



PERSONNEL LICENSING OFFICE
HQs CIVIL AVIATION AUTHORITY
JIAP, KARACHI-75200

LICENSING CIRCULAR (ASC) - 2/2003 (Issue One)

Subject: DANGEROUS GOODS TRAINING
(COMMERCIAL PILOT LICENCE SYLLABUS)

1. **INTRODUCTION**

- 1.1. The Syllabus for Commercial Pilot Licence (CPL) and Airline Pilot Licence (ATPL) includes elementary knowledge and familiarization with the subject of Transport of Dangerous Goods by Air.
- 1.2. However, the Flying Training Organizations (FTOs - Flying Clubs) which impart the basic training for the issuance of Commercial Pilot Licence have not included this module in their Ground Training Program.
- 1.3. As such, this deficiency needs to be met to bring the knowledge level of the applicants for the CPL and ATPL to the ICAO standard.

2. **PROPOSED ACTION**

- 2.1. The study material is being enclosed. The FTOs are required to include the contents of the enclosed study material in their training program for the CPL course.
- 2.2. In future, the theory examination paper for both the CPL and the ATPL will include 2-4 questions on the Transport of Dangerous Goods by Air.

Date 26th May, 2003

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SECTION – I.

DEFINITIONS

1. Definitions

When the following terms are used, they have the following meanings:

Cargo aircraft. Any aircraft, other than a passenger aircraft, which is carrying goods or property.

Consignment. One or more packages of dangerous goods accepted by an operator from one shipper at one time and at one address, receipted for in one lot and moving to one consignee at one destination address.

Crew member. A person assigned by an operator to duty on an aircraft during flight time.

Dangerous goods. Articles or substances which are capable of posing significant risk to health, safety or property when transported by air.

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 damage.

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 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 jeopardizes the aircraft or its occupants is also deemed to constitute a dangerous goods incident.

Exception. A provision in this Part which excludes a specific item of dangerous goods from the requirements normally applicable to that item.

Exemption. An authorization issued by an appropriate national authority providing relief from the provisions of this Annex.

Flammable. *Note.— The word flammable has the same meaning as inflammable in the English language.*

Flight crew member. A licensed crew member charged with duties essential to the operation of an aircraft during flight time.

Incompatible. Describing dangerous goods which, if mixed, would be liable to cause a dangerous evolution of heat or gas or produce a corrosive substance.

Operator. A person, organization or enterprise engaged in or offering to engage in an aircraft operation.

Overpack. An enclosure used by a single shipper to contain one or more packages and to form one handling unit for convenience of handling and stowage.

Note: A unit load device is not included in this definition.

Package. The complete product of the packing operation consisting of the packaging and its contents prepared for transport.

Packaging. Receptacles and any other components or materials necessary for the receptacle to perform its containment function and to ensure compliance with the packing requirements of this Annex.

Packing. The art and operation by which articles or substances are enveloped in wrappings and/or enclosed in packagings or otherwise secured.

Passenger aircraft. An aircraft that carries any person other than a crew member, an operator's employee in an official capacity, an authorized representative of an appropriate national authority or a person accompanying a consignment or other cargo.

Pilot-in-command. The pilot responsible for the operation and safety of the aircraft during flight time.

Proper shipping name. The name to be used to describe a particular article or substance in all shipping documents and notifications and, where appropriate, on packagings.

Serious injury. An injury which is sustained by a person in an accident and which:

- a) requires hospitalization for more than 48 hours, commencing within seven days from the date the injury was received; or
- b) results in a fracture of any bone (except simple fractures of fingers, toes or nose); or
- c) involves lacerations which cause severe haemorrhage, nerve, muscle or tendon damage; or
- d) involves injury to any internal organ; or
- e) involves second or third degree burns, or any burns affecting more than 5 per cent of the body surface; or
- f) involves verified exposure to infectious substances or injurious radiation.

State of Origin. The State in the territory of which the cargo was first loaded on an aircraft.

State of the Operator. The State in which the operator has his principal place of business or, if he has no such place of business, his permanent residence.

UN number. The four-digit number assigned by the United Nations Committee of Experts on the Transport of Dangerous Goods to identify a substance or a particular group of substances.

Unit load device. Any type of freight container, aircraft container, aircraft pallet with a net, or aircraft pallet with a net over an igloo.

Note: An overpack is not included in this definition.

SECTION – II.

APPLICABILITY

2. **Applicability**

2.1. **General applicability**

These Regulations shall be applicable to all international operations of civil aircraft.

2.2. **Dangerous Goods Technical Instructions**

2.2.1. Detailed provisions contained in the *Technical Instructions for the Safe Transport of Dangerous Goods by Air* (Doc 9284), shall be complied with by the operators of dangerous goods.

2.3. **Domestic civil aircraft operations**

These Regulations shall also be applicable for the domestic civil aircraft operations.

2.4. **Exceptions**

2.4.1. Articles and substances which would otherwise be classed as dangerous goods but which are required to be aboard the aircraft in accordance with the pertinent airworthiness requirements and operating regulations, or for those specialized purposes identified in the Technical Instructions, shall be excepted from the provisions of this Part.

2.4.2. Where articles and substances intended as replacements for those described in 2.4.1 are carried on an aircraft, they shall be transported in accordance with the provisions of this Part except as permitted in the Technical Instructions.

2.4.3. Specific articles and substances carried by passengers or crew members shall be excepted from the provisions of this Part to the extent specified in the Technical Instructions.

2.5. **Surface transport**

Dangerous goods intended for air transport and prepared in accordance with this Part shall be accepted for surface transport to or from aerodromes.

SECTION – III.

CLASSIFICATION

3. **Classification**

The classification of an article or substance shall be in accordance with the provisions of the Technical Instructions.

Note: *The detailed definitions of the classes of dangerous goods are contained in the Technical Instructions. These classes identify the potential risks associated with the transport of dangerous goods by air and are those recommended by the United Nations Committee of Experts on the Transport of Dangerous Goods.*

SECTION – IV.

**LIMITATION ON THE TRANSPORT
OF DANGEROUS GOODS BY AIR**

4. Limitation on the Transport of Dangerous Goods by Air

4.1. Dangerous goods permitted for transport by air

The transport of dangerous goods by air shall be forbidden except as established in this Part and the detailed specifications and procedures provided in the Technical Instructions.

4.2. Dangerous goods forbidden for transport by air unless exempted

The dangerous goods described hereunder shall be forbidden on aircraft unless exempted by the Director General.

a) articles and substances that are identified in the Technical Instructions as being forbidden for transport in normal circumstances; and

b) infected live animals.

4.3. Dangerous goods forbidden for transport by air under any circumstances

Articles and substances that are specifically identified by name or by generic description in the Technical Instructions as being forbidden for transport by air under any circumstances shall not be carried on any aircraft.

SECTION – V.

PACKING

5. **Packing**

5.1. **General requirements**

Dangerous goods shall be packed in accordance with the provisions of this Section and as provided for in the Technical Instructions.

5.2. **Packaging**

- 5.2.1. Packaging used for the transport of dangerous goods by air shall be of good quality and shall be constructed and securely closed so as to prevent leakage which might be caused in normal conditions of transport, by changes in temperature, humidity, or pressure, or by vibration.
- 5.2.2. Packaging shall be suitable for the contents. Packaging in direct contact with dangerous goods shall be resistant to any chemical or other action of such goods.
- 5.2.3. Packaging shall meet the material and construction specifications in the Technical Instructions.
- 5.2.4. Packaging shall be tested in accordance with the provisions of the Technical Instructions.
- 5.2.5. Packaging for which retention of a liquid is a basic function, shall be capable of withstanding, without leaking, the pressure stated in the Technical Instructions.
- 5.2.6. Inner packaging shall be so packed, secured or cushioned as to prevent their breakage or leakage and to control their movement within the outer packaging(s) during normal conditions of air transport. Cushioning and absorbent materials shall not react dangerously with the contents of the receptacles.
- 5.2.7. No receptacle shall be re-used until it has been inspected and found free from corrosion or other damage. Where a receptacle is re-used, all necessary measures shall be taken to prevent contamination of subsequent contents.
- 5.2.8. If, because of the nature of their former contents, unclean empty receptacles may present a hazard, they shall be tightly closed and treated according to the hazard they constitute.
- 5.2.9. No harmful quantity of a dangerous substance shall adhere to the outside of packages.

SECTION – VI.

LABELLING AND MARKING

6. Labelling and Marking

6.1. Labels

Unless otherwise provided for in the Technical Instructions, each package of dangerous goods shall be labeled with the appropriate labels and in accordance with the provisions set forth in those Instructions.

6.2. Markings

6.2.1. Unless otherwise provided for in the Technical Instructions, each package of dangerous goods shall be marked with the proper shipping name of its contents and, when assigned, the UN number and such other markings as may be specified in those Instructions.

6.2.2. Specification markings on packaging Unless otherwise provided for in the Technical Instructions, each packaging manufactured to a specification contained in those Instructions shall be so marked in accordance with the appropriate provisions of those Instructions and no packaging shall be marked with a packaging specification marking unless it meets the appropriate packaging specification contained in those Instructions.

6.3. Languages to be used for markings

English shall be used for the markings related to dangerous goods.

SECTION – VII.

SHIPPER'S RESPONSIBILITIES

7. **Shipper's Responsibilities**

7.1. **General requirements**

Before a person offers any package or overpack of dangerous goods for transport by air, that person shall ensure that the dangerous goods are not forbidden for transport by air and are properly classified, packed, marked, labelled and accompanied by a properly executed dangerous goods transport document, as specified in this Part and the Technical Instructions.

7.2. **Dangerous goods transport document**

7.2.1. Unless otherwise provided for in the Technical Instructions, the person who offers dangerous goods for transport by air shall complete, sign, and provide to the operator a dangerous goods transport document, which shall contain the information required by those Instructions.

7.2.2. The transport document shall bear a declaration signed by the person who offers dangerous goods for transport indicating that the dangerous goods are fully and accurately described by their proper shipping names and that they are classified, packed, marked, labeled, and in proper condition for transport by air in accordance with the relevant regulations.

7.3. **Languages to be used**

English shall be used for the dangerous goods transport document.

SECTION – VIII.

OPERATOR'S RESPONSIBILITIES

8. **Operator's Responsibilities**

8.1. **Acceptance for transport**

An operator shall not accept dangerous goods for transport by air:

- a) unless the dangerous goods are accompanied by a completed dangerous goods transport document, except where the Technical Instructions indicate that such a document is not required; and
- b) Until the package, overpack or freight container containing the dangerous goods has been inspected in accordance with the acceptance procedures contained in the Technical Instructions.

8.2. **Acceptance checklist**

An operator shall develop and use an acceptance checklist as an aid to compliance with this Part.

8.3. **Inspection for damage or leakage**

8.3.1. Packages and overpacks containing dangerous goods and freight containers containing radioactive materials shall be inspected for evidence of leakage or damage before loading on an aircraft or into a unit load device. Leaking or damaged packages, overpacks or freight containers shall not be loaded on an aircraft.

8.3.2. A unit load device shall 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.

8.3.3. Where any package of dangerous goods loaded on an aircraft appears to be damaged or leaking, the operator shall remove such package from the aircraft, or arrange for its removal by an appropriate authority or organization, and thereafter shall ensure that the remainder of the consignment is in a proper condition for transport by air and that no other package has been contaminated.

8.3.4. Packages or overpacks containing dangerous goods and freight containers containing radioactive materials shall 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 area where the dangerous goods or unit load device were stowed on the aircraft shall be inspected for damage or contamination.

8.4. **Loading restrictions in passenger cabin or on flight deck**

Dangerous goods shall not be carried in an aircraft cabin occupied by passengers or on the flight deck of an aircraft, except in circumstances permitted by the provisions of the Technical Instructions.

8.5. **Removal of contamination**

8.5.1. Any hazardous contamination found on an aircraft as a result of leakage or damage to dangerous goods shall be removed without delay.

8.5.2. An aircraft which has been contaminated by radioactive materials shall immediately be taken out of service and not returned to service until the radiation level at any accessible surface and the non-fixed contamination are not more than the values specified in the Technical Instructions.

8.6. **Separation and segregation**

8.6.1. Packages containing dangerous goods which might react dangerously one with another shall 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.

8.6.2. Packages of poisons and infectious substances shall be stowed on an aircraft in accordance with the provisions of the Technical Instructions.

8.6.3. Packages of radioactive materials shall be stowed on an aircraft so that they are separated from persons, live animals and undeveloped film, in accordance with the provisions in the Technical Instructions.

8.7. **Securing of dangerous goods cargo loads**

When dangerous goods subject to the provisions contained herein are loaded in an aircraft, the operator shall protect the dangerous goods from being damaged, and shall secure such goods in the aircraft in such a manner that will prevent any movement in flight which would change the orientation of the packages. For packages containing radioactive materials, the securing shall be adequate to ensure that the separation requirements of this Part are met at all times.

8.8. **Loading on cargo aircraft**

Except as otherwise provided in the Technical Instructions, packages of dangerous goods bearing the “Cargo aircraft only” label shall be loaded in such a manner that a crew member or other authorized person can see, handle and, where size and weight permit, separate such packages from other cargo in flight.

SECTION – IX.

PROVISION OF INFORMATION

9. Provision of Information

9.1. Information to pilot-in-command

The operator of an aircraft in which dangerous goods are to be carried shall provide the pilot-in-command as early as practicable before departure of the aircraft with written information as specified in the Technical Instructions.

9.2. Information and instructions to flight crew members

The operator shall provide such information in the Operations Manual as will enable the flight crew to carry out its responsibilities with regard to the transport of dangerous goods and shall provide instructions as to the action to be taken in the event of emergencies arising involving dangerous goods.

9.3. Information to passengers

Operators shall ensure that information is promulgated in such a manner that passengers are warned as to the types of goods which they are forbidden from transporting aboard an aircraft as checked baggage or carry-on articles.

9.4. Information to other persons

Operators, shippers, or other organizations involved in the transport of dangerous goods by air shall provide such information to their personnel as will enable them to carry out their responsibilities with regard to the transport of dangerous goods and shall provide instructions as to the action to be taken in the event of emergencies arising involving dangerous goods.

9.5. Information from pilot-in-command to aerodrome authorities

If an in-flight emergency occurs the pilot-in-command should inform the appropriate air traffic services unit, for the information of aerodrome authorities, of any dangerous goods on board. If the situation permits, the information should include the proper shipping names, class, subsidiary risks for which labels are required, the compatibility group for Class 1 and the quantity and location aboard the aircraft of the dangerous goods.

9.6. Information in the event of an aircraft accident or incident

9.6.1. The operator of an aircraft carrying dangerous goods which is involved in an aircraft accident shall, as soon as possible, inform the State in which the aircraft accident occurred of the dangerous goods carried, together with their proper shipping names, class, subsidiary risks for which labels are required, the compatibility group for Class 1 and the quantity and location on board the aircraft.

SECTION – X.

DANGEROUS GOODS ACCIDENT

AND INCIDENT REPORTING

10. **Dangerous Goods Accident and Incident Reporting**

- 10.1. Procedures shall be established for investigating and compiling information concerning such accidents and incidents which involve the transport of dangerous goods as determined by the Director General.
- 10.2. Reports on such accidents and incidents shall be made in accordance with the detailed provisions of the Technical Instructions.