ground crew personnel shall be performed as part of a ground crew training and qualification program.*

For annual recurrent qualification:
The practical evaluation and demonstration of skills for normal equipment and operational methods is expected.

The practical training and demonstration of knowledge or skills where new equipment or operational methods are utilised is required

The following publications are available at www.sae.org

AS6285 (latest revision) Aircraft Ground De-Icing/Anti-Icing Processes

AS6286 (latest revision) Aircraft Ground De-Icing/Anti-Icing Training and Qualification Program

AS6332 Aircraft Ground De-Icing/Anti-Icing Quality Management

12.9.1.2 Related Publications

The following publications are provided for information purposes only and are not a required part of this SAE Aerospace

AMS1424/1 De-icing/Anti-Icing Fluid, Aircraft SAE Type I Glycol (Conventional and Non-Conventional) Based

AMS1424/2 De-icing/Anti-Icing Fluid, Aircraft SAE Type I Non-Glycol Based

AMS1428 Fluid, Aircraft De-icing/Anti-Icing, Non-Newtonian (Pseudoplastic), SAE Types II, III, and IV

AMS1428/1 Fluid, Aircraft De-icing/Anti-Icing, Non-Newtonian (Pseudoplastic), SAE Types II, III, and IV Glycol (Conventional and Non-Conventional) Based

AMS1428/2 Fluid, Aircraft De-icing/Anti-Icing, Non-Newtonian (Pseudoplastic), SAE Types II, III, and IV Non-Glycol Based

ARP1971D (R) Aircraft De-icing Vehicle - Self-Propelled

AIR6232 Aircraft Surface Coating Interaction with Aircraft De-icing/Anti-Icing Fluids

AIR5704 Field Viscosity Test for Thickened Aircraft Anti-Icing Fluids

AS9968 Laboratory Viscosity Measurement of Thickened Aircraft De-icing/Anti-icing Fluids with the Brookfield LV Viscometer

ARP5660 De-icing Facility Operational Procedures

ARP6257 Flight and Ground Crew Aircraft De/Anti-icing Phraseology

AS5900C Standard Test Method for Aerodynamic Acceptance of SAE AMS 1424 and SAE

ARP6257 Aircraft Ground De/Anti-Icing Communication Phraseology for Flight and Ground Crews

FAA Publications
Available from Federal Aviation Administration, 800 Independence Avenue, SW, Washington, DC 20591, Tel: 866-835-5322, www.faa.gov.
FAA Holdover Time Guidelines: Winter 20xx-20yy (annual publication)

Transport Canada Publications
Transport Canada documents are available from Transport Canada, Tower C, Place de Ville, 330 Sparks Street Ottawa, Ontario K1A 0N5, Tel: 1-800-305-2059, www.tc.gc.ca.
Transport Canada Holdover Time Guidelines: Winter 20xx-20yy (annual publication)

Aircraft Manufacturer Manuals

12.9.2 Training Records

Records of training, examinations and qualifications shall be retained for each person qualified.

12.10 Communication Procedures

(a) The person communicating with the flight crew shall have a basic knowledge of the English language (operational level or equivalent according to the current version of the Training Document SAE AS6286) in order to communicate properly. For local flights involving local flight and ground crews, local language may be used by them (see the current version of SAE training document AS6286).

(b) Communication between the Commander and the de-icing crew will usually be achieved using a combination of printed forms and verbal communication. For treatments carried out after aeroplane doors are closed, use of flight interphone (headset) or VHF radio will usually be required.

(c) Electronic message boards may also be used in ‘off stand’ situations. Use of hand signals is not recommended except for the final ‘all clear’ signal.

(d) During **off-gate de-icing/anti-icing** a two-way communication between flight crew and de-icing/anti-icing operator/supervisor shall be established prior to the de-icing/anti-icing treatment. This may be done either by intercom or by VHF radio. In case VHF is used, the register or “tail number” of the aeroplane instead of flight number shall be used during all communications. An alternate means of communication may be the use of Electronic Message Boards. In the event of conflict, verbal communication shall take precedence

Caution:

If any significant damage on the airplane is identified during the walk-around/contamination check and/or damage identified or caused during the de-/anti-icing process, it shall immediately be reported to the flight crew for further investigation and decision for aircraft airworthiness.

12.11 Fluid Selection

Caution:

Acetate or Formate based fluids when used for de-icing:

- May shorten significantly the Holdover Times of Type II, III and IV fluids when used in combination with these fluids.
- May cause corrosion on aircraft materials

Refer to Aircraft Manufacturers documentation and SAE AMS1424/2 for more information.

AMS1424/1 De-icing/Anti-Icing Fluid, Aircraft SAE Type I Glycol (Conventional and Non-Conventional) Based

AMS1424/2 De-icing/Anti-Icing Fluid, Aircraft SAE Type I Non-Glycol Based

AMS1428 Fluid, Aircraft De-icing/Anti-Icing, Non-Newtonian (Pseudoplastic), SAE Types II, III, and IV

AMS1428/1 Fluid, Aircraft De-icing/Anti-Icing, Non-Newtonian (Pseudoplastic), SAE Types II, III, and IV Glycol (Conventional and Non-Conventional) Based

AMS1428/2 Fluid, Aircraft De-icing/Anti-Icing, Non-Newtonian (Pseudoplastic), SAE Types II, III, and IV Non-Glycol Based

Caution:

Fluid should be stored away from UV sunlight and sealed, shelf life should be observed and if expired samples can be taken and sent for re-certification by the fluid manufacturer.

12.11.1 ISO Type I Fluids

Type I Fluid is a mixture of glycol and water, orange in colour. This fluid, always applied hot, primarily serves as a de-icing fluid, relying on heat and shear forces during application to remove ice, snow, or frost from the aircraft.

Type I may be used as an anti-icing fluid during conditions of freezing precipitation in extremely low temperatures, the only fluid option may be Type I fluids, and a one-step procedure is sometimes used despite the associated short Holdover Times. The freezing point of the Type I fluid mixture used for either one-step de-icing/anti-icing or a second step in a two-step operation shall be at least 10° C (18° F) below the outside air temperature.

12.11.2 ISO Type II / III & IV Fluids

Type II, III, and IV fluids used as de-icing / anti-icing agents may have a lower temperature application limit of -23° C (-9° F). The application limit may be lower, provided a 7° C (13° F) buffer is maintained between the freezing point of the neat fluid and OAT.

In no case shall this temperature be lower than the LOUT.

Figure 55 **Fluid Types. The colours of the three most common types (I, II, and IV left to right, respectively) of aircraft de-icing/anti-icing fluids**

12.12 Fluid Management

12.12.1 Laboratory Checks for Fluids

Laboratory checks shall be performed for de-icing / anti-icing fluids at the start of the de-icing season as well as on request by AirTanker. Fluid samples shall be taken from all de-icing / anti-icing vehicle spray nozzles of all vehicles and from all storage tanks in use.

For thickened de-icing/anti-icing fluids take the sample as described in fluid sampling procedure for Type II, Type III, and Type IV fluids samples shall be taken in all concentrations used for anti-icing.

Perform the laboratory check for fluids as follows:

(a) Type I fluid:

1. Perform a visual contamination check.
2. Perform a refractive index check.
3. Perform a pH-value check.

(b) Type II, Type III, and Type IV fluids:

1. Perform a visual contamination check.
2. Perform a refractive index check.
3. Perform a pH-value check.
4. Perform a laboratory viscosity check*.

* Not applicable to samples taken from spray nozzle(s) used for de-icing exclusively.

(c) The Ground Handling Agent/De-Icing Fluid supplier shall keep records of the following:-

1. Fluid delivery checks(with associated batch numbers/certification)
2. Daily vehicle RI checks (when the vehicles are in service)
3. Viscosity checks

12.12.2 Fluid Quality Control Checks

To ensure the necessary safety margins are maintained in the deicing/anti-icing operation, the fluid used to both deice and anti-ice aircraft surfaces shall meet specification and be at the correct concentration. Factors like pumping, storing, heating, and spraying may cause degradation/contamination of deicing/anti-icing fluids. To assure the correct quality of these fluids, follow fluid manufacturer's recommendations and perform the following checks.

NOTE: *Results of all testing shall be recorded.*

12.12.2.1 Fluid Delivery/Acceptance Checks

This check shall be performed for each delivery of aircraft deicing and anti-icing fluids before the first use of the delivered fluid for filling a storage tank or deicing vehicle tank.

12.12.2.2 Delivery Documentation

The delivery shall be accompanied by a Certificate of Analysis or Certificate of Conformance.

(a) For all fluid types, the certificate shall include delivery specifications and test results of the following:

1. Fluid appearance
2. Refraction (Refractive Index)
3. pH

(b) For deliveries of Type II, III, and IV fluids, the certificate shall also include delivery specifications and test results for laboratory viscosity testing.

The documentation and paperwork accompanying the delivery shall be checked to verify the following:

(c) The delivered fluid corresponds to the fluid ordered.

(d) The delivered fluid brand name corresponds to product identification labels or tags for each delivery vessel.

(e) The delivered fluid concentration corresponds to product identification labels or tags for each delivery vessel.

(f) The lot or batch number on delivery documents correlate with other shipping documents provided.

(g) The test results noted on the Certificate of Analysis or Certificate of Conformance meet the applicable fluid manufacturer's specifications.

12.12.2.3 Shipment Seals

Shipment seals shall be checked to ensure:

(a) The product has not been tampered with.

(b) Identification numbers align with those noted on delivery documentation (where applicable).

If seals contain identification numbers, the numbers should be noted on acceptance documentation.

12.12.2.4 Bulk Shipping (e.g. road tankers and rail tankers)

The fluid supplier shall provide an assurance that one of the following has been met prior to loading the bulk shipping container for delivery to the customer:

(a) The shipping container and included delivery hoses were cleaned.

(b) The previous load consisted of fluid identical to the delivered fluid.

12.12.2.5 Fluid Samples

A fluid sample shall be taken from the delivery vessel.

(a) For bulk shipping containers a sample from each separate compartment is required if applicable.

(b) For deliveries of multiple containers (e.g. totes or drums), only one sample from a common production lot or batch is required.

12.12.2.6 Fluid Sample Checks

The following tests may be performed by any appropriate equivalent method.

(a) Appearance.

1. Put fluid from the sample into a clean transparent bottle.

2. Check visually for colour.

3. Check visually for any kind of contamination (e.g., rust particles, debris, rubber, or discoloration, etc).

(b) Refraction

1. Perform a functionality check on the refractometer.

2. Put a fluid drop taken from the sample or from the nozzle onto the test screen of the refractometer and close the cover plate.

3. Read the value (usually expressed as refractive index, degrees Brix or freezing point) and use the correction factor given by the manufacturer of the fluid in case the temperature of the refractometer is not 20 °C (68 °F).

4. Compare the refraction result to the specification limit or in-use limit, as appropriate.

5. Clean the refractometer by wiping with a water-wet cloth, wipe dry and return it into the protective cover.

(c) pH

1. This test may be performed either with pH indicator paper (litmus paper) or with a calibrated or functionally tested pH meter.

Read the value and compare with the limits for the fluid.

NOTE: *In the laboratory, this pH check shall be performed with a calibrated or functionally tested pH metre.*

(d) Field Viscosity Test

1. This test may be performed using the fluid manufacturer's recommended method, like a falling ball or the Stony Brook device. Read the value and compare with the limits for the fluid.

(e) Laboratory Viscosity Test

1. Perform the viscosity test using the fluid manufacturer's method or AS9968. Compare the viscosity values with the applicable limits

12.12.2.7 Nonconformities or Discrepancies

(a) Service providers shall have a documented procedure in place on the appropriate action to be taken when irregularities or discrepancies are identified during the fluid delivery documentation checks and fluid sample checks.

(b) Fluid manufacturers should have information contained within their documentation outlining specific procedures and/or contact information to assist and provide support to service providers in such occurrences.

12.12.3 Field/periodical quality testing of fluids

The quality of fluids (visual check and refractive index check for Type I, II, III and IV) sprayed shall be checked each time the equipment is in use and from each mixture of fluid used. This is to verify that the quality of the fluid, freezing point and mixture are correct.

The refractive index test and the result shall be conducted and compared according to given tables and instructions for each particular fluid. A temperature measurement should be conducted on a periodical basis in realistic conditions, relating to Type I heating requirements, for verification of temperature in the tank (as a comparison vs. nozzle temperature if applicable) and at the nozzle. Note that a heated thickened fluid (+60 °C) shall be used for preventive procedures for frost building up on wing tank areas. This temperature shall also be verified.

A sampling procedure for thickened fluids shall be performed according to a periodical system during the season (ref. quality and sampling procedures). The delivery of fluids to the storage facility also requires a field viscosity check of the fluid to be made, e.g. a so-called "falling ball or flow cup" test (thickened fluid). If there are found any deviations outside the limits of the fluids, a corrective measure shall be taken immediately to correct the fluid, equipment or procedures.

12.13 Procedure

Warning:

Hazards during de-icing/anti-icing. All personnel should be aware of the hazards associated with the use of de-icing fluids.

All de-icing fluids cause some irritation upon contact with the eyes or skin and therefore all de-icing staff shall ensure that they wear the correct PPE issued to them to carry out the de-icing task.

Persons with sensitive skin who may come into direct contact with de-icing fluids may experience some reddening; although the irritation may be described as negligible, chemical manufacturers recommend avoiding skin contact with de-ice fluids. If contact is made wash the skin with warm water and soap. In case of eye contact, wash the eyes immediately.

De-Icing/Anti-icing fluid is a chemical compound which will carry environmental impact. During fluid handling, avoid any unnecessary spillage and comply with local environmental and H&S laws/regulations and any manufacturers' safety sheets.

12.13.1 Preparation

- The decision to de-ice will be made by the Pilot In Command (PIC) who will stipulate which surfaces are to be treated with de-icing / anti-icing fluids.

Caution:

The aircraft shall be configured for de-icing by the PIC / authorised engineer on every occasion prior to the commencement of de-icing / anti-icing activities.

Caution:

GSPs are to gain confirmation that the aircraft is configured by the PIC / authorised engineer immediately before commencing de-icing / anti-icing activities.

A contamination check, including detection of clear ice and under-wing frost should be carried out in order to determine the de-icing requirements.

(a) Aircraft doors, windows and panels shall be closed. Steps and ground handling equipment shall be removed unless the aircraft is operating on a training or Air-to-Air Refuelling (AAR) sortie, when it is acceptable (with the authority of the PIC only) to de/anti-ice whilst steps remain in position and the cabin door is open.

(b) In order to remove large amounts of frozen contamination (e.g. snow, slush or ice), a pre-treatment process may be considered to reduce the quantity of glycol-based de-icing fluid that is needed. This pre-treatment process may be performed with various means; (e.g. brushes, forced air, heat, heated water or heated fluids with negative buffer freezing point). If a pre-treatment process is used, make sure that the subsequent de-icing process using fluid removes all frozen contamination

including the contamination that may have formed on surfaces and / or in cavities due to the pre-treatment process. If the layer of snow on the aircraft is thick, remove most of the snow with soft bristle brooms, taking care not to damage the aircraft skin or sensors etc.

(c) If an aircraft has arrived onto stand with flaps or slats extended after landing or taxiing on a contaminated runway, the flaps or slats should not be retracted until snow, ice or slush has been removed from the flap or slat mechanism or retraction space.

(d) Remove contamination from the radome, landing gear and wheel bay components with a soft bristle broom, hot air source (ensuring the temperature applied is in conjunction with the aircraft manufacturer's recommendations) or de-icing fluid and a lint free cloth. **This activity is only to be carried out by AirTanker engineers or other AirTanker-approved contracted engineers.**

NOTE: *It is normal practice to have the passengers boarded and aircraft ready to depart before the de-icing / anti-icing commences.*

12.13.1.1 Aircraft De-icing Vehicle – Self Propelled

Many vehicles have temperature measurements from the tank but temperature at the nozzle shall also be verified. The vehicle may also be able to provide data for the customer after each de-icing event. Minimum parameters shall be recorded, such as the date, aircraft de-iced/anti-iced, fluid used, any dilutions used, and Holdover Time started.

12.13.2 Fluid Application

Caution:

Aircraft should be treated symmetrically, that is left hand side and right hand side shall receive the same treatment, even when only one side of the aircraft is contaminated.

(a) Wings, tail and control surfaces: Spray from the leading edge to the trailing edge. Do not spray from the rear forwards. Start at the highest point of the surfaces and work to the lowest parts i.e. start at the wingtip and work towards the wing root.

Do not push ice or snow into the openings around the flight control surfaces during the removal procedure.

Caution:

Do not spray from the rear forwards as this can result in a build-up of congealed fluid in the slats and the restriction of movement on aircraft components.

De-icing / anti-icing treatments shall always cover the entire wing and the entire horizontal stabiliser / elevator on **both sides** of the aeroplane.

(b) Fuselage: Spray along the top centre-line and then outboard. Ensure that it is clear of snow, slush or ice. Hoarfrost is permitted to remain on the fuselage if the thickness is such that features e.g. decals, are visible through the frost.

Caution:

Extreme care shall be taken when removing ice and snow from the fuselage area and where there are lights and antennae, or other sensitive areas, otherwise damage can be caused.

(c) Flight deck windscreen and passenger windows: Do not spray thickened fluids (Type II and Type IV) near flight deck or passenger windows. Soft bristled brooms or brushes and or squeegees may be used to remove snow from these areas using suitable access equipment (such as an open basket de-icing vehicle or cherry picker) in consultation with the PIC / AirTanker engineer.

(d) Local wing frost removal/Spot de-icing: For frost limited to small patches on the upper wing surfaces only, and where no precipitation is falling or expected 'local area' de-icing may be carried out. Spray the affected area with a suitable heated fluid/water mix, then spray the same area on the other wing. Both wings shall be treated identically (symmetrical de-icing) even if frost is only present on one wing.

The de-icing company shall check that all frozen deposits have been removed and then report details to the AirTanker Engineer or Pilot In Command and (in designated locations) complete the *AirTanker De-icing Form, AS.OGA.025* or the GSP's equivalent form – example below.

Multiple frost patches may be treated on the wing (one per wing and position symmetrical to the opposite wing).

NOTE: *Holdover times do not apply*

Caution:

Localised treatment is only permissible when de-icing and when both wings are treated identically.

AS.OGA.025
Aircraft De/Anti-Icing Report Form

AirTanker

Date *(dd/mm/yy)*	Aircraft *(reg)*	Flight No.	De-Icing Station	Stand / Position *(e.g. Bay5 / De-icing Bay / Rwy 28)*
	-			

Weather Conditions at station during de-icing		
☐ Frost	☐ Ice	☐ Snow
☐ Freezing Rain	☐ Rain	☐ Falling Snow
☐ Freezing Fog	☐ Fog	☐ Hail

Other:	Outside Air Temp *(°C)*	

Time De-Ice Requested *(hh:mm)*		STD *(hh:mm)*		ATD *(hh:mm)*	

Fluid Manufacturer		Fluid Type	-
Mixture Strength	/	Process Steps	-

Areas Treated *(please tick)*

☐ Full Aircraft	☐ Critical Surfaces *(Wings & Empennage)*	☐ Local Area *(state which below)*	☐ Under Wings/Stabs

Other areas requested:	Fan blades de-iced by: **Fan blades by engineer only*

PORT		STARBOARD	
ADV Asset Number	-	ADV Asset Number	-
Refractometer Reading		Refractometer Reading	
Fluid Temperature *(spray 60-85 °C)*		Fluid Temperature *(spray 60-85 °C)*	
Start of Treatment *Local Time (hh:mm)*		Start of Treatment *Local Time (hh:mm)*	
End of Treatment *Local Time (hh:mm)*		End of Treatment) *Local Time (hh:mm)*	
Quantity Sprayed *(to the nearest litre)*		Quantity Sprayed *(to the nearest litre)*	
Driver Name		Driver Name	
Sprayer Name		Sprayer Name	

**if only one ADV is used for the entire aircraft, both sides of the table above should be completed*

DE/ANTI-ICING DECLARATION *(TO BE COMPLETED BY THE SUPERVISOR)*	
I confirm that the aircraft has been de/anti-iced as above and in accordance with published SAE Global De-Icing Standards and the AirTanker Ground Handling Manual. Critical surfaces have been checked and are free from contamination.	
Supervisor Name	**Signature**

Submit Form to AviationServices

Issue 4.2 Originals are available from Aviation Services – printed copies are not controlled Nov 2021

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- **Wing Flaps:** If the aircraft encounters severe icing conditions during approach, or lands on a runway contaminated with snow, slush or ice, the Captain may decide to leave the flaps extended when arriving on stand.

  The inspection of the flaps in an AirTanker Engineering function. Removal of contamination from the flaps is the responsibility of the de-icing supplier but shall be carried out in conjunction with the PIC / AirTanker engineer. Fluid may be sprayed at very low pressure in order to loosen the deposits. A soft boom/brush can then be used to remove the deposits along with as much of the de-icing fluid as possible.
- **Engines and landing gear:** Engine intakes are listed on the *Aircraft Avoid Areas* (3.29.7 of this manual).

NOTE: *Engine fan blade de-icing and removal of snow and ice from landing gear is an AirTanker Engineering function only. If cabin heaters are used maximum allowable A/C AMM limits should be adhered to.*

- **General:** For maximum effect, fluids should be applied close to the surface of the skin to minimise heat loss. The heat in the fluid effectively melts any frost, as well as light deposits of snow, slush and ice. Heavier accumulations require the heat to break the bond between the frozen deposits and the structure; the hydraulic force of the fluid spray is then used to flush off the residue. The de-icing fluid will prevent re-freezing for a period of time depending on aeroplane skin and ambient temperature, the fluid used, the mixture strength and the weather.

Warning:

Areas of the aircraft of a composite construction (as indicated below) are not to be sprayed above an impact pressure of 1.5psi (0.1034bar).

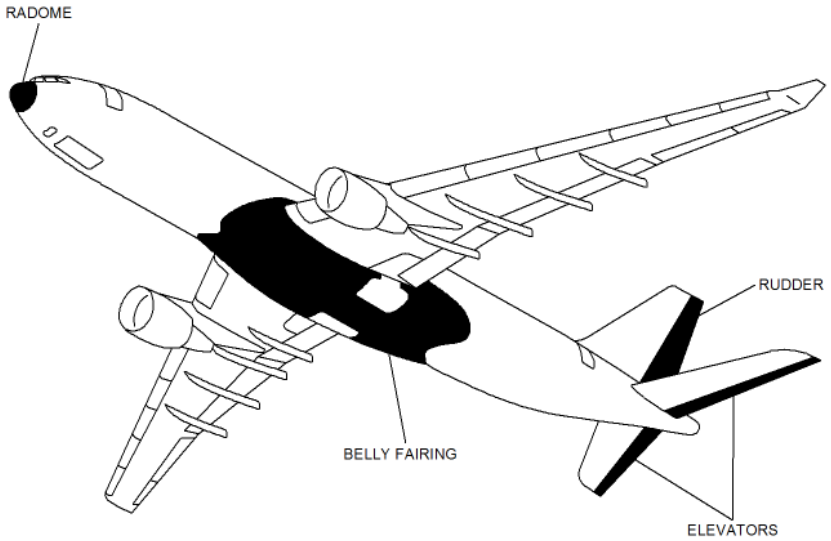


Figure 56 Composite spray areas 1

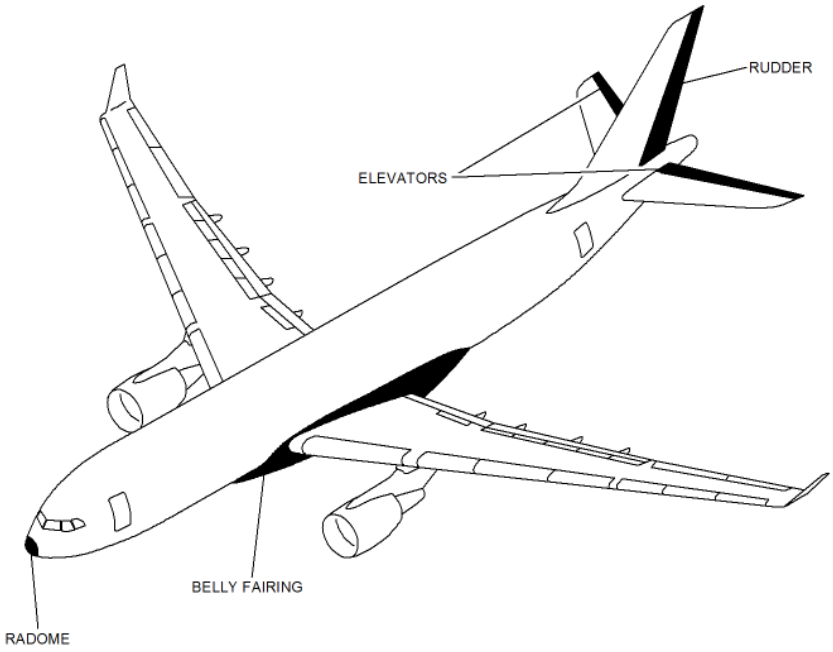
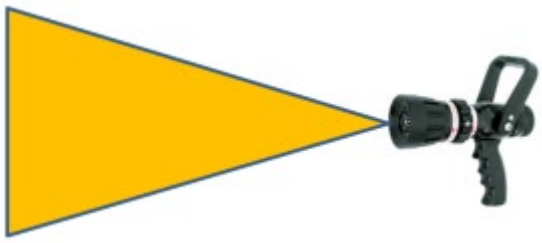


Figure 57 Composite spray areas 2

12.13.3 Spray Patterns

Recommended spray setting for frost: Cone spray setting, sprayed from leading to the trailing edge, highest to lowest point – always symmetrically.



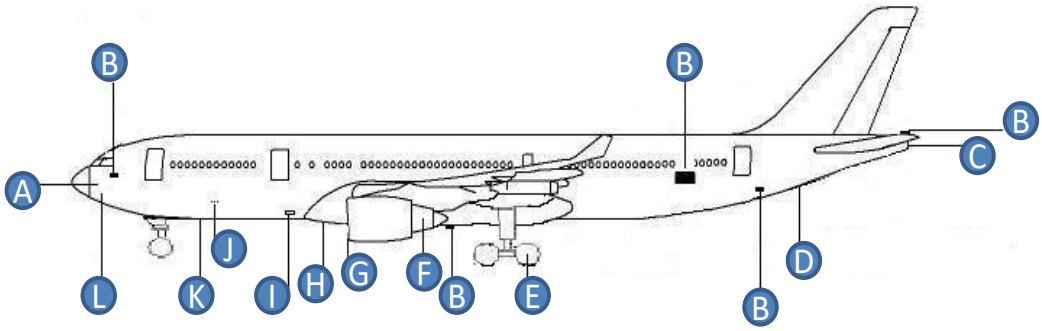
Recommended spray setting for heavy snow: Jet spray setting, sprayed from leading to the trailing edge, highest to lowest point – always symmetrically.

Recommended spray setting for frozen snow: Course jet spray setting, sprayed from leading to the trailing edge, highest to lowest point – always symmetrically.

Recommended spray setting for clear ice: Course jet spray setting, sprayed from leading to the trailing edge, highest to lowest point – always symmetrically.

12.14 Aircraft Avoid Areas

During de-icing / anti-icing operations care shall be taken not to spray the following areas:



A. Pitot Probes, Ice Det Probes, AoA Sensors, Temp Sensors
B. Optional Fit
C. APU Exhaust
D. APU Intake
E. MLG
F. Engine Exhaust
G. Engine Intake
H. Air Conditioning Inlet
I. Outflow Valve
J. Static Ports
K. Avioics Vent
L. Battery Venturi

Figure 58 Aircraft De-icing / Anti-icing Avoid Areas

Caution:

All reasonable precautions shall be taken to minimise fluid entry into engines, APU, other intakes/outlets and control surface cavities.
De-icing/anti-icing fluid shall not be directed into engine inlets or directly onto engine probes/sensors.

Air conditioning and/or APU air shall be selected OFF, or as recommended by the airframe and engine manufacturer.

DE/ANTI-ICING FLUIDS SHALL NOT BE DIRECTLY SPRAYED ON TO:

Figure 59 APU air intake and exhaust

Figure 60 Engine cowls, air intakes and exhausts

DE/ANTI-ICING FLUIDS SHALL NOT BE DIRECTLY SPRAYED ON TO:

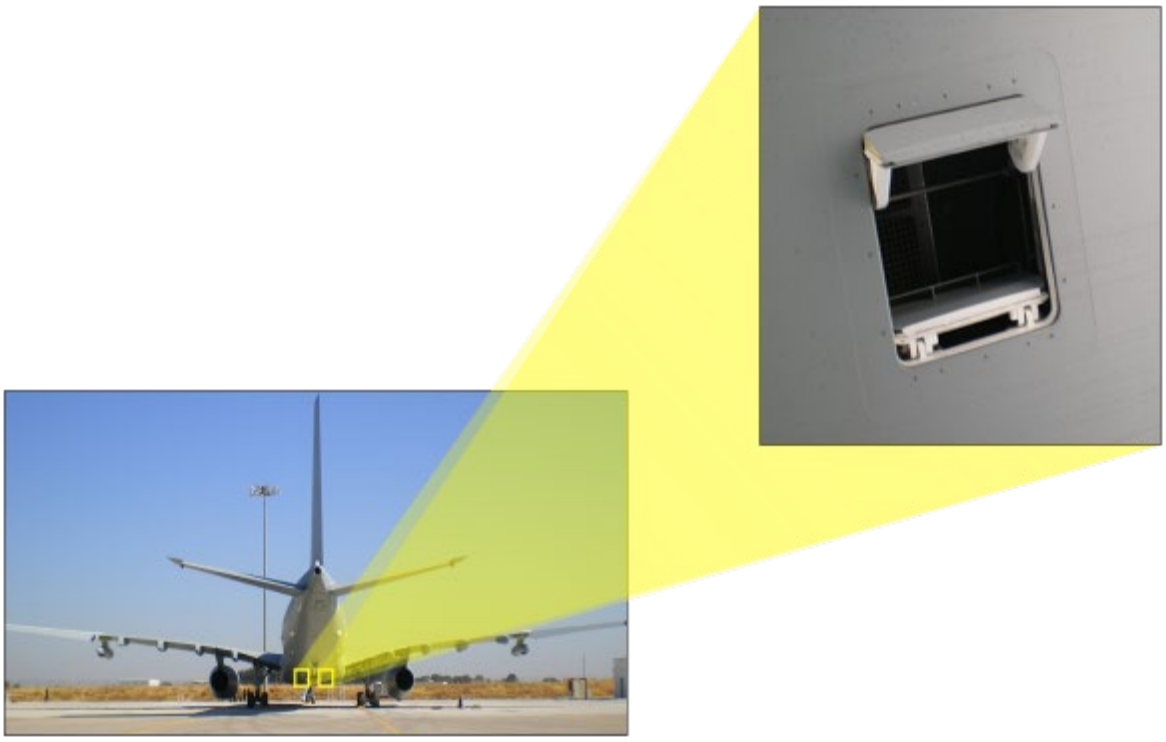


Figure 61 Outlets of fwd and aft outflow valve

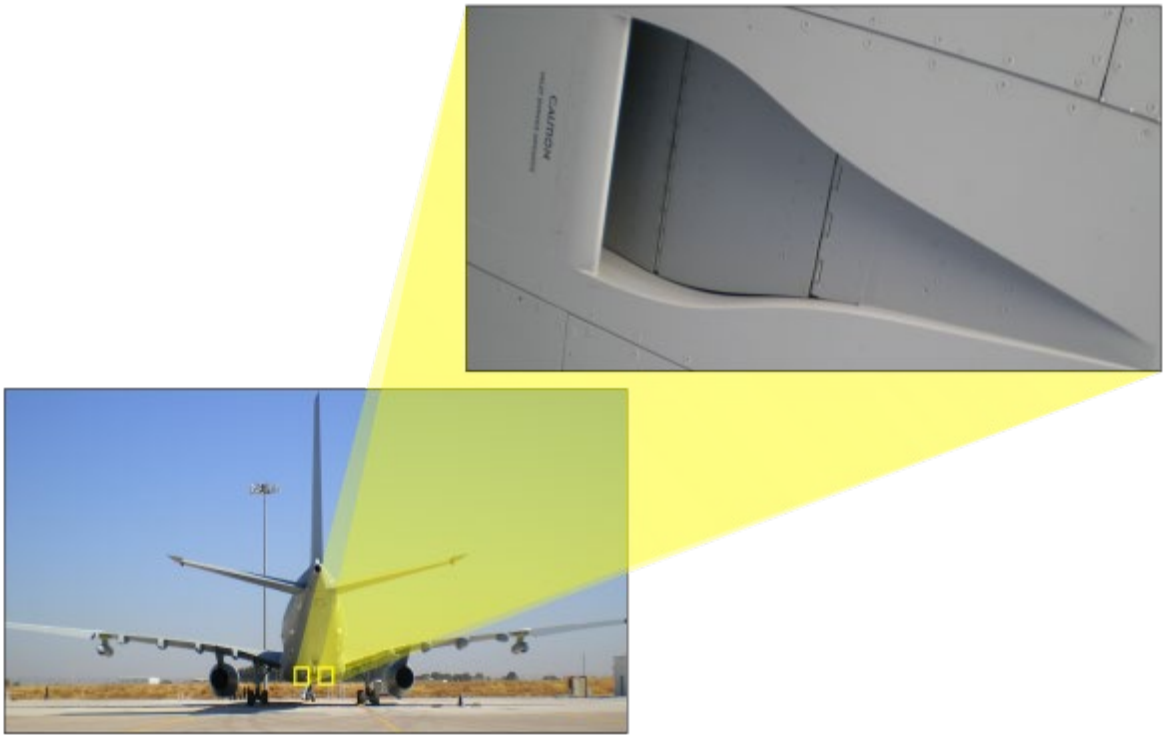


Figure 62 Outlets and inlets of the air conditioning system

DE/ANTI-ICING FLUIDS SHALL NOT BE DIRECTLY SPRAYED ON TO:

Figure 63 Landing gear, doors, brake system and wheels

Figure 64 Pitot probes

DE/ANTI-ICING FLUIDS SHALL NOT BE DIRECTLY SPRAYED ON TO:

Figure 65 Static vents / probes

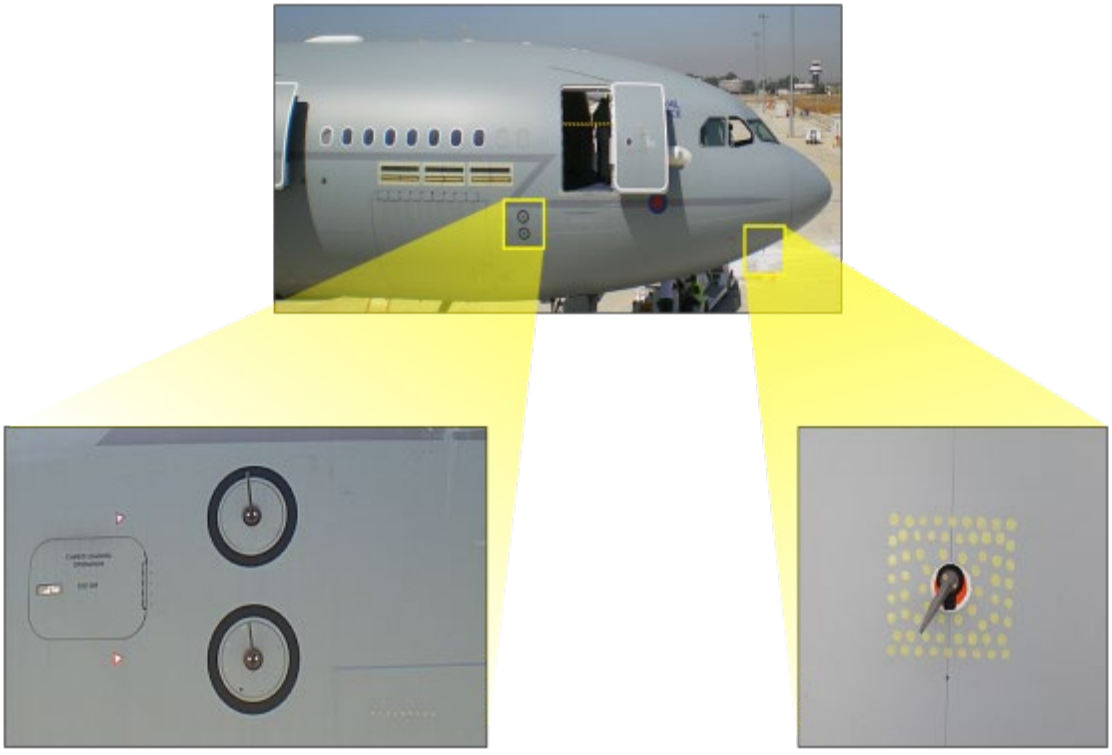


Figure 66 Angle of attack (AOA) sensors

DE/ANTI-ICING FLUIDS SHALL NOT BE DIRECTLY SPRAYED ON TO:

Figure 67 Temperature sensor

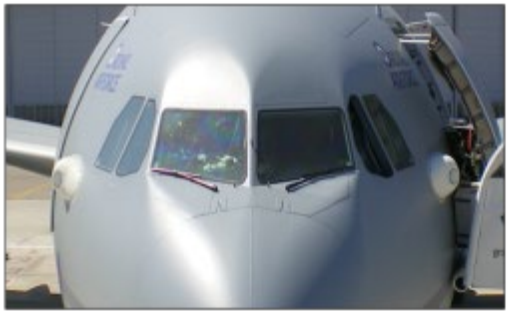


Figure 68 Cabin windows and window seals

DE/ANTI-ICING FLUIDS SHALL NOT BE DIRECTLY SPRAYED ON TO:

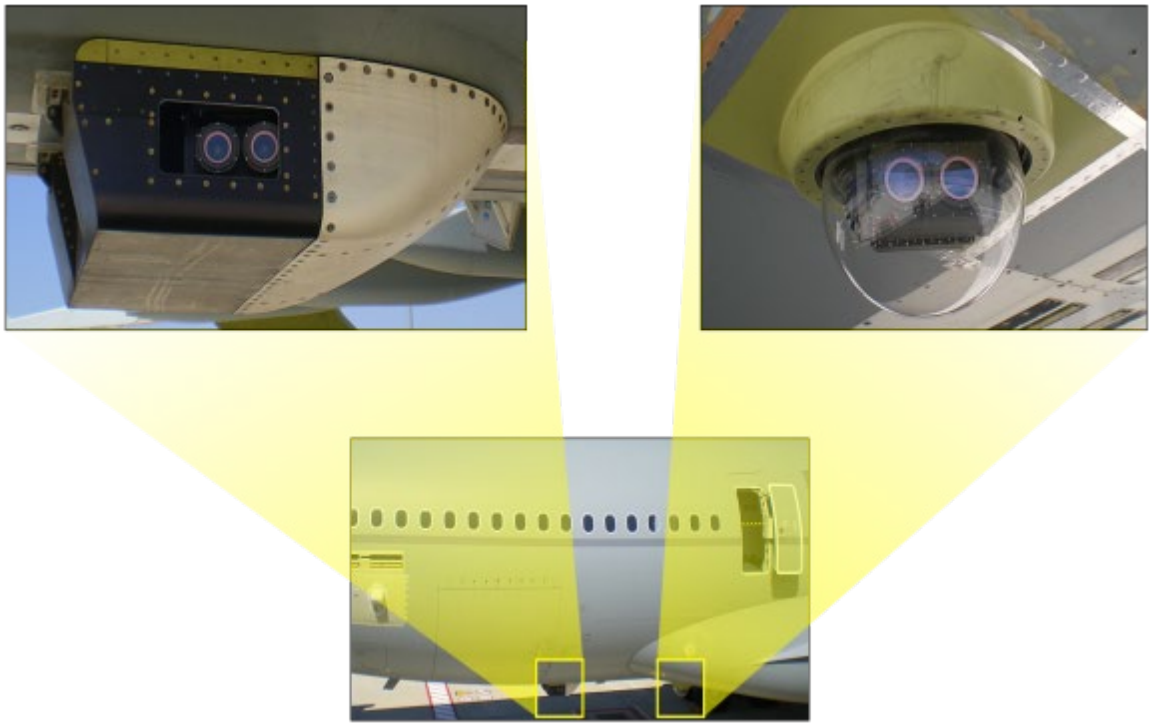


Figure 69 Optional fit

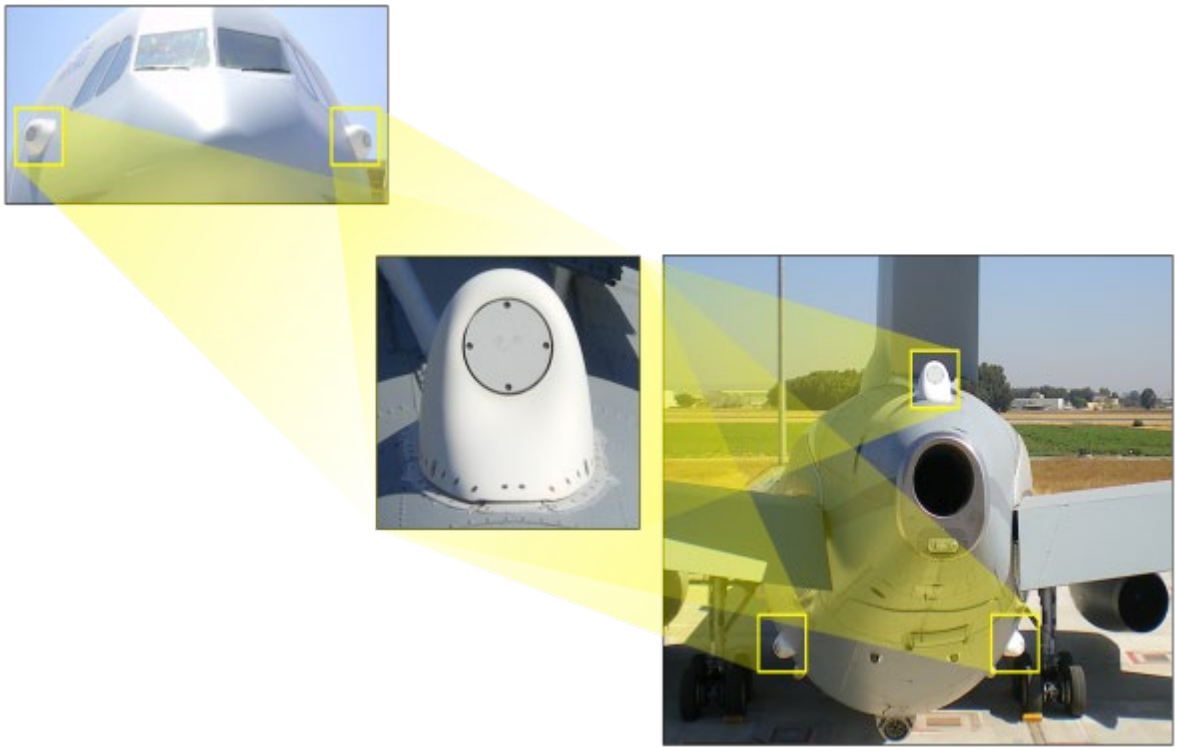


Figure 70 Optional fit

DE/ANTI-ICING FLUIDS SHALL NOT BE DIRECTLY SPRAYED ON TO:

Figure 71 Optional fit

Figure 72 Optional fit

12.15 Holdover time

Holdover time is obtained by anti-icing fluids remaining on the aeroplane surfaces.

With a one-step de-icing/anti-icing the holdover time begins at the start of the treatment and with a two-step de-icing/anti-icing at the start of the second step (anti-icing)

Holdover time will have effectively run out when frozen deposits start to form/accumulate on treated aeroplane surfaces.

Due to their properties, Type I fluids form a thin liquid wetting film, which provides limited holdover time, especially in conditions of freezing precipitation. With this type of fluid no additional holdover time would be provided by increasing the concentration of the fluid in the fluid/water mixture.

Type II, III, and IV fluids contain a pseudo plastic thickening agent, which enables the fluid to form a thicker liquid wetting film on external aeroplane surfaces. This film provides a longer holdover time especially in conditions of freezing precipitation.

With this type of fluid additional holdover time will be provided by increasing the concentration of the fluid in the fluid/water mixture, with maximum holdover time available from undiluted fluid.

The following tables give an indication as to the time frame of protection that could reasonably be expected under conditions of precipitation. However, due to the many variables that can influence holdover time, these times should not be considered as minimums or maximums as the actual time of protection may be extended or reduced, depending upon the particular conditions existing at the time.

The lower limit of the published time span is used to indicate the estimated time of protection during moderate precipitation and the upper limit indicates the estimated time of protection during light precipitation

The responsibility for the application of these data remains with the user.

Caution:

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 also be reduced when aeroplane skin temperature is lower than OAT. Therefore, the indicated times should be used only in conjunction with a pre-take off check.

Caution:

Surface coatings are currently available that may be identified as ice phobic or hydro phobic, enhance the appearance of aeroplane external surfaces and/or lead to fuel savings.
Since these coatings may affect the fluid wetting capability and the resulting fluid thickness of de-icing/anti-icing fluids they have the potential to affect holdover time and aerodynamics. For more information see SAE AIR 6232 and consult the aircraft manufacturers.

NOTE: *Certain fluids may be qualified according to fluid specifications but may not have been tested during winter to develop the holdover time guidelines specified in this document. Holdover time guidelines in this document are not applicable to these fluids.*

NOTE: *For use of holdover time guidelines consult fluid manufacturer's technical literature for minimum viscosity limits of fluids as applied to aeroplane surfaces.*

NOTE: *A degraded Type II, Type III, or Type IV fluid may be used, provided the holdover time guidelines for Type I fluids (Table 14 or Table 15 as applicable) are used. A Type II, Type III, or Type IV fluid is considered to be degraded if the viscosity is below the minimum limit as provided by the fluid manufacturer. The Type II fluid holdover time guideline (**Error! Reference source not found.**) may be used with degraded Type IV fluids only after substantiation by holdover time testing.*

NOTE: *Holdover time guidelines can also be obtained for individual fluid products and these "brand name" holdover times will be found to differ from the tables published here. AirTanker Operations Manual Part A, refers to the FAA documentation, particularly for the application of the 'light' and 'very light snow' columns.*

NOTE: *Holdover time determination systems (HOTDS) are available to determine holdover times based on liquid water equivalent (LWE) and OAT.*

Fluid Application Tables

Outside Air Temperature (OAT)[1]	One-Step Procedure De/Anti-Icing	Two-Step Procedure	
		First Step: Deicing	Second Step: Anti-Icing[2]
0 °C (32 °F) and above	Heated mix of fluid and water with a freezing point of at least 10 °C (18 °F) below OAT	Heated water or a heated fluid/water mixture	Heated mix of fluid and water with a freezing point of at least 10 °C (18 °F) below OAT
Below 0 °C (32 °F) to LOUT		Heated fluid/water mixture with a freezing point at OAT or below	

NOTES:
[1] Fluids must not be used at temperatures below their lowest operational use temperature (LOUT).
[2] To be applied before first step fluid freezes, typically within 3 minutes. (This time may be higher than 3 minutes in some conditions, but potentially lower in heavy precipitation, colder temperatures, or for critical surfaces constructed of composite materials. If necessary, the second step shall be applied area by area.)

CAUTIONS:
- This table is applicable for the use of Type I holdover time guidelines in all conditions, including active frost. If holdover times are not required, a temperature of 60 °C (140 °F) at the nozzle is desirable.
- If holdover times are required, the temperature of water or fluid/water mixtures shall be at least 60 °C (140 °F) at the nozzle. Upper temperature limit shall not exceed fluid and aircraft manufacturers' recommendations.
- To use Type I holdover times guidelines in all conditions including active frost, an additional minimum of 1 L/m^2 (~2 gallons/100 ft^2) of heated Type I fluid mixture must be applied to the surfaces after all frozen contamination is removed. This application is necessary to heat the surfaces, as heat contributes significantly to the Type I fluid holdover times. The required protection can be provided using a one-step method by applying more fluid than is strictly needed to just remove all of the frozen contamination (the same additional amount stated above is required).
- The lowest operational use temperature (LOUT) for a given Type I fluid is the higher (warmer) of:
  a. The lowest temperature at which the fluid meets the aerodynamic acceptance test (according to AS5900) for a given aircraft type; or
  b. The actual freezing point of the fluid plus its freezing point buffer of 10 °C (18 °F).
- Wing skin temperatures may differ and, in some cases, may be lower than the OAT. A stronger mix (more glycol) may be needed under these conditions.

Table 14. Guidelines for the application of Type I fluid

Outside Air Temperature (OAT)[1]	One-Step Procedure De/Anti-Icing	Two-Step Procedure	
		First Step: Deicing	Second Step: Anti-Icing[2]
0 °C (32 °F) and above	100/0, 75/25, or 50/50 Heated[3] Type II or IV fluid/water mixture	Heated water or a heated Types I, II, III, or IV fluid/water mixture	100/0, 75/25, or 50/50 Heated or unheated Type II or IV fluid/water mixture
Below 0 °C (32 °F) to -3 °C (27 °F)	100/0, 75/25, or 50/50 Heated[3] Type II or IV fluid/water mixture	Heated Types I, II, III, or IV fluid/water mixture with a freezing point at OAT or below	100/0, 75/25, or 50/50 Heated or unheated Type II or IV fluid/water mixture
Below -3 °C (27 °F) to -14 °C (7 °F)	100/0 or 75/25 Heated[3] Type II or IV fluid/water mixture	Heated Types I, II, III, or IV fluid/water mixture with a freezing point at OAT or below	100/0 or 75/25 Heated or unheated Type II or IV fluid/water mixture
Below -14 °C (7 °F) to LOUT	100/0 Heated[3] Type II or IV fluid/water mixture	Heated Types I, II, III, or IV fluid/water mixture with a freezing point at OAT or below	100/0 Heated or unheated Type II or IV fluid/water mixture

NOTES:

[1] One-step or two-step fluids must not be used at temperatures below their lowest operational use temperature (LOUT). First-step fluids must not be used below their freezing points. Consideration should be given to the use of Type I/III fluid when Type II/IV fluid cannot be used due to LOUT limitations. The LOUT for a given Type II/IV fluid is the higher (warmer) of:

a. The lowest temperature at which the fluid meets the aerodynamic acceptance test (according to AS5900) for a given aircraft type; or

b. The actual freezing point of the fluid plus its freezing point buffer of 7 °C (13 °F).

Although some LOUTs are lower than the temperatures stated in the HOT table, holdover times do not apply when anti-icing below the lowest temperature stated in the band.

[2] To be applied before first step fluid freezes, typically within 3 minutes. (This time may be longer than 3 minutes in some conditions, but potentially shorter in heavy precipitation, in colder temperatures, or for critical surfaces constructed of composite materials. If necessary, the second step shall be applied area by area.)

[3] Clean aircraft may be anti-iced with unheated fluid.

CAUTIONS:

- For heated fluids, a fluid temperature not less than 60 °C (140 °F) at the nozzle is desirable.
- Upper temperature limit shall not exceed fluid and aircraft manufacturers' recommendations.
- Wing skin temperatures may differ and, in some cases, may be lower than the OAT. A stronger mix (more glycol) may be needed under these conditions.
- Whenever frost or ice occurs on the lower surface of the wing in the area of the fuel tank, indicating a cold-soaked wing, the 50/50 dilutions of Types II or IV shall not be used for the anti-icing step because fluid freezing may occur.
- An insufficient amount of anti-icing fluid may cause a substantial loss of holdover time. This is particularly true when using a Type I.
- Fluid mixture for the first step in a two-step procedure.

Table 15. Guidelines for the application of Types II and IV fluids (fluid concentrations in % volume)

Aeroplane de-icing methods with infrared technology

Refer to SAE AS6285 (current version) for cautions and minimum requirements to be considered for this method.

Aeroplane de-icing methods with forced air

Refer to AIR 6284 (current version) for cautions and minimum requirements to be considered for this method.

12.16 Post Treatment Checks

On completion of de-icing or anti-icing, ground crew shall give the all clear to the PIC that de-icing has finished. A pre-flight external inspection of the critical surfaces shall be carried out by a flight crewmember or qualified and trained person to determine if they are free of contamination and confirm the area around the aircraft is clear before aircraft movement and report this to the PIC. See below.

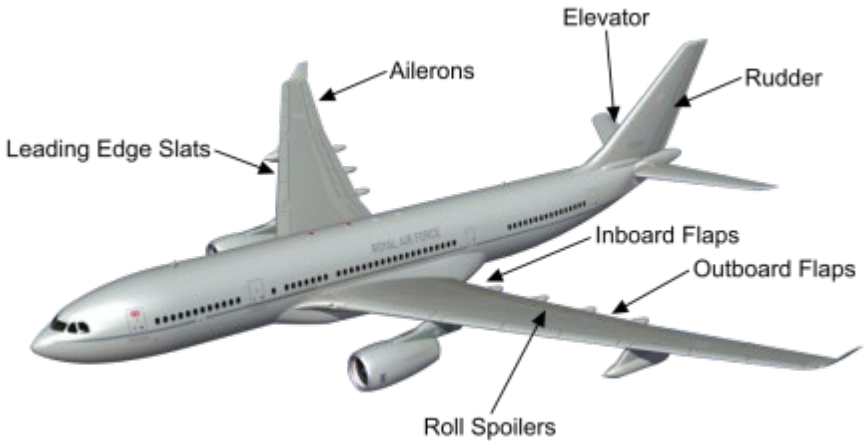


Figure 73 Post treatment checks

12.16.1 Post De-/anti-icing Check

A verification of clean surfaces (regarding contamination) shall always be made after the de-icing /anti-icing. This check shall cover wings, horizontal stabiliser, vertical stabiliser, fuselage, and all other parts of the aeroplane on which the de-icing/anti-icing treatment was performed, according to the requirements identified during the contamination check.
This verification can be either visual or tactile.

The post de-icing check shall include a check of the following areas:

(a) Wings, Tail and Control Surfaces: Wings, tail and control surfaces shall be free of ice, snow, slush, and frost except that a coating of frost may be present on wing lower surfaces in areas cold soaked by fuel between forward and aft spars in accordance with the aeroplane manufacturer's published manuals. On the underside of the wing tank area, a maximum layer of 3mm (1/8 in) of frost will not penalise take off performance (FCOM PRO-SUP-91-30).

(b) Pitot Heads and Static Ports: Pitot heads and static ports shall be clear of ice, frost, snow and fluid residues.

(c) Engine Inlets: Engine inlets, exhaust nozzles, cooling intakes, control system probes and ports shall be clear of ice and snow. Engine fan blades shall be clear of ice, frost and snow, and shall be free to rotate.

(d) Air Conditioning Inlets and Exits: Air conditioning inlets and exits shall be clear of ice, frost and snow. Outflow valves shall be clear and unobstructed.

(e) Landing Gear and Landing Gear Doors: Landing gear and landing gear doors shall be unobstructed and clear of ice, frost and snow.

(f) Fuel Tank Vents: Fuel tank vents shall be clear of ice, frost and snow.

(g) Fuselage: Fuselage shall be clear of snow, slush or ice. Frost may be present in accordance with the aeroplane manufacturer's manuals.

(h) Nose/Radome Area and Flight Deck Windows: Any significant deposits of snow, slush, or ice on the windscreens or on areas forward of the windscreens shall be removed prior to departure. Heated flight deck windows will not normally require de-icing.

(i) Flight Control Check: A functional flight control check using an external observer is required after de-icing/anti-icing. This is particularly important in the case of an aeroplane that has been subjected to an extreme ice or snow covering.

(j) Tactile test: It may be necessary to complete a tactile test, to ensure any build-up of clear ice below layers of snow or slush has been removed. Make sure all contamination is removed from required aircraft critical surfaces after completion of de-icing/anti-icing procedures.

Warning:

Do not use hard or sharp tools to remove the ice from the aeroplane surfaces.

Caution:

Note that any visual check may not be sufficient in certain situations (like clear ice). A tactile check (hands-on) is the best choice whenever there is a doubt.

If the aeroplane requires a tactile check to verify the surface is clean, these inspections should be made both before and after de-icing/anti-icing. Note that a trained and qualified person shall not dispatch an aeroplane after a de-icing/anti-icing operation until the aeroplane has received a final check. If the check is not to be performed by the flight crew then the commander shall ensure that he has received confirmation that it has been accomplished before take-off. Inspections should visually cover all critical parts of the aeroplane and be performed from points offering sufficient visibility of these parts (e.g. from the de-icer itself or another elevated piece of equipment). Any contamination found, shall be removed by further de-icing/anti-icing treatment and the check repeated.
If a pre-de-icing /anti-icing procedure or a local frost prevention procedure has been performed a tactile check of the treated areas and a visual check of the untreated areas of both wings shall be performed immediately before the aeroplane leaves the parking position. These checks are conducted to insure that both wings are clean and free of frost and ice . The applied de-icing/anti-icing fluid shall still be liquid and shall show no indication of failure, such as colour turning to white, loss of gloss, getting viscous, showing ice crystals etc.

NOTE: *The Anti-Icing Code shall not be transmitted before the post de-icing/anti-icing check is completed.*

Where the de-icing provider is carrying out the de-icing/anti-icing process and also the Post De-icing/Anti-icing Check, it may either be performed as a separate check or incorporated into the de-icing/anti-icing operation.

The de-icing provider shall specify the actual method adopted, in his winter procedures:

(k) As the de-icing/anti-icing operation progresses the De-icing Operator will closely monitor the surfaces receiving treatment, in order to ensure that all forms of frost, ice, slush or snow are removed and that, on completion of the treatment, these surfaces are fully covered with an adequate layer of anti-icing fluid.

(l) Once the operation has been completed, the De-icing Operator will carry out a close visual check of the surface where treatment commenced, in order to ensure it has remained free of contamination (this procedure not required under 'frost only' conditions).

(m) Where the request for de-icing/anti-icing did not specify the fuselage, it shall also receive a visual check at this time, in order to confirm that it has remained free of contamination

(n) Any evidence of contamination that is outside the defined limits shall be reported to the Commander immediately.

12.16.2 Pre Take off Check

After the proper inspections, de-icing and anti-icing procedures and verifications, the aeroplane is ready to taxi. The Commander shall continually monitor the weather situation after the de-icing/anti-icing treatment has been carried out. There can, however, be delays before take-off and the fluid may be contaminated during precipitation. In this case a pre-take off check should be performed. The commander shall assess, prior to take off, whether the applied holdover time is still appropriate and/or if untreated surfaces may have become contaminated. This check is normally performed from inside the flight deck as a visual check. If the visual check is insufficient a pre-take off contamination check should be performed. This check shall be performed when a pre-take off check or when the applied holdover time has been exceeded cannot effectively assess the condition of the critical surfaces of the aeroplane. This check is normally performed from outside the aeroplane. The alternate means of compliance to a pre-take off contamination check is a complete de-icing/anti-icing re-treatment of the aeroplane.

12.16.3 Clear Ice Checks (Tactile Checks) and Precautions

Clear Ice Check (Tactile Check) required prior to de-icing and may be required as part of post de-icing Check.

Clear ice can form on aeroplane surfaces, below a layer of snow or slush/sleet. It is therefore important that surfaces are closely examined following each de-icing operation, in order to ensure that all deposits have been removed. Significant deposits of clear ice can form, in the vicinity of the fuel tanks, on wing upper surfaces as well as under-wing. **This type of ice formation is extremely difficult to detect,** therefore when the conditions prevail, or when there is otherwise any doubt whether clear ice has formed, a close examination shall be made immediately prior to departure, in order to ensure that all frozen deposits have in fact been removed. Note that this type of build-up normally occurs at low wing temperatures and when large quantities of cold fuel remain in wing tanks during the turnaround/transit and any subsequent re-fuelling is insufficient to cause a significant increase in fuel temperature. This does not rule out the possibility of ice formation in any other conditions. Finding clear ice, and removing it, should always be noted to the flight deck crew/PIC. Frost on the lower side of the wing and humidity (or precipitation) is a good sign that there may be clear ice forming on the upper surfaces, but note that this is not the single way to determine ice formation.

12.17 De-icing/anti-icing communication

Proper communication is as important as proper de-icing /anti-icing. There cannot be any doubt of the procedure, fluid used, holdover time, areas covered etc. when communicating and verifying the process. As a rule, an aeroplane shall not be dispatched for departure after a de-icing/anti-icing operation until the flight crew has been notified of the type of de-icing/anti-icing operation performed. The standardised notification performed by qualified personnel indicates that the aeroplane critical parts checked are free of ice, frost, snow, and slush, and in addition includes the necessary anti-icing code, as specified, to allow the flight crew to estimate the holdover time to be expected under the prevailing weather conditions. The person communicating with the flight crew shall have a basic

knowledge of the English language in order to communicate properly. As important as the communication between the flight crew and the de-icing crew so is the communication between the de-icing crews themselves and the de-icing coordinator.

Caution:

If several de-icing vehicles are performing the de-icing/anti-icing simultaneously on an aeroplane, a lead vehicle/person should be decided/nominated. This team leader will be the person communicating with the aeroplane and the vehicles at the aeroplane. The procedures and the areas to be treated are divided and settled according to the team leader's instructions.

This procedure will increase the safety of proper communication and operations. The team leader will give instructions on fluids and mixtures to use, areas to be treated and by whom etc. After the procedure is done, all vehicles report to the team leader their particular information. The team leader will conclude which area was treated first with anti-icing fluid and report this time to the flight crew along with the rest of the required information (anti-icing code).

At the time of final report, all vehicles shall be in a safety area or in a position well clear of the aircraft. Communication between the PIC and the de-icing crew will usually be achieved using a combination of printed forms and verbal communication. For treatments carried out after aeroplane doors are closed, use of flight interphone (headset) or VHF radio will usually be required. Electronic message boards may also be used in 'off stand' situations.

Caution:

Use of hand signals is not recommended except for the final 'all clear' signal.

When a treatment is interrupted for a significant period of time (e.g. truck runs out of fluid) the flight crew shall be informed stating the reason, the action to be taken and the estimated time delay. When continuing the treatment, the previously treated surfaces shall be fully de-iced and anti-iced again, when the holdover time of the treatment from before the interruption is not sufficient.

12.17.1 Releasing/Dispatching aeroplane and final walk-round

The person releasing/dispatching the aeroplane immediately before taxi and take off shall verify to the flight crew all relevant information regarding the de-icing /anti-icing and/or clean surfaces. This person can also verify the de-icing/anti-icing process and communicate on any relevant issues. A final check shall be made when making the final walk-round (or verification of de-icing/anti-icing) before pushback or before taxi.

This final inspection should also include a visual check of:

(a) Pitot heads, static ports, airstream direction detector probes, and angle of attack sensors which shall be clear of frost, snow, slush, ice, fluid residues, and protective covers,

(b) engine inlets (fan blades)

NOTE: *Engines: The suction, exhaust blast and propeller wash areas will move due to the effect of local wind speed and direction at the de-icing location, so continuous vigilance will be required in gusting conditions.*

Caution:

If the aircraft has been static on the ground for a period of time during which snow conditions have been considerable, deposits of contamination may appear ebneath hidden surfaces of the wing. If in any doubt, the operatives are to request full lowering of the flaps in order to confirm all surfaces are free from contamination.

Figure 74 Example of contamination on hidden surface, post-de-ice

Warning:

If any significant damage on the aeroplane is identified during the walk-round/contamination check and/or damage identified or caused during the de-/anti-icing process, it shall immediately be reported to the flight crew for further investigation and decision for aircraft airworthiness.

The release person can perform the de-icing/anti-icing code and other information if the de-icing crew is unable to communicate with the flight deck crew to pass the Anti-icing Code.

12.17.2 Anti-icing Codes

The following information shall be recorded and be communicated to the Commander by referring to the last step of the procedure and in the sequence provided below:

(a) The fluid Type; i.e. Type I, II, III, IV.

(b) The concentration of fluid within the fluid/water mixture, expressed as a percentage by volume.

NOTE: *No requirement for Type I fluid.*

(c) The local time (hours:minutes), either - for a one-step de-icing/anti-icing: at the start of the treatment or - for a two-step de-icing/anti-icing: at the start of the second step (anti-icing).

(d) The date (written: day, month, year).

NOTE: *Required for record keeping, optional for Commander notification.*

(e) The complete name of the anti-icing fluid (so called “brand name”).

NOTE: *for Type III fluids only, optional for Type II and IV fluids.*

(f) The statement "Post de-icing/anti-icing check completed”

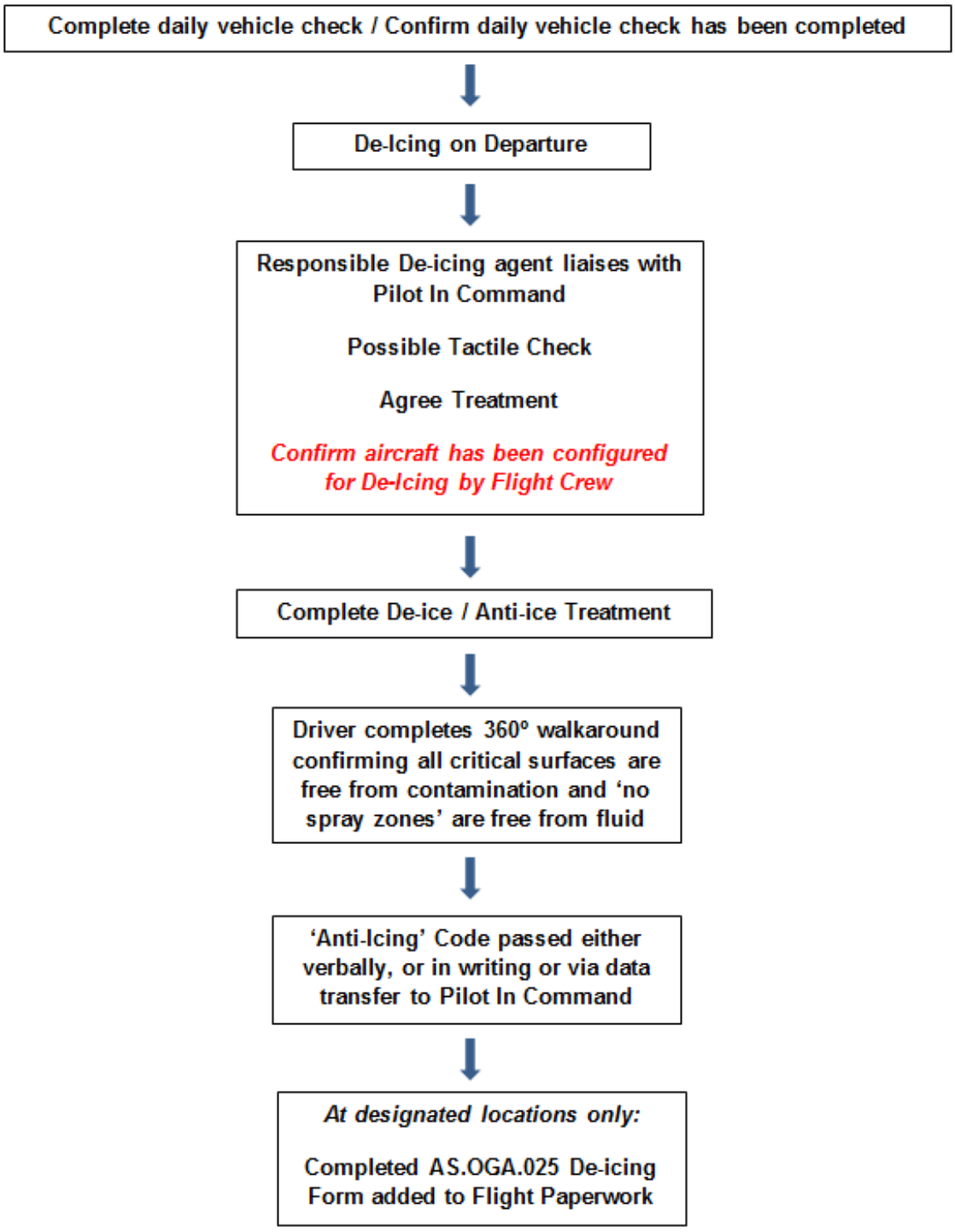
EXAMPLE

A de-icing/anti-icing procedure whose last step is the use of a mixture of 75% of a Type II fluid and 25% water, commencing at 13:35 local time on 3 March 2017, is reported and recorded as follows

“TYPE II / Manufacturer, Brand X, 75%, 13:35 (03/MAR/2021), Post de-icing/anti-icing check completed".

NOTE: *The flight crew shall also be notified of any de-icing/anti-icing procedures that apply in special circumstances (e.g. at night) or if preventive anti-icing has been performed. Preventive anti-icing does not rule out the need for any check or the need for additional treatment. This decision lies with the Pilot in Command. The following information shall be provided to the flight crew for a preventive anti-icing procedure: “Local frost prevention was accomplished.” The normal anti-icing code shall be provided for preventive anti-icing treatment. Additional information should also be provided, such as if there have been any significant weather elements since the de-icing operation was performed and before the arrival of the flight crew. Other additional information might identify areas that were not treated but may need an additional check before departure. The information shall be provided either by direct communication or by in written form. All events shall be recorded so that further information can be provided if necessary.*

12.18 Sample Guide for De-icing Procedure



12.19 Cold Weather Precautions

12.19.1 Ground Equipment

In cold weather, it is the responsibility of the Ground Handling agent to ensure that the ramp and all equipment used in the turnaround of AirTanker aircraft is free from snow and ice.

On occasion, ULDs may be frozen on arrival; warm air should be used to free locks, straps and nets. Under no circumstances should hot water be used to de-ice ULDs.

Aircraft passenger steps shall be cleared of all snow and ice prior to use. Under no circumstances should steps be used for passengers or ground service personnel if the steps are slippery or in a dangerous condition.

Self-help equipment, for example shovels, brooms, grit or de-icing crystal spreaders should be made available by the airport authority and positioned on aircraft stands to allow personnel to make work areas safe, free from snow and ice and to assist the airport authority in maintaining a safe working environment.

12.19.2 Water Systems

If an aircraft is to remain parked without cabin heating in freezing conditions in excess of one hour it may be necessary to drain water systems completely. Guidance shall be taken from the PIC or the ground engineer.

12.19.3 Toilet Systems

When freezing conditions prevail, should an aircraft be on the ground for more than 4 hours each toilet system shall be drained. Guidance shall be taken from the PIC or the ground engineer.

Appendix 1. Ground Handling Occurrence Report

AS.6508
Ground Handling Occurrence Report

AirTanker

General			
Organisation/Company		Date of Incident	
Location		Time of Incident (UTC)	
Flight Number		Aircraft Registration	
Ground phase: Arrival / Disembarkation / Unloading / Loading / Embarkation / Pushback / Tow			
Significant Weather: Rain / Snow / Hail / Ice / Fog / Windy Severe		Conditions: Light / Moderate /	

Dangerous Goods Information (if applicable)					
Description of the goods					
Air Waybill Number		Baggage Tag Number			
Proper shipping name (Including the technical name, if appropriate)					
UN/ID Number		Class or division and any Subsidiary risk.		Quantity of dangerous goods	
Type of packaging, and the packaging specification marking on it					
Name and address of the shipper, passenger, etc.					

Accident/Incident/Occurrence
Description of Event. *Please include all relevant details, suspected cause of accident or incident (if known), action(s) taken and details of any other reporting action(s) taken.*

Reporters Name	Reporters Email	Date	

Filing instructions: email to safety@uk.airtanker.co.uk

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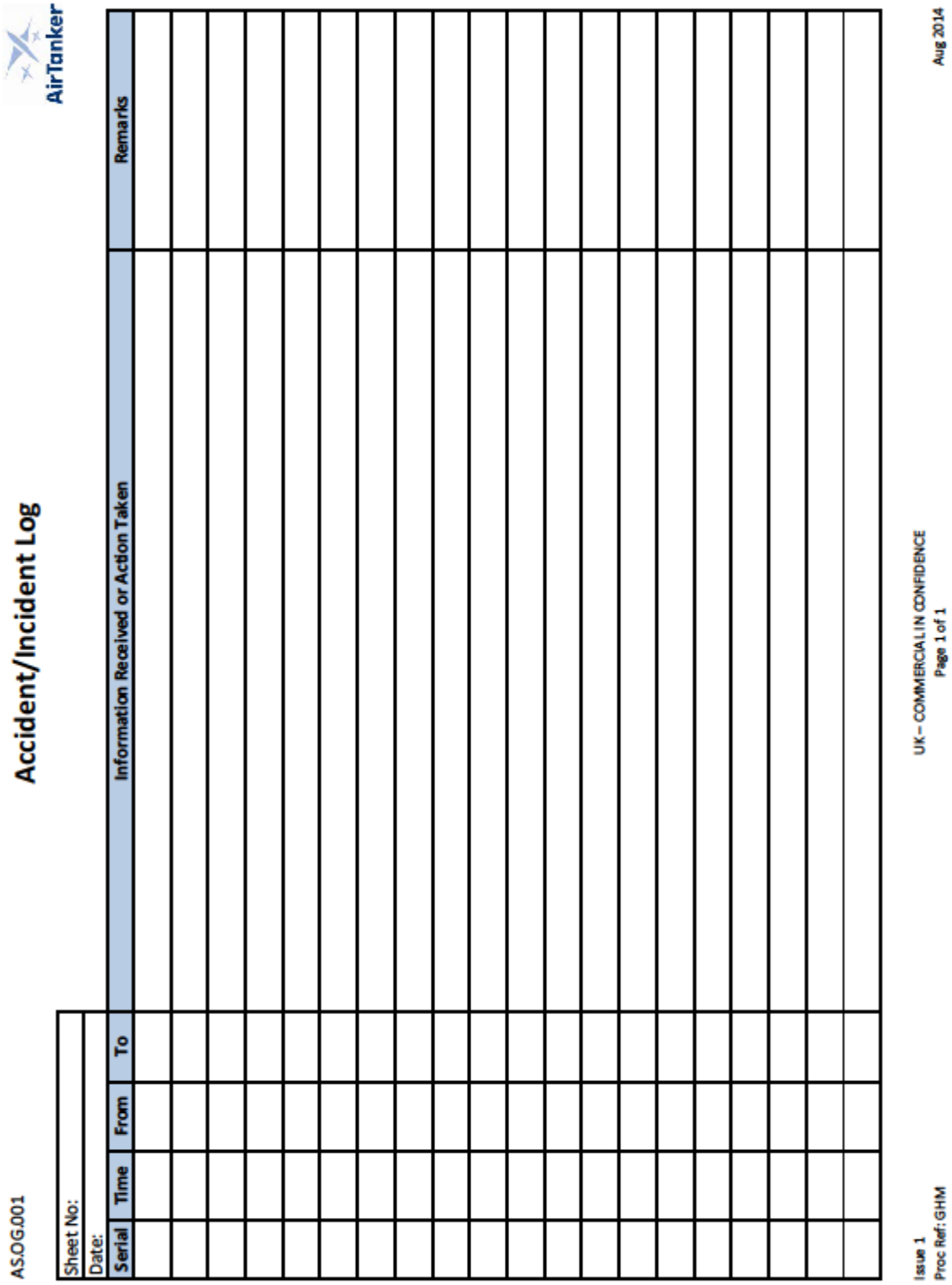
Appendix 2. Accident/Incident Log



AirTanker

Accident/Incident Log

Sheet No:
Date:

Serial	Time	From	To	Information Received or Action Taken	Remarks

AS.OG.001

Aug 2014

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Appendix 3. Handling Agent's Immediate Action Check List

AS.OE.307

Handling Agent's Immediate Action Check List

AirTanker

	Immediate Action by the Handling Company	Actioned Signature	Time and Date
1	Notify Voyager Operations Control Centre (OCC) on +44 (0)1993 873 299 or +44 (0)993 873 236		
2	Open and Incident/Accident Log and maintain comms with the Voyager OCC/IRC		
3	If the accident aircraft has come to rest within the airport boundary, complete Accident Aircraft Location Form and fax immediately to Voyager OCC on +44 (0)1993 873 004		
4	Liaise with Police and Airport Authority in Emegency Control Centre pending arrival of the ATrS Site Team. Advise Airport ECC or Fire Services of number of personnel on board and any hazardous hold baggage.		
5	Open a Local Incident Coordination Centre (LICC) in an airport office location and implement the airport emergency procedures and ATrS emergency procedures		
6	Prevent access to information on any loca LDC system (for eRes stations)		
7	Impound, copy, and secure all docum,entation relating to flight. Fax all documents to Voyager OCC/IRC		
8	If departing airport, send up to date boarding passenger list to Voyager OCC		
9	Brief staff on use of Passenger Enquiry Form (PEF)		
10	Ensure staff are allocated to answer public telephone enquiries received prior to the ??? Being operational and to record details on the PEF		
11	Ensure personnel know the JRCC 24/7 number (+44 (0)1452 519 951) and direct enquiries there.		
12	Represent ATrS at FRRC (Friends and Relatives Reception Centre)		
13	Represent ATrS at SRC (Survivors Reception Centre)		
14	Refer to communications statement as required, for briefing of friends and relatives awaiting the flight arrival. Liaise with ATrS Corporate Communications Department		
15	Ensure enquiry desks are briefed to direct friends and relatives to FRRC		
16	Fax copies of any documentation relating to passengers involved to Voyager OCC		
17	Monitor local media coverage. Refer all media enquiries to ATrS Corp Comms (number to be obtained through the Voyager OCC) **Under no circumstance should anyone issue a press statement without express authorisation from ATrS IRC**		

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Appendix 4. Passenger Leaving Form

AS.OC.003

Passenger Leaving Form

AirTanker

Before a passenger leaves the Survivor's Reception Centre this form must be completed and faxed through to the Voyager OCC immediately.

Passenger Name:				
Address:				
Telephone Numbers Incl STD:	Mobile:		Landline:	
Accompanied by (Name/address and telephone number):				

Onward transport arrangements?	

Before leaving the SRC, does the passenger have the following?

	Yes	No	Have replacements been arranged? If yes, with whom?
Passport/ID Card			
Spectacles (if required)			
House keys			
Car keys			
Money			
Clothes			
Footwear			
medication (if required)			
Airline contact details			

Going Home...

Is there someone to meet you?	
Can we arrange transport home for you (we suggest you don't drive and we can get your car home for you).	
If we are taking car home, where is it currently located?	
What car is it (make, model, colour)?	
What is the registration number?	

	Done
Please advise the passenger to see their General Practitioner for a check up	
If transport is required, has this been arranged?	
Have we arranged to get the passenger's car back to them?	
Who has this been arranged with?	
When will the car be delivered?	

Time the passenger left the SRC:	

Complete by:	Date and Time (z):

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Appendix 5. Passenger Enquiry Form

AS.OG.004

Passenger Enquiry Form

AirTanker

Your name:		Passenger name:	

Meeter and Greeter Details

Meeter's name:		Title:	
Permanent address:			
Telephone number:		Relationship to Passenger:	
Temporary address:			
Temporary phone number:			

Passenger Details

Passenger name:		Gender:	
Known as:		Age:	
Maiden name:		Date of birth:	
Permanent address:			
Telephone number:		Nationality:	
Travelling from:		To:	
Travelling with:			
Name of next of kin:			
Address:			
Telephone number:			
Date completed:		Time completed:	

Please ensure this form is faxed immediately to Voyager OCC

Faxed by:		Date/time:	

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Appendix 6. Accident Aircraft Location Form

AS.OG.005

Accident Aircraft Location Form

AirTanker

See reverse for example

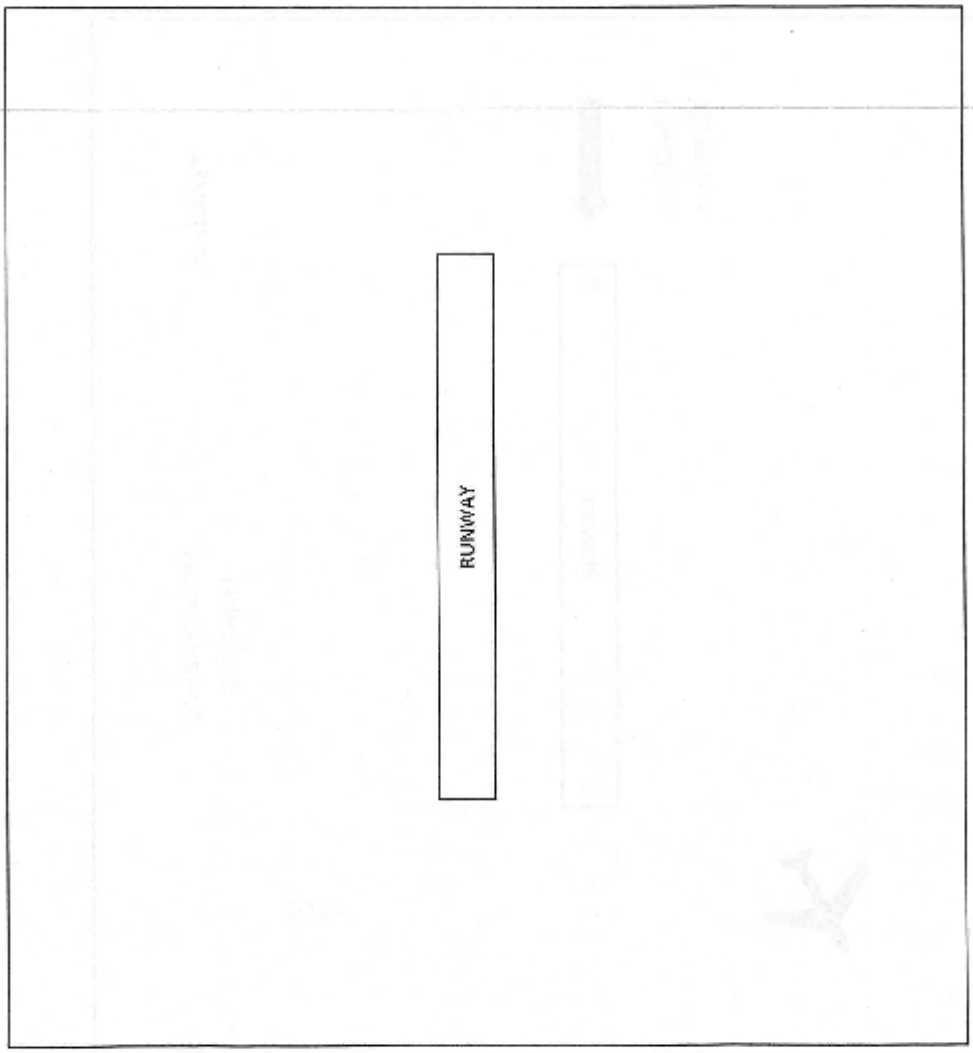
Complete the chart below by adding:

- Landing direction
- runway designators
- location of terminal building
- additional structions
- aircraft location

Airport Name: _____

ICAO designator: _____

IATA designator: _____



When complete fax IMMEDIATELY to +44 (0)1993 873 004

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AS.OG.C05

Accident Aircraft Location Form

See reverse for example

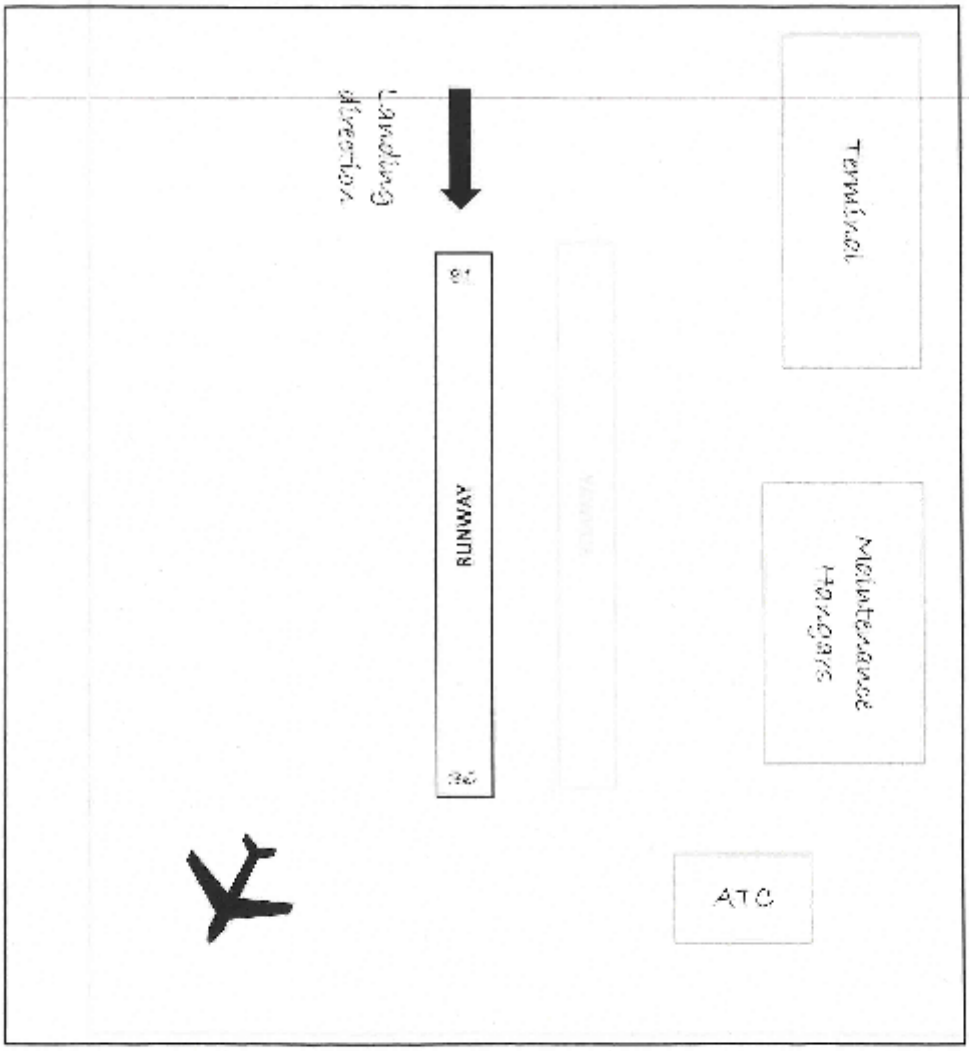
Complete the chart below by adding:

- Landing direction
- runway designators
- location of terminal building
- additional structions
- aircraft location

Airport Name: Andrewsfield

ICAO designator: EGSL

IATA designator: ADF



When complete fax IMMEDIATELY to +44 (0)1993 873 004

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Appendix 7. Crisis Statement for Meets and Greeters

AS.OG.006

Crisis Statement for Meets and Greeters

The handling agent is instructed to contact the ATrS Corporate Communications Manager (number to be obtained via the Voyager OCC +44 (0)1993 873 236) prior to release of this information. The handling agent is not permitted to complete any of this information without the Duty Press Officer's authorisation.

Initial statement to be read out by the handling agent at arrival airports to Meeters and Greeters

Date: _____ Time: _____

Issued

Incident involving flight no: ASCOT/TOW _____

Can I have the attention of anyone waiting for passengers on flight ASCOT/TOW _____ from _____. Please can you step over here for some additional information regarding the flight (take to one side, to a more discrete area).

Ladies and gentlemen, please can I have your attention for a moment. As you are aware, flight ASCOT/TOW _____ from _____ is due to land at: _____ /has:_____.

It is with great regret that we can confirm that the flight has been involved in an incident. I would like to reassure you that _____.

We are currently waiting for more information, however what I can confirm is that the flight departed from _____, at _____ [time] and at _____ [time] it was involved in an incident at _____[where].

Safety is the top priority and like any responsible, safety-oriented organisation, we have pre-prepared plans for how to deal with an incident. These have been put into place and I will come back to you _____ [confirm a realistic time] and provide you with the latest update on the welfare of the passengers.

Passengers to be directed to _____.

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Appendix 8. Hold Baggage Manifest

HOLD BAGGAGE MANIFEST

Date: / /	Flight No:	A/C Reg:	Airport:
Destination:			

Hold Baggage Manifest
I certify that the above baggage has been loaded onto the aircraft

Name:

Date:

Handling Agent Signature:

Appendix 9. Hold Baggage Manifest Declaration Form

HOLD BAGGAGE MANIFEST DECLARATION FORM

Date: / /	Flight No:	A/C Reg:	Airport:
Destination:			

I certify that;

- All hold baggage loaded has been accounted for on the Hold Baggage Manifest
- All gate baggage loaded has been accounted for on the Gate Baggage Manifest
- All unaccompanied/rush hold luggage loaded has been accounted for on the Unaccompanied /Rush Hold Baggage Certificate
- All checked in passengers have boarded the aircraft (or, where they have not the associated hold baggage has been removed from the aircraft)
- All unaccompanied/rush hold baggage has been subjected to the appropriate security controls and specific confirmation of this is recorded on the Unaccompanied /Rush Hold Baggage Certificate

Hold Baggage Manifest Declaration Form
I certify that the above baggage has been loaded onto the aircraft

Name:

Date:

Handling Agent Signature:

Appendix 10. Rush Baggage Certificate

UNACCOMPANIED / RUSH HOLD BAGGAGE CERTIFICATE

Date: / /	Flight No:	A/C Reg:	Airport:

I CONFIRM THAT THE BAGS DETAILED BELOW, HAVE BEEN SUBJECTED TO AT LEAST ONE OF THE FOLLOWING SECURITY CONTROLS: (Please Circle the applicable method)

METHOD 1 SEARCHED BY HAND AND EXPLOSIVE TRACE DETECTION (ETD)

METHOD 2 X-RAY SCREENED FROM 2 SEPARATE BAG ORIENTATIONS IN SUCCESSION BY THE SAME X-RAY OPERATOR AT THE SAME LOCATION

METHOD 3 SEARCHED WITH EXPLOSIVES DETETION SYSTEM (EDS) OF STANDARD 2 OR HIGHER, WITH THE X-RAY IMAGE ASSESSED BY AN OPERATOR. WHERE THE OPERATOR IS NOT SATISFIED THAT THE BAG DOES NOT CONTAIN A PROHIBITED ARTICLE, THE BAG MUST BE SEARCHED BY HAND

METHOD 4 (EXCEPT IN THE UNITED KINGDOM), SEARCHED BY EXPLOSIVE DETECTION DOGS (EED)

RUSH BAG TAG NUMBER:	DESTINATION	ORIGINAL BAG TAG NUMBER (HISTORY):

The name of the person providing the information and/or the person undertaking or witnessing that the security controls taken are in accordance with Air Tanker requirements:

Handling Agent Signature: (person witnessing screening process) Print name: Signature: Date: / /	Security Officer Signature: (person carrying out screening process) Security Officer's Signature: Date: / /

Issue 1.0 1 18 Feb

Appendix 11. Gate Baggage Manifest

GATE BAGGAGE MANIFEST

Date: / /	Flight No:	A/C Reg:	Airport:
Destination:			

Gate Baggage Manifest
I certify that the above baggage has been loaded onto the aircraft

Name:

Date:

Handling Agent Signature:

Appendix 12. List of Prohibited Articles

Notwithstanding items permitted in checked luggage (see Chapter 2 and Chapter 8), and without prejudice to applicable safety rules, passengers are not permitted to carry the following articles into security restricted areas and on board an aircraft:

(a) Guns, firearms and other devices that discharge projectiles – devices capable, or appearing capable, of being used to cause serious injury by discharging a projectile, including:

1. Firearms of all types, such as pistols, revolvers, rifles, shotguns;
2. Toy guns, replicas and imitation firearms capable of being mistaken for real weapons;
3. Component parts of firearms, excluding telescopic sights;
4. Compressed air and CO2 guns, such as pistols, pellet guns, rifles and ball bearing guns;
5. Signal flare pistols and starter pistols;
6. Bows, cross-bows and arrows;
7. Harpoon guns and spear guns;
8. Slingshots and catapults.

(b) Stunning devices – devices designed specifically to stun or immobilise, including:

1. Devices for shocking, such as stun guns, tasers and stun batons;
2. Animal stunners and animal killers;
3. Disabling and incapacitating chemicals, gases and sprays, such as mace, pepper sprays, capsicum sprays, tear gas, acid sprays and animal repellent sprays.

(c) Objects with a sharp point or sharp edge – objects with a sharp point or sharp edge capable of being used to cause serious injury, including:

1. Items designed for chopping, such as axes, hatchets and cleavers;
2. Ice axes and ice picks;
3.Razor blades;
4. Box cutters;
5. Knives with blades of more than 6 cm;
6. Scissors with blades of more than 6cm as measured from the fulcrum;
7. Martial arts equipment with a sharp point or sharp edge;
8. Swords and sabres.

(d) Workmen's tools – tools capable of being used either to cause serious injury or to threaten the safety of aircraft, including;

1. Crowbars;
2. Drills and drill bits, including cordless portable drills;
3. Tools with a blade or a shaft of more than 6cm capable of use as a weapons such as screwdrivers and chisels;
4. Saws including cordless portable power saws;
5. Blowtorches;
6. Bolt guns and nail guns.

(e) Blunt instruments – objects capable of being used to cause serious injury when used to hit, including:

1. Baseball and softball bats;
2. Clubs and batons, such as bully clubs, blackjacks and night sticks;
3. Martial arts equipment.

(f) Explosives and incendiary substances and devices – explosives and incendiary substances and devices capable, or appearing capable, of being used to cause serious injury or to pose a threat to the safety of aircraft, including:

1. Ammunition;
2. Blasting caps;
3. Detonators and fuses;
4. Replica or imitation explosive devices;
5. Mines, grenades and other explosive military stores;

6. Fireworks and other pyrotechnics;
7. Smoke-generating canisters and smoke-generating cartridges;
8. Dynamite, gunpowder and plastic explosives.

Appendix 13. Aircraft Hold Security Declaration

AS.OGX.006
Aircraft Hold Security Declaration

Location of Search (IATA):	
Route:	
Flight Number:	
Aircraft Registration:	
Date:	

Declaration:

A security search of the hold compartments on this aircraft has been conducted prior to loading, and no prohibited, suspicious or misplaced items were found in the holds.

Print Name:	
Position / Job Title:	
Signature:	

THIS FORM IS TO BE COMPLETED IN DUPLICATE, WITH ONE COPY BEING GIVEN TO THE OPERATING CREW AND ANOTHER COPY BEING RETAINED BY THE HANDLING AGENT FOR AT LEAST 24 HOURS AFTER DEPARTURE

Ver 1.0 COMMERCIAL 17/05/2019
Printed copies are not controlled

Appendix 14. Assistance Dog Approval Proforma

Introduction

A recognised assistance dog is one that has been trained to assist a disabled person by an organisation that is a member of Assistance Dogs International (ADI) and/or the International Guide Dog Federation (IGDF). Passengers that require assistance dogs to travel with them are to give no less than 48hrs notice to AirTanker.

The minimum training standards are deemed to have been met if the assistance dog has:

• Been trained by an accredited member organisation of Assistance Dogs International (ADI) or the International Guide Dog Federation (IGDF)

• Been trained to the same or higher standard as those set out by the organisations mentioned above, if evidence of training can be provided.

Once an assistance dog has been trained by either an IGDF or ADI affiliated organisation, the passenger will be issued with appropriate certification to confirm this status. This certification is to be provided to AirTanker, confirming their training status prior to departure.

NOTE: *Such confirmation may come from the Defence Passenger Reservations Centre/RAF Brize Norton Passenger Plans department or a customer airline for which AirTanker is operating.*

Once this information has been received, a member of the Aviation Services team should be notified, the information reviewed, and the following details recorded:

Passenger Name	Dog type/breed	Seat number (if known)	Flight(s)	Date(s)
Brian Jenkins	Labrador	12A	TOW2230	29 Sep 25

Declaration

The above-named passengers have been approved to travel on the AirTanker flight(s) listed in accordance with AirTanker Ops Manual, Part A, 8.0.1.1.1.2 and Ground Handling Manual 1.3.10.1.2.