

Part 7

OPERATOR'S RESPONSIBILITIES

INTRODUCTORY NOTE

This Part details the responsibilities of operators with regard to the acceptance, handling and loading of dangerous goods. However, nothing contained herein should be interpreted as requiring an operator to transport a particular article or substance or as preventing an operator from imposing special requirements on the transport of a particular article or substance. Also, nothing in this Part is intended to preclude a ground handling agent from carrying out some or all of the functions of an operator. However, such ground handling agents are subject to the operator's responsibilities of Part 7.

THE UNIVERSITY OF CHICAGO

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Chapter 1

ACCEPTANCE PROCEDURES

Parts of this Chapter are affected by State Variations AE 6, AU 5, CA 1, CA 4, CA 6, CA 14, CA 15, CA 16, CH 3, CN 1, DK 2, FR 3, HK 1, HR 4, HR 5, IN 1, IN 2, IR 1, IR 2, IR 4, IT 1, IT 5, MO 1, NL 3, PL 1, RU 2, SG 1, UA 1, US 10, US 13; see Table A-1

1.1 CARGO ACCEPTANCE PROCEDURES

1.1.1 Operators' acceptance staff must be adequately trained to assist them in identifying and detecting dangerous goods presented as general cargo.

1.1.2 Cargo acceptance staff should seek confirmation from shippers about the contents of any item of cargo where there are suspicions that it may contain dangerous goods, with the aim of preventing undeclared dangerous goods from being loaded on an aircraft as general cargo. Many innocuous-looking items may contain dangerous goods, and a list of general descriptions which, experience has shown, are often applicable to such items is shown in Chapter 6.

Note.— Often general names are used in the description of the content of a cargo shipment. To assist in the detection of undeclared dangerous goods, acceptance staff should check shipping documents with the general description stated on the air bill and, if necessary, request documentary evidence from shippers that the shipment does not contain dangerous goods.

1.2 ACCEPTANCE OF DANGEROUS GOODS BY OPERATORS

1.2.1 An operator must not accept for transport aboard an aircraft a package or overpack containing dangerous goods or a freight container containing radioactive material or a unit load device or other type of pallet containing the dangerous goods as described in 1.4.1 b) and c) unless:

- a) it is accompanied by two copies of the dangerous goods transport document; or
- b) the information applicable to the consignment is provided in electronic form; or
- c) it is accompanied, where permitted, by alternative documentation.

1.2.2 Where a dangerous goods transport document is provided in accordance with 1.2.1 a), one copy must accompany the consignment to final destination and one copy must be retained by the operator at a location on the ground where it will be possible to obtain access to it within a reasonable period; the document must be retained at this point until the goods have arrived at final destination, after which time it may be stored elsewhere.

1.2.3 When the information applicable to the consignment is provided in electronic form, the information must be available to the operator at all times during transport to final destination. The data must be able to be produced as a paper document without delay. When a paper document is produced, the data must be presented as required by 5;4.

1.3 THE ACCEPTANCE CHECK

1.3.1 An operator must not accept for transport aboard an aircraft a package or overpack containing dangerous goods or a freight container containing radioactive material or a unit load device or other type of pallet containing dangerous goods as described in 1.4 unless the operator has, by use of a checklist, verified the following:

- a) the documentation or, when provided, the electronic data, complies with the detailed requirements specified in 5;4;
- b) the quantity of dangerous goods stated on the dangerous goods transport document is within the limits per package on a passenger or cargo aircraft as appropriate;
- c) the marking of the package, overpack or freight container accords with the details stated on the accompanying dangerous goods transport document and are clearly visible;
- d) where required, the letter in the packaging specification marking 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 marking is 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, overpack or freight container is as required by 5;3;
- 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 dangerous goods transport document;
- h) the package or overpack does not contain different dangerous goods which require segregation from each other according to Table 7-1;
- i) the package, overpack, freight container or unit load device is not leaking and there is no indication that its integrity has been compromised;
- j) an overpack does not contain packages bearing the "Cargo aircraft only" label unless:
- 1) the packages are assembled in such a way that clear visibility and easy access to them is possible; or
 - 2) the packages are not required to be accessible under 7;2.4.1; or
 - 3) not more than one package is involved;

Note 1.— Minor discrepancies, such as the omission of dots and commas in the proper shipping name appearing on the transport document or on package markings, or minor variations in hazard labels which do not affect the obvious meaning of the label, are not considered as errors if they do not compromise safety and should not be considered as reason for rejecting a consignment.

Note 2.— Where packages are contained in an overpack or freight container, as permitted by 1.4, the checklist should establish the correct marking and labelling of such an overpack or other type of pallet or freight container and not the individual packages contained in them. Where packages are contained in a unit load device, as permitted by 1.4.1, the checklist should not require the checking of packages individually for the correct marking and labelling.

Note 3.— An acceptance check is not required for dangerous goods in excepted quantities and radioactive material in excepted packages.

1.4 ACCEPTANCE OF FREIGHT CONTAINERS AND UNIT LOAD DEVICES

1.4.1 An operator must not accept from a shipper a freight container or a unit load device containing dangerous goods other than:

- a) a freight container for radioactive material (see 6;7.1);
- b) a unit load device or other type of pallet containing consumer commodities prepared according to Packing Instruction Y963;
- c) a unit load device or other type of pallet containing dry ice used as a refrigerant for other than dangerous goods prepared according to Packing Instruction 954; or
- d) a unit load device or other type of pallet containing magnetized material.

1.4.2 When an operator accepts a unit load device or other type of pallet containing consumer commodities, dry ice or magnetized material as permitted by 1.4.1, the operator must attach an identification tag as required by 2.8.1 to the unit load device.

1.5 SPECIAL RESPONSIBILITIES IN ACCEPTING INFECTIOUS SUBSTANCES

1.5.1 Routing

Whatever the mode used, transport must be made by the quickest possible routing. If trans-shipment is necessary, precautions must be taken to ensure special care, expeditious handling and monitoring of the substances in transit.

1.6 UNDELIVERABLE CONSIGNMENTS OF RADIOACTIVE MATERIAL

Where a consignment is undeliverable, the consignment must be placed in a safe location and the appropriate competent authority must be informed as soon as possible and a request made for instructions on further action.

Chapter 2

STORAGE AND LOADING

Parts of this Chapter are affected by State Variations CA 1, CA 4, IR 2, IR 4, JP 10, JP 11, JP 12, US 15; see Table A-1

2.1 LOADING RESTRICTIONS ON THE FLIGHT DECK AND FOR PASSENGER AIRCRAFT

2.1.1 Dangerous goods must not be carried in an aircraft cabin occupied by passengers or on the flight deck of an aircraft, except as permitted by 1;2.2.1 and 8;1 and for radioactive material, excepted packages under 2;7.2.4.1.1. Dangerous goods may be carried in a main deck cargo compartment of a passenger aircraft provided that compartment meets all the certification requirements for a Class B or a Class C aircraft cargo compartment. Dangerous goods bearing the "Cargo aircraft only" label must not be carried on a passenger aircraft.

2.1.2 Under the conditions specified in S-7;2.2 of the Supplement, the State of Origin and the State of the Operator may approve the transport of dangerous goods in main deck cargo compartments of passenger aircraft that do not meet the requirements in 2.1.1.

Note.— Cargo compartment classification is described in the ICAO document Emergency Response Guidance for Aircraft Accidents Involving Dangerous Goods (Doc 9481).

2.1.3 For additional requirements concerning the loading of dangerous goods for carriage by helicopters, see Part 7;7.

2.2 INCOMPATIBLE DANGEROUS GOODS

2.2.1 Segregation

Packages containing dangerous goods which might react dangerously one with another must not be stowed on an aircraft next to each other or in a position that would allow interaction between them in the event of leakage. As a minimum, the segregation scheme shown in Table 7-1 must be followed in order to maintain acceptable segregation between packages containing dangerous goods having different hazards. The scheme applies irrespective of whether the hazard is the primary or subsidiary risk.

Table 7-1. Segregation between packages

Hazard label	Class or division							
	1	2	3	4.2	4.3	5.1	5.2	8
1	Note 1	Note 2	Note 2	Note 2	Note 2	Note 2	Note 2	Note 2
2	Note 2	—	—	—	—	—	—	—
3	Note 2	—	—	—	—	x	—	—
4.2	Note 2	—	—	—	—	x	—	—
4.3	Note 2	—	—	—	—	—	—	x
5.1	Note 2	—	x	x	—	—	—	—
5.2	Note 2	—	—	—	—	—	—	—
8	Note 2	—	—	—	x	—	—	—

An "x" at the intersection of a row and column indicates that packages containing these classes of dangerous goods may not be stowed next to or in contact with each other, or in a position which would allow interaction in the event of leakage of the contents. Thus, a package containing Class 3 dangerous goods may not be stowed next to or in contact with a package containing Division 5.1 dangerous goods.

Note 1.— See 2.2.2.2 through 2.2.2.5.

Note 2.— This class or division must not be stowed together with explosives other than those in Division 1.4, Compatibility Group S.

Note 3.— Packages containing dangerous goods with multiple hazards in the class or divisions which require segregation in accordance with Table 7-1 need not be segregated from other packages bearing the same UN number.

2.2.2 Separation of explosive substances and articles

2.2.2.1 Only explosives in Division 1.4, Compatibility Group S, are permitted to be transported on passenger aircraft. Only the following explosives may be transported on a cargo aircraft:

Division 1.3: Compatibility Groups C, G

Division 1.4: Compatibility Groups B, C, D, E, G, S.

2.2.2.2 The extent to which explosives may be stowed together in an aircraft is determined by their "compatibility". Explosives are considered to be compatible if they can be stowed together without significantly increasing either the probability of an accident or, for a given quantity, the magnitude of the effects of such an accident.

2.2.2.3 Explosives in Compatibility Group S may be stowed with explosives in all compatibility groups.

2.2.2.4 Except as provided for in 2.2.2.5, explosives of different compatibility groups may be stowed together whether or not they belong to the same division.

2.2.2.5 For explosives of different division numbers and compatibility groups, the segregation scheme shown in Table 7-2 must be followed in order to maintain acceptable distances between such packages.

Table 7-2. Separation of explosive substances and articles

<i>Division and compatibility group</i>	1.3C	1.3G	1.4B	1.4C	1.4D	1.4E	1.4G	1.4S
1.3C			x					
1.3G			x					
1.4B	x	x		x	x	x	x	
1.4C			x					
1.4D			x					
1.4E			x					
1.4G			x					
1.4S								

An "x" at the intersection of a row and column indicates that explosives of these divisions and compatibility groups must be loaded into separate unit load devices and, when stowed aboard the aircraft, the unit load devices must be separated by other cargo with a minimum separation distance of 2 m. When not loaded in a unit load device, these explosives must be loaded into different, non-adjacent loading positions and separated by other cargo with a minimum separation distance of 2 m.

2.3 HANDLING AND LOADING OF PACKAGES CONTAINING LIQUID DANGEROUS GOODS

During the course of air transport, a package of dangerous goods bearing the package orientation label prescribed in 5;3 must be loaded and stowed aboard an aircraft and handled at all times in accordance with such a label. Single packagings with end closures containing liquid dangerous goods must be loaded and stowed aboard an aircraft with those closures upwards, notwithstanding that such single packages may also have side closures.

2.4 LOADING AND SECURING OF DANGEROUS GOODS

2.4.1 Loading of cargo aircraft

2.4.1.1 Packages or overpacks of dangerous goods bearing the "Cargo aircraft only" label must be loaded for carriage by a cargo aircraft in accordance with one of the following provisions:

- a) in a Class C aircraft cargo compartment; or
- b) in a unit load device equipped with a fire detection/suppression system equivalent to that required by the certification requirements of a Class C aircraft cargo compartment as determined by the appropriate national authority (a ULD that is determined by the appropriate national authority to meet the Class C aircraft cargo compartment standards must include "Class C compartment" on the ULD tag); or
- c) in such a manner that in the event of an emergency involving such packages or overpacks, a crew member or other authorized person can access those packages or overpacks, and can handle and, where size and mass permit, separate such packages or overpacks from other cargo; or
- d) external carriage by a helicopter; or
- e) with the approval of the State of the Operator, for helicopter operations, in the cabin (see Part S-7;2.4 of the Supplement).

Note.— Cargo compartment classification is described in the ICAO document Emergency Response Guidance for Aircraft Incidents Involving Dangerous Goods (Doc 9481).

2.4.1.2 The requirements of 2.4.1.1 do not apply to:

- a) flammable liquids (Class 3), Packing Group III, other than those with a subsidiary risk of Class 8;
- b) toxic substances (Division 6.1) with no subsidiary risk other than Class 3;
- c) infectious substances (Division 6.2);
- d) radioactive material (Class 7);
- e) miscellaneous dangerous goods (Class 9).

Note — When transporting goods in a non-pressurized cargo hold, there will be a large pressure differential up to 75 kPa at cruise altitudes. Packages that are filled at a normal atmospheric pressure may not be capable of withstanding this pressure differential. Confirmation of the suitability of the packagings from the shipper should be obtained.

2.4.2 Securing of dangerous goods

The operator must secure dangerous goods in the aircraft in a manner that will prevent any movement. For packages or overpacks containing radioactive material, the securing must be adequate to ensure that the separation requirements of 2.8.3 are met at all times.

2.4.3 General loading requirements

When dangerous goods subject to the provisions herein are loaded in an aircraft, the operator must protect the packages of dangerous goods from being damaged, including by the movement of baggage, mail, stores or other cargo. Particular attention must be paid to the handling of packages during their preparation for transport, the type of aircraft on which they are to be carried and the method required to load that aircraft, so that accidental damage is not caused through dragging or mishandling of the packages.

2.5 DAMAGED PACKAGES OF DANGEROUS GOODS

Where any package of dangerous goods loaded on an aircraft appears to be damaged or leaking, the operator must remove such package from the aircraft, or arrange for its removal by an appropriate authority or organization, and thereafter arrange for its safe disposal. In the case of a package which appears to be leaking, the operator must ensure the remainder of the consignment is in a proper condition for transport by air and that no other package, baggage or cargo has been contaminated. See 3.1 and 3.2 of this Part concerning action to be taken in the event of damage to packages containing infectious substances in Class 6 and radioactive materials in Class 7.

2.6 VISIBILITY OF MARKINGS AND LABELS

During the course of air transport, including storage, markings and labels required by these Instructions must not be covered or obscured by any part of or attachment to the packaging or any other label or marking.

2.7 REPLACEMENT OF LABELS

When an operator discovers that labels for packages of dangerous goods have become lost, detached or illegible the operator must replace them with appropriate labels in accordance with the information provided on the dangerous goods transport document.

2.8 IDENTIFICATION OF UNIT LOAD DEVICES CONTAINING DANGEROUS GOODS

2.8.1 Each unit load device containing dangerous goods which require a class hazard label must clearly display on its exterior an indication that dangerous goods are contained within the unit load device, unless those hazard class labels are themselves visible.

2.8.2 This indication must be provided by attaching to the unit load device an identification tag having a border of prominent red hatchings on both sides and the minimum dimensions of 148 mm × 210 mm. The primary and subsidiary hazard class(es) or division(s) numbers of such dangerous goods must be clearly marked on this tag.

2.8.3 If the unit load device contains packages bearing the "Cargo aircraft only" label, either that label must be visible or the tag must indicate that the unit load device can be loaded only on a cargo aircraft.

2.8.4 The tag must be removed from the unit load device immediately after the dangerous goods have been unloaded.

2.9 STOWAGE OF TOXIC AND INFECTIOUS SUBSTANCES

Substances of Class 6 (toxic and category A infectious substances) and substances requiring a subsidiary risk "Toxic" label must not be carried in the same compartment of an aircraft with animals, substances marked as or known to be foodstuffs, feeds or other edible substances intended for consumption by humans or by animals, unless either the toxic or category A infectious substances and the foodstuffs or animals are loaded in separate unit load devices and when stowed aboard the aircraft the unit load devices are not adjacent to each other, or the toxic or category A infectious substances are loaded in one closed unit load device and the foodstuffs or animals are loaded in another closed unit load device.

2.10 SPECIAL PROVISIONS APPLICABLE TO THE CARRIAGE OF RADIOACTIVE MATERIAL

2.10.1 Limitation of exposure of persons to radiation

2.10.1.1 The radiation exposure of transport and storage personnel must be so controlled that none of them are likely to receive a radiation dose in excess of that permitted for members of the public. In special cases, arrangements may be made with the competent authority for radiological control to have such personnel classified as radiation workers and to comply with the necessary provisions.

2.10.1.2 All relevant transport and storage personnel must receive such instructions as are necessary concerning the hazards involved and the precautions to be observed.

2.10.1.3 The practice should be followed of keeping exposure to radiation as low as reasonably achievable. The separation distances shown in Tables 7-3 and 7-4 are minimum values, and greater distances should be used where feasible. As far as possible, packages of radioactive materials stowed in underfloor cargo compartments of passenger aircraft should be placed on the compartment floor.

Note.— The separation distances from packages of radioactive material to passengers specified in Table 7-3 are based on a 0.02 mSv/h reference dose rate at a seat height of 0.4 m.

2.10.2 Activity limits

The total activity in all aircraft, for carriage of LSA material or SCO in Type IP-1, Type IP-2, Type IP-3 or unpackaged, must not exceed the limits shown in Table 7-5.

2.10.3 Stowage during transport and storage in transit

2.10.3.1 Consignments must be securely stowed.

2.10.10.2 Provided that its average surface heat flux does not exceed 15 W/m^2 and that the immediately surrounding cargo is not in sacks or bags, a package or overpack may be carried or stored among packaged general cargo without any special stowage provisions except as may be specifically required by the competent authority in an applicable approval certificate.

2.10.10.3 Loading of freight containers and accumulation of packages, overpacks and freight containers must be controlled as follows:

- a) Except under the condition of exclusive use, the total number of packages, overpacks and freight containers aboard a single aircraft must be so limited that the total sum of the transport indexes aboard the aircraft does not exceed the values shown in Table 7-6. For consignments of LSA-I material, there is no limit on the sum of the transport indexes;
- b) Where a consignment is transported under exclusive use, there is no limit on the sum of the transport indexes aboard a single aircraft, but the requirement on minimum segregation distances established in 2.9.6 applies;
- c) The radiation level under routine conditions of transport must not exceed 2 mSv/h at any point on, and 0.1 mSv/h at 2 m from, the external surface of the aircraft;
- d) The total sum of the criticality safety indexes in a freight container and aboard an aircraft must not exceed the values shown in Table 7-7.

2.10.3.4 Any package or overpack having either a transport index greater than 10, or any consignment having a criticality safety index greater than 50, must be transported only under exclusive use.

2.10.4 Segregation of packages containing fissile material during transport and storage in transit

2.10.4.1 Any group of packages, overpacks and freight containers containing fissile material stored in transit in any one storage area must be so limited that the total sum of the criticality safety indexes in the group does not exceed 50. Each group must be stored so as to maintain a spacing of at least 6 m from other such groups.

Table 7-3. Minimum distance from surface of packages, overpacks and freight containers of radioactive material to the nearest inside surface of passenger cabin or flight deck partitions or floors, irrespective of carriage duration

Total sum of transport indexes	Minimum distance (metres)
0.1 – 1.0	0.30
1.1 – 2.0	0.50
2.1 – 3.0	0.70
3.1 – 4.0	0.85
4.1 – 5.0	1.00
5.1 – 6.0	1.15
6.1 – 7.0	1.30
7.1 – 8.0	1.45
8.1 – 9.0	1.55
9.1 – 10.0	1.65
10.1 – 11.0	1.75
11.1 – 12.0	1.85
12.1 – 13.0	1.95
13.1 – 14.0	2.05
14.1 – 15.0	2.15
15.1 – 16.0	2.25

16.1 – 17.0	2.35
17.1 – 18.0	2.45
18.1 – 20.0	2.60
20.1 – 25.0	2.90
25.1 – 30.0	3.20
30.1 – 35.0	3.50
35.1 – 40.0	3.75
40.1 – 45.0	4.00
45.1 – 50.0	4.25

If more than one package, overpack or freight container is placed in the aircraft, the minimum separation distance for each individual package, overpack or freight container must be determined in accordance with the above table, on the basis of the sum of the transport index numbers of the individual packages, overpacks or freight containers. Alternatively, if the packages, overpacks or freight containers are separated into groups, the minimum distance from the nearest inside surface of the passenger cabin or flight deck partitions or floors to each group is the distance applicable to the sum of the transport indexes within the individual groups, provided that each group is separated from each other group by at least three times the distance applicable to the one that has the larger sum of transport indexes.

Note.— For total sum of transport indexes over 50 to be carried by cargo aircraft only, see Table 7-4.

Table 7-4. Minimum distance from surface of packages, overpacks and freight containers of radioactive material, carried by cargo aircraft only, to the nearest inside surface of the flight deck partitions or floor, or other areas occupied by personnel, irrespective of carriage duration

<i>Total sum of transport indexes</i>	<i>Minimum distance (metres)</i>	<i>Total sum of transport indexes</i>	<i>Minimum distance (metres)</i>
50.1 – 60.0	4.65	180.1 – 190.0	8.55
60.1 – 70.0	5.05	190.1 – 200.0	8.75
70.1 – 80.0	5.45	200.1 – 210.0	9.00
80.1 – 90.0	5.80	210.1 – 220.0	9.20
90.1 – 100.0	6.10	220.1 – 230.0	9.40
100.1 – 110.0	6.45	230.1 – 240.0	9.65
110.1 – 120.0	6.70	240.1 – 250.0	9.85
120.1 – 130.0	7.00	250.1 – 260.0	10.05
130.1 – 140.0	7.30	260.1 – 270.0	10.25
140.1 – 150.0	7.55	270.1 – 280.0	10.40
150.1 – 160.0	7.80	280.1 – 290.0	10.60
160.1 – 170.0	8.05	290.1 – 300.0	10.80
170.1 – 180.0	8.30		

If more than one package, overpack or freight container is placed in the aircraft, the minimum separation distance for each individual package, overpack or freight container must be determined in accordance with the above table, on the basis of the sum of the transport index numbers of the individual packages, overpacks or freight containers. Alternatively, if the packages, overpacks or freight containers are separated into groups, the minimum distance from the nearest inside surface of the flight deck partition or floor to each group is the distance applicable to the sum of transport indexes within the individual groups, provided that each group is separated from each other group by at least three times the distance applicable to the one that has the larger sum of transport indexes.

Note.— For smaller sums of transport indexes, see Table 7-3. Distances for total sum of transport indexes over 200 apply to exclusive use only.

Table 7-5. Aircraft activity limits for LSA material and SCO in industrial packages

<i>Nature of material</i>	<i>Activity limit for aircraft</i>
LSA-I	No limit
LSA-II and LSA-III non-combustible solids	No limit
LSA-II and LSA-III combustible solids, and all liquids and gases	100 A ₂
SCO	100 A ₂

Table 7-6. Transport index limits for freight containers and aircraft not under exclusive use

<i>Type of freight container or aircraft</i>	<i>Limit on total sum of transport indexes in a freight container or aboard an aircraft</i>
Freight container — small	50
Freight container — large	50
Aircraft	
Passenger	50
Cargo	200

Table 7-7. Critical safety indexes limits for freight containers and aircraft containing fissile material

<i>Type of freight container or aircraft</i>	<i>Limit on total sum of criticality safety indexes in a freight container or aboard an aircraft</i>	
	<i>Not under exclusive use</i>	<i>Under exclusive use</i>
Freight container — small	50	n.a.
Freight container — large	50	100
Aircraft		
Passenger	50	n.a.
Cargo	50	100

2.10.4.2 Where the total sum of the criticality safety indexes on board an aircraft or in a freight container exceeds 50, as permitted in Table 7-7, storage must be such as to maintain a spacing of at least 6 m from other groups of packages, overpacks or freight containers containing fissile material or other conveyances carrying radioactive material.

2.10.5 Transport by air

2.10.5.1 Type B(M) packages and consignments under exclusive use must not be transported on passenger aircraft.

2.10.5.2 Vented Type B(M) packages, packages which require external cooling by an ancillary cooling system, packages subject to operational controls during transport, and packages containing liquid pyrophoric materials must not be transported by air.

2.10.5.3 Packages or overpacks having a surface radiation level greater than 2 mSv/h must not be transported by air except by special arrangement.

2.10.5.4 Except in the case of shipment under special arrangement, mixing of packages of different kinds of radioactive material, including fissile material, and mixing of different kinds of packages with different transport indexes is permitted without specific competent authority approval. In the case of shipments under special arrangement, mixing is not permitted except as specifically authorized under the special arrangement.

2.10.6 Separation

2.10.6.1 Separation from persons

Categories II — Yellow and III — Yellow packages, overpacks or freight containers must be separated from persons. The minimum separation distances to be applied are shown in Tables 7-3 and 7-4 and these distances are from the surface of the packages, overpacks or freight containers to the nearest inside surface of the passenger cabin or flight deck partitions or floors, irrespective of the duration of the carriage of the radioactive material. Table 7-4 applies only when radioactive material is being carried by a cargo aircraft, and in those circumstances the minimum distances must be applied as above and also to any other areas occupied by persons.

2.10.6.2 Separation from undeveloped photographic film

Categories II — Yellow and III — Yellow packages, overpacks or freight containers must be separated from undeveloped photographic films or plates. The minimum separation distances to be applied are shown in Table 7-8 and these distances are from the surface of the packages, overpacks or freight containers to the surface of the packages of undeveloped photographic films or plates.

2.10.6.3 Separation from live animals

Categories II — Yellow and III — Yellow packages, overpacks or freight containers must be separated from live animals by a distance of at least 0.5 metres for journeys not exceeding 24 hours, and by a distance of at least 1.0 metres for journeys longer than 24 hours.

2.11 LOADING OF MAGNETIZED MATERIAL

Magnetized material must be loaded so that headings of aircraft compasses are maintained within the tolerances prescribed by the applicable aircraft airworthiness requirements and, where practical, in locations minimizing possible effects on compasses. Multiple packages may produce a cumulative effect. For magnetized material transported under the conditions of an approval described in Packing Instruction 953, loading must be in accordance with conditions specified in the authorizing approval.

Note.— Masses of ferro-magnetic metals such as automobiles, automobile parts, metal fencing, piping and metal construction material, even if not meeting the definition of magnetized materials may affect aircraft compasses, as may packages or items which individually do not meet the definition of magnetized material but cumulatively may have a magnetic field strength of a magnetized material.

Table 7-8. Minimum distance in metres from surface of each package, overpack or freight container of radioactive material to undeveloped photographic films or plates, for carriage lasting up to 48 hours

Total sum of transport indexes	Duration of carriage					
	2 hours or less	2-4 hours	4-8 hours	8-12 hours	12-24 hours	24-48 hours
1	0.4	0.6	0.9	1.1	1.5	2.2
2	0.6	0.8	1.2	1.5	2.2	3.1
3	0.7	1.0	1.5	1.8	2.6	3.8
4	0.8	1.2	1.7	2.2	3.1	4.4
5	0.8	1.3	1.9	2.4	3.4	4.8
10	1.4	2.0	2.8	3.5	4.9	6.9
20	2.0	2.8	4.0	4.9	6.9	10.0
30	2.4	3.5	4.9	6.0	8.6	12.0
40	2.9	4.0	5.7	6.9	10.0	14.0
50	3.2	4.5	6.3	7.9	11.0	16.0

Note.— The above is calculated so that the radiation dose received by the films does not exceed 0.1 mSv (10 mrem).

2.12 LOADING OF DRY ICE

2.12.1 Dry ice (carbon dioxide, solid), when shipped by itself or when used as a refrigerant for other commodities, may be carried provided the operator has made suitable arrangements dependent on the aircraft type, the aircraft ventilation rates, the method of packing and stowing, whether animals will be carried on the same flight, and other factors. The operator must ensure that ground staff are informed that the dry ice is being loaded or is on board the aircraft.

2.12.2 Where dry ice is contained in a unit load device or other type of pallet prepared by a single shipper in accordance with Packing Instruction 954 and the operator, after acceptance, adds additional dry ice, then the operator must ensure that the information provided to the pilot-in-command reflects that revised quantity of dry ice.

Note.— For arrangements between the shipper and operator see Packing Instruction 954.

2.13 LOADING OF UN 2211, POLYMERIC BEADS, EXPANDABLE OR UN 3314, PLASTICS MOULDING COMPOUND

A total of not more than 100 kg net mass of expandable polymeric beads (or granules), or plastic moulding materials, referenced to Packing Instruction 957, may be carried in any inaccessible hold on any aircraft.

2.14 HANDLING OF SELF-REACTIVE SUBSTANCES AND ORGANIC PEROXIDES

During the course of transport, packages or unit load devices containing self-reactive substances of Division 4.1 or organic peroxides of Division 5.2 must be shaded from direct sunlight, stored away from all sources of heat in a well-ventilated area.

2.15 HANDLING AND LOADING OF INTERMEDIATE BULK CONTAINERS (IBCS)

During handling and loading of intermediate bulk containers (IBCs), account must be taken of the IBC markings specified in 6;2.4.3, if present.

Chapter 3

INSPECTION AND DECONTAMINATION

Parts of this Chapter are affected by State Variations AE 4, CA 4, FR 4, IT 4; see Table A-1

3.1 INSPECTION FOR DAMAGE OR LEAKAGE

3.1.1 It is the operator's responsibility to ensure that a package or overpack containing dangerous goods is not loaded onto an aircraft or into a unit load device unless it has been inspected immediately prior to loading and found free from evidence of leakage or damage.

3.1.2 A unit load device must not be loaded aboard an aircraft unless the device has been inspected and found free from any evidence of leakage from or damage to any dangerous goods contained therein.

3.1.3 Packages or overpacks containing dangerous goods must be inspected for signs of damage or leakage upon unloading from the aircraft or unit load device. If evidence of damage or leakage is found, the position where the dangerous goods or unit load device was stowed on the aircraft must be inspected for damage or contamination and any hazardous contamination removed. The special responsibilities of operators regarding infectious substances are detailed in 3.1.4.

3.1.4 If any person responsible for the carriage of packages containing infectious substances becomes aware of damage to or leakage from such a package, that person must:

- a) avoid handling the package or keep handling to a minimum;
- b) inspect adjacent packages for contamination and put aside any that may have been contaminated;
- c) inform the appropriate public health authority or veterinary authority and provide information on any other countries of transit where persons may have been exposed to danger;
- d) notify the shipper and/or the consignee.

3.2 DAMAGED OR LEAKING PACKAGES OF RADIOACTIVE MATERIAL, CONTAMINATED PACKAGINGS

3.2.1 If it is evident that a package 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 radiation level 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, in accordance with provisions established by the relevant competent authority, must be taken to overcome and minimize the consequences of such leakage or damage.

3.2.2 Packages damaged or leaking radioactive contents in excess of allowable limits for normal conditions of transport may be removed to an acceptable interim location under supervision, but must not be forwarded until repaired or reconditioned and decontaminated.

3.2.3 An aircraft and equipment used regularly for the transport of radioactive material must be periodically checked to determine the level of contamination. The frequency of such checks must be related to the likelihood of contamination and the extent to which radioactive material is transported.

3.2.4 Except as provided in 3.2.5, any aircraft or equipment or part thereof which has become contaminated above the limits specified in 4;9.1.2 in the course of the transport of radioactive material, or which shows a radiation level in excess of 5 $\mu\text{Sv/h}$ at the surface, must be decontaminated as soon as possible by a qualified person and must not be re-used unless the non-fixed contamination does not exceed the limits specified in 4;9.1.2, and the radiation level resulting from the fixed contamination on surfaces after decontamination is less than 5 $\mu\text{Sv/h}$ at the surface.

3.2.5 An overpack, freight container, or aircraft dedicated to the transport of radioactive material under exclusive use must be excepted from the requirements of 4;9.1.4 and 3.2.4 solely with regard to its internal surfaces and only for as long as it remains under that specific exclusive use.

3.3 DEALING WITH SUSPECTED CONTAMINATED BAGGAGE OR CARGO

If an operator becomes aware that baggage or cargo not identified as containing dangerous goods has been contaminated and it is suspected that dangerous goods may be the cause of the contamination, the operator must take reasonable steps to identify the nature and source of the contamination before proceeding with the loading of the contaminated baggage or cargo. If the contaminating substance is found or suspected to be a substance classified as dangerous goods by these Instructions, the operator must isolate the baggage or cargo and take appropriate steps to nullify any identified hazard before the baggage or cargo is transported further by air.

Chapter 4

PROVISION OF INFORMATION

Parts of this Chapter are affected by State Variations AU 4, CA 4, CA 19, FR 5, GB 4, KP 3, MY 4, MY 5, US 12, US 13, US 15, VU 3, VU 4; see Table A-1

INTRODUCTORY NOTE

Operators' responsibilities for the provision of information to passengers are shown in Part 8.

4.1 INFORMATION TO THE PILOT-IN-COMMAND

4.1.1 As early as practicable before departure of the aircraft, but in no case later than when the aircraft moves under its own power, the operator of an aircraft in which dangerous goods are to be carried must:

- a) provide the pilot-in-command with accurate and legible written or printed information concerning dangerous goods that are to be carried as cargo; and
- b) from 1 January 2014, provide personnel with responsibilities for operational control of the aircraft (e.g. the flight operations officer, flight dispatcher, or designated ground personnel responsible for flight operations) with the same information that is required to be provided to the pilot-in-command (e.g. a copy of the written information provided to the pilot-in-command). Each operator must specify the personnel (job title or function) to be provided this information in their operations manual and/or other appropriate manuals.

For helicopter operations, with the approval of the State of the Operator, the information provided to the pilot-in-command may be abbreviated or be by other means (e.g. radio communication, as part of the working flight documentation such as a journey log or operational flight plan) where circumstances make it impractical to produce written or printed information or on a dedicated form (see Part S-7;4.8 of the Supplement).

Note 1.— This includes information about dangerous goods loaded at a previous departure point and which are to be carried on the subsequent flight.

Note 2.— Information required under 4.1.1 b) should be readily available to the operator's personnel whose responsibilities most closely align with the duties of the flight operations officer/flight dispatcher described in Annex 6, Part I, Chapter 4, 4.6. These personnel are intended to provide the information required by 4.6 to facilitate emergency response.

Note 3.— The provision in 4.1.1 b) is recommended until 1 January 2014 when it will become mandatory.

Except as otherwise provided, this information must include the following:

- a) the air waybill number (when issued);
- b) the proper shipping name (supplemented with the technical name(s) if appropriate) (see 3;1) and UN Number or ID number as listed in these Instructions. When chemical oxygen generators contained in protective breathing equipment (PBE) are being transported under Special Provision A144, the proper shipping name of "oxygen generator, chemical" must be supplemented with the statement "Aircrew protective breathing equipment (smoke hood) in accordance with Special Provision A144".
- c) the class or division, and subsidiary risk(s) corresponding to the subsidiary risk label(s) applied, by numerals, and in the case of Class 1, the compatibility group;
- d) the packing group shown on the dangerous goods transport document;
- e) the number of packages and their exact loading location. For radioactive material see g) below;
- f) the net quantity, or gross mass if applicable, of each package, except that this does not apply to radioactive material or other dangerous goods where the net quantity or gross mass is not required on the dangerous goods transport document (see 5;4.1.4) or, when applicable, alternative written documentation. For a consignment consisting of multiple packages containing dangerous goods bearing the same proper shipping name and UN number or ID number, only the total quantity and an indication of the quantity of the largest and smallest package at each loading location need to be provided. For unit load devices or other types of pallets containing consumer commodities accepted from a single shipper, the number of packages and the average gross mass need to be provided;

- g) for radioactive material the number of packages, overpacks or freight containers, their category, their transport index (if applicable) and their exact loading location;
- h) whether the package must be carried on cargo aircraft only;
- i) the aerodrome at which the package(s) is to be unloaded;
- j) where applicable, an indication that the dangerous goods are being carried under a State exemption; and
- k) the telephone number where a copy of the information provided to the pilot-in-command can be obtained during the flight if the operator allows the pilot-in-command to provide a telephone number instead of the details about the dangerous goods on board the aircraft, as specified in 4.3.

4.1.2 For UN 1845 — **Carbon dioxide, solid** (dry ice), only the UN number, proper shipping name, class, total quantity in each hold on the aircraft and the aerodrome at which the package(s) is to be unloaded need to be provided.

- + 4.1.3 For UN 3480 (**Lithium ion batteries**) and UN 3090 (**Lithium metal batteries**), only the UN number, proper shipping name, class, total quantity at each specific loading location, and whether the package must be carried on a cargo only aircraft need be provided. UN 3480 (**Lithium ion batteries**) and UN 3090 (**Lithium metal batteries**) carried under a State exemption must meet all of the requirements of 4.1.

- ≠ 4.1.4 The information provided to the pilot-in-command must also include a signed confirmation, or some other indication, from the person responsible for loading the aircraft that there was no evidence of any damage to or leakage from the packages or any leakage from the unit load devices loaded on the aircraft.

4.1.5 The information provided to the pilot-in-command must be readily available to the pilot-in-command during flight.

4.1.6 This information provided to the pilot-in-command should be presented on a dedicated form and should not be means of air waybills, dangerous goods transport documents, invoices, etc.

4.1.7 The pilot-in-command must indicate on a copy of the information provided to the pilot-in-command, or in some other way, that the information has been received.

- ≠ 4.1.8 A legible copy of the information provided to the pilot-in-command must be retained on the ground. This copy must have an indication on it, or with it, that the pilot-in-command has received the information. A copy, or the information contained in it, must be readily accessible to the flight operations officer, flight dispatcher, or designated ground personnel responsible for flight operations until after the arrival of the flight.

4.1.9 In addition to the languages which may be required by the State of the Operator, English should be used for the information provided to the pilot-in-command.

4.1.10 In the event that the volume of information provided to the pilot-in-command is such that in-flight radiotelephony transmission would be impracticable in an emergency situation, a summary of the information should also be provided by the operator, containing at least the quantities and class or division of the dangerous goods in each cargo compartment.

- + 4.1.11 The dangerous goods listed in Table 7-9 need not appear on the information provided to the pilot-in-command.

Table 7-9
Dangerous goods not required to appear in the information to the pilot-in-command

<i>UN Number</i>	<i>Item</i>	<i>Reference</i>
n/a	Dangerous goods packed in excepted quantities	3;5.1.1
UN 2807	Magnetized material	Packing Instruction 953
UN 2908	Radioactive material, excepted package — empty packaging	1;6.1.5.1 a)
UN 2909	Radioactive material, excepted package — articles manufactured from natural uranium or depleted uranium or natural thorium	1;6.1.5.1 a)
UN 2910	Radioactive material, excepted package — limited quantity of material	1;6.1.5.1 a)
UN 2911	Radioactive material, excepted package — instruments or articles	1;6.1.5.1 a)
UN 3090	Lithium metal batteries (including lithium alloy batteries) when meeting the requirements of Packing Instruction 968, Section II	Packing Instruction 968, Section II
UN 3091	Lithium metal batteries contained in equipment (including lithium alloy batteries) when meeting the requirements of Packing Instruction 970, Section II	Packing Instruction 970, Section II

<i>UN Number</i>	<i>Item</i>	<i>Reference</i>
UN 3091	Lithium metal batteries packed with equipment (including lithium alloy batteries) when meeting the requirements of Packing Instruction 969, Section II	Packing Instruction 969, Section II
UN 3245	Genetically modified micro-organisms	Packing Instruction 959
UN 3245	Genetically modified organisms	Packing Instruction 959
UN 3373	Biological substance, Category B	Packing Instruction 650, sub-paragraph 11
UN 3480	Lithium ion batteries (including lithium ion polymer batteries) when meeting the requirements of Packing Instruction 965, Section II	Packing Instruction 965, Section II
UN 3481	Lithium ion batteries contained in equipment (including lithium ion polymer batteries) when meeting the requirements of Packing Instruction 967, Section II	Packing Instruction 967, Section II
UN 3481	Lithium ion batteries packed with equipment (including lithium ion polymer batteries) when meeting the requirements of Packing Instruction 966, Section II	Packing Instruction 966, Section II

4.2 INFORMATION TO BE PROVIDED TO EMPLOYEES

An operator must provide such information in the operations manual and/or other appropriate manuals as will enable flight crews and other employees to carry out their responsibilities with regard to the transport of dangerous goods. This information must include instructions as to the action to be taken in the event of emergencies involving dangerous goods, and details of the location and numbering system of cargo compartments together with:

- a) the maximum quantity of dry ice permitted in each compartment; and
- b) if radioactive material is to be carried, instructions on the loading of such dangerous goods based on the requirements of 7:2.9.

Where applicable, this information must also be provided to ground handling agents.

4.3 INFORMATION TO BE PROVIDED BY THE PILOT-IN-COMMAND IN CASE OF IN-FLIGHT EMERGENCY

If an in-flight emergency occurs, the pilot-in-command must, as soon as the situation permits, inform the appropriate air traffic services unit, for the information of aerodrome authorities, of any dangerous goods carried as cargo on board an aircraft. Wherever possible this information should include the proper shipping name and/or UN number, the class/division and, for Class 1, the compatibility group, any identified subsidiary risk(s), the quantity and the location on board the aircraft, or a telephone number where a copy of the information provided to the pilot-in-command can be obtained. When it is not considered possible to include all the information, those parts thought most relevant in the circumstances or a summary of the quantities and class or division of dangerous goods in each cargo compartment should be given.

4.4 REPORTING OF DANGEROUS GOODS ACCIDENTS AND INCIDENTS

An operator must report dangerous goods accidents and incidents to the appropriate authorities of the State of the Operator and the State in which the accident or incident occurred in accordance with the reporting requirements of those appropriate authorities.

Note.— This includes incidents involving dangerous goods that are not subject to all or part of these Instructions through the application of an exception or of a special provision (e.g. an incident involving the short circuiting of a dry cell battery that is required to meet short-circuit prevention conditions in a special provision of 3:3).

4.5 REPORTING OF UNDECLARED OR MISDECLARED DANGEROUS GOODS

- ≠ An operator must report any occasion when undeclared or misdeclared dangerous goods are discovered in cargo or mail. Such a report must be made to the appropriate authorities of the State of the Operator and the State in which this occurred. An operator must also report any occasion when dangerous goods not permitted under 8:1.1.1 are discovered, either in the baggage or on the person, of passengers or crew members. Such a report must be made to the appropriate authority of the State in which this occurred.

4.6 REPORTING OF DANGEROUS GOODS OCCURRENCES

An operator must report to the State of the Operator and the State of Origin any occasion when:

- a) dangerous goods are discovered to have been carried when not loaded, segregated, separated or secured in accordance with Part 7;2; or
- b) dangerous goods are discovered to have been carried without information having been provided to the pilot-in-command in accordance with Part 7;4.1.

4.7 INFORMATION BY THE OPERATOR IN CASE OF AN AIRCRAFT ACCIDENT OR INCIDENT

4.7.1 In the event of:

- a) an aircraft accident; or
- b) a serious incident where dangerous goods carried as cargo may be involved,

the operator of the aircraft carrying dangerous goods as cargo must, without delay, provide to emergency services responding to the accident or serious incident, information about the dangerous goods on board, as shown on the copy of the information provided to the pilot-in-command. As soon as possible, the operator must also provide this information to the appropriate authorities of the State of the Operator and the State in which the accident or serious incident occurred.

4.7.2 In the event of an aircraft incident, if requested to do so, the operator of an aircraft carrying dangerous goods as cargo must, without delay, provide to emergency services responding to the incident and to the appropriate authority of the State in which the incident occurred, information about the dangerous goods on board, as shown on the copy of the information provided to the pilot-in-command.

Note.— The terms “accident”, “serious incident” and “incident” are as defined in Annex 13.

4.7.3 Operators must address the provisions of 4.7.1 and 4.7.2 in appropriate manuals and accident contingency plans.

4.8 CARGO ACCEPTANCE AREAS — PROVISION OF INFORMATION

An operator or the operator's handling agent must ensure that notices giving information about the transport of dangerous goods are sufficient in number, prominently displayed and provided at a visible location(s) at the cargo acceptance points to alert shippers/agents about any dangerous goods that may be contained in their cargo consignment(s). These notices must include visual examples of dangerous goods, including batteries.

4.9 EMERGENCY RESPONSE INFORMATION

The operator must ensure that for consignments for which a dangerous goods transport document is required by these Instructions, appropriate information is immediately available at all times for use in emergency response to accidents and incidents involving dangerous goods in air transport. The information must be available to the pilot-in-command and can be provided by:

- a) the ICAO document *Emergency Response Guidance for Aircraft Incidents Involving Dangerous Goods* (Doc 9481); or
- b) any other document which provides appropriate information concerning the dangerous goods on board.

4.10 TRAINING

An operator must ensure training is provided in accordance with the detailed requirements of 1;4 to all relevant employees, including those of agencies employed to act on the operator's behalf, to enable them to carry out their responsibilities with regard to the transport of dangerous goods, passengers and their baggage, cargo, mail and stores.

4.11 RETENTION OF DOCUMENTS OR INFORMATION

- ≠
- ≠ 4.11.1 The operator must ensure that at least one copy of the documents or information appropriate to the transport by air of a consignment of dangerous goods is retained for a minimum period of three months after the flight on which the dangerous goods were transported. As a minimum, the documents or information which must be retained are the dangerous goods transport documents, the acceptance checklist (when this is in a form which requires physical completion), the written information to the pilot-in-command and, for shipments offered under Section IB of Packing Instructions 965 and 968, the alternative documentation, if applicable, or information provided on it. These documents or the information must be made available to the appropriate national authority upon request.
- + 4.11.2 For each package or overpack containing dangerous goods or freight container containing radioactive material or unit load device or other type of pallet containing dangerous goods as described in 1.4 that was not accepted by an operator due to an error or omission by the shipper in packaging, labelling, marking or documentation, a copy of the documentation as well as the acceptance checklist (when this is in a form which requires physical completion) should be retained for a minimum period of three months after the completion of the acceptance checklist.

Note.— Where the documents are kept electronically or in a computer system, they should be capable of being reproduced in a printed manner.

Chapter 5

PROVISIONS CONCERNING PASSENGERS AND CREW

5.1 INFORMATION TO PASSENGERS

- ≠ 5.1.1 An operator must ensure that information on the types of dangerous goods which a passenger is forbidden to transport aboard an aircraft is provided at the point of ticket purchase. Information provided via the Internet may be in text or pictorial form but must be such that ticket purchase cannot be completed until the passenger, or a person acting on their behalf, has indicated that they have understood the restrictions on dangerous goods in baggage.
- 5.1.2 An operator or the operator's handling agent and the airport operator must ensure that notices warning passengers of the types of dangerous goods which they are forbidden to transport aboard an aircraft are prominently displayed, in sufficient number, at each of the places at an airport where tickets are issued, passengers are checked in and aircraft boarding areas are maintained, and at any other location where passengers are checked in. These notices must include visual examples of dangerous goods forbidden from transport aboard an aircraft.
- 5.1.3 An operator, of passenger aircraft, should have information on those dangerous goods which may be carried by passengers in accordance with 8;1.1.2 made available prior to the check-in process on their websites or other sources of information.
- 5.1.4 When provision is made for the check-in process to be completed remotely (e.g. via the Internet), the operator must ensure that information on the types of dangerous goods which a passenger is forbidden to transport aboard an aircraft is provided to passengers. Information may be in text or pictorial form but must be such that the check-in process cannot be completed until the passenger, or a person acting on their behalf, has indicated that they have understood the restrictions on dangerous goods in baggage.
- ≠ 5.1.5 When provision is made for the check-in process to be completed at an airport by a passenger without the involvement of any other person (e.g. automated check-in facility), the operator or the airport operator must ensure that information on the types of dangerous goods which a passenger is forbidden to transport aboard an aircraft is provided to passengers. Information must be in pictorial form and should be such that the check-in process cannot be completed until the passenger has indicated that they have understood the restrictions on dangerous goods in baggage.

5.2 PASSENGER CHECK-IN PROCEDURES

- 5.2.1 Operators' check-in staff must be adequately trained to assist them in identifying and detecting dangerous goods carried by passengers other than as permitted in 8;1.1.2.
- 5.2.2 With the aim of preventing dangerous goods, which passengers are not permitted to have, from being taken aboard an aircraft in passengers' baggage or on their person, check-in staff should seek confirmation from a passenger that they are not carrying dangerous goods that are not permitted, and seek further confirmation about the contents of any item where there are suspicions that it may contain dangerous goods that are not permitted. Many innocuous-looking items may contain dangerous goods, and a list of general descriptions which, experience has shown, often apply to such items is shown in 7;6.
- 5.2.3 With the aim of preventing dangerous goods, which a passenger is not permitted to have, from being taken aboard an aircraft in excess baggage consigned as cargo, any organization or enterprise accepting excess baggage consigned as cargo should seek confirmation from the passenger, or a person acting on behalf of the passenger, that the excess baggage does not contain dangerous goods that are not permitted and seek further confirmation about the contents of any item where there are suspicions that it may contain dangerous goods that are not permitted.

Chapter 6

PROVISIONS TO AID RECOGNITION OF UNDECLARED DANGEROUS GOODS

6.1 With the aim of preventing undeclared dangerous goods from being loaded on an aircraft and of preventing passengers from taking on board those dangerous goods which they are not permitted to have in their baggage (see 8;1.1.2), information about:

- a) general descriptions that are often used for items in cargo or in passengers' baggage which may contain dangerous goods;
- b) other indications that dangerous goods may be present (e.g. labels, markings); and
- c) those dangerous goods which may be carried by passengers in accordance with 8;1.1.2,

must be provided to cargo reservations and sales staff, cargo acceptance staff, passenger reservations and sales staff and passenger check-in staff as appropriate and must be readily available to such staff. The following is a list of general descriptions and the types of dangerous goods that may be included in any item bearing that description.

aircraft on ground (AOG) spares — may contain explosives (flares or other pyrotechnics), chemical oxygen generators, unserviceable tire assemblies, cylinders of compressed gas (oxygen, carbon dioxide or fire extinguishers), fuel in equipment, wet or lithium batteries, matches

automobile parts (car, motor, motorcycle) — may include engines, carburetors or fuel tanks that contain or have contained fuel, wet batteries, compressed gases in tire inflation devices and fire extinguishers, air bags, etc.

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.) or flammable solids (hexamine, matches, etc.)

cars, car parts — see automobile parts, etc.

chemicals — may contain items meeting any of the criteria for dangerous goods, particularly flammable liquids, flammable solids, oxidizers, organic peroxides, toxic or corrosive substances

consolidated consignments (groupages) — may contain any of the defined classes of dangerous goods

cryogenic (liquid) — indicates refrigerated liquefied gases such as argon, helium, neon, nitrogen, etc.

cylinders — may contain compressed or liquefied gas

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 of compressed gas (e.g. air or oxygen). May also contain high intensity diving lamps that can generate extreme heat when operated in air. In order to be carried safely, the bulb or battery should 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 not subject to these Instructions only when they do not permit the release of any free liquid nitrogen irrespective of the orientation of the packaging

electrical equipment — may contain magnetized material, mercury in switch gear, electron tubes or wet batteries

electrically powered apparatus (wheelchairs, lawnmowers, golf carts, etc.) — may contain wet batteries

expeditionary equipment — may contain explosives (flares), flammable liquids (gasoline), flammable gas (gas for camping equipment) or other dangerous goods

film crew and media equipment — may contain explosive pyrotechnic devices, generators incorporating internal combustion engines, wet batteries, fuel, heat-producing items, etc.

- frozen embryos* — may be packed in refrigerated liquefied gas or dry ice
- frozen fruit, vegetables, etc.* — may be packed in dry ice (solid carbon dioxide)
- 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. Examples include flammable liquids such as solvent-based paint, adhesives, polishes, aerosols (for passengers, those not permitted under 8;1.1.2), bleach, corrosive oven or drain cleaners, 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, oxidizers, organic peroxides, toxic or corrosive substances
- machinery parts* — may contain flammable adhesives, paints, sealants and 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 magnetized material (see 2;9.2.1)
- medical supplies* — may contain items meeting any of the criteria for dangerous goods, particularly flammable liquids, flammable solids, oxidizers, organic peroxides, toxic or corrosive substances
- metal construction material* — may contain ferromagnetic material which may be subject to special stowage requirements due to the possibility of affecting aircraft instruments (see 2;9.2.1)
- metal fencing* — may contain ferromagnetic material which may be subject to special stowage requirements due to the possibility of affecting aircraft instruments (see 2;9.2.1)
- metal piping* — may contain ferromagnetic material which may be subject to special stowage requirements due to the possibility of affecting aircraft instruments (see 2;9.2.1)
- 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 (not permitted under 8;1.1.2), etc.
- pharmaceuticals* — may contain items meeting any of the criteria for dangerous goods, particularly radioactive material, flammable liquids, flammable solids, oxidizers, organic peroxides, toxic or corrosive substances
- photographic supplies* — may contain items meeting any of the criteria for dangerous goods, particularly heat-producing devices, flammable liquids, flammable solids, oxidizers, organic peroxides, toxic or corrosive substances
- racing car or motorcycle team equipment* — may contain engines, carburetors or fuel tanks that contain fuel or residual fuel, wet batteries, flammable aerosols, nitromethane or other gasoline additives, cylinders of compressed gases, 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, oxidizers, organic peroxides, toxic or corrosive substances
- semen* — may be packed with dry ice or refrigerated liquefied gas (see also dry shipper)
- ships' spares* — may contain explosives (flares), cylinders of compressed gas (life rafts), paint, lithium batteries (emergency locator transmitters), etc.
- swimming pool chemicals* — may contain oxidizing or corrosive substances
- switches in electrical equipment or instruments* — may contain mercury
- tool boxes* — may contain explosives (power rivets), compressed gases or aerosols, flammable gases (Butane cylinders or torches), flammable adhesives or paints, corrosive liquids, 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 passengers' baggage/personal effects — 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, bleach, aerosols, etc.

Note.— *Excess baggage carried as cargo may contain certain dangerous goods, as provided for by 1;1.1.5.1 g).*

vaccines — may be packed in dry ice (solid carbon dioxide).

leader—most leaders are likely to have many followers and are likely to be seen as a role model. They are likely to be seen as a role model and are likely to be seen as a role model.

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Chapter 7

HELICOPTER OPERATIONS

Note.— The requirements in this chapter are in addition to the other provisions of these Instructions that apply to all operators (e.g. Part 7 and Part 1;4).

7.1.1 Due to the differences in the type of operations carried out by helicopters compared with aeroplanes, there may be circumstances when the full provisions of these Instructions are not appropriate or necessary, due to the operations involving unmanned sites, remote locations, mountainous areas or construction sites, etc. In such circumstances and when appropriate, the State of the Operator may grant an approval in order to permit the carriage of dangerous goods without all of the normal requirements of these Instructions being fulfilled. When States other than the State of the Operator have notified ICAO that they require prior approval of such operations, approval must also be obtained from the States of Origin and destination, as appropriate.

7.1.2 When loading dangerous goods for open external carriage by a helicopter, consideration should also be given to the type of packaging used and to the protection of those packagings, where necessary, from the effects of airflow and weather (e.g. by damage from rain or snow), in addition to the general loading provisions of 7;2.

7.1.3 When dangerous goods are carried suspended from a helicopter, the operator must ensure that consideration is given to the dangers of static discharge upon landing or release of the load.

7.1.4 When helicopters are carrying passengers, in accordance with Part S-7;2.2.4 of the Supplement, the State of the Operator may grant an approval to permit the carriage of dangerous goods either:

- a) in the cabin, when those dangerous goods are associated with and accompanied by the passengers; or
- b) in cargo compartments that do not meet the requirements of Part 7;2.1.1.

APPLICATION OF STATISTICS

1.1. The purpose of the present study is to determine the effect of the use of statistics in the field of statistics.

1.2. The present study is a descriptive study. It is a study that aims to describe the characteristics of a population or a group of individuals. The data collected are used to describe the population or group in terms of their characteristics.

1.3. The present study is a quantitative study. It is a study that aims to measure the magnitude of a variable or variables. The data collected are used to measure the magnitude of the variable or variables.

1.4. The present study is a cross-sectional study. It is a study that aims to collect data at a single point in time. The data collected are used to describe the characteristics of a population or a group of individuals at a single point in time.

1.5. The present study is a non-experimental study. It is a study that aims to describe the characteristics of a population or a group of individuals without manipulating any variables. The data collected are used to describe the characteristics of the population or group.

1.6. The present study is a survey study. It is a study that aims to collect data from a large number of individuals. The data collected are used to describe the characteristics of a population or a group of individuals.