



สำนักงานการบินพลเรือนแห่งประเทศไทย
The Civil Aviation Authority of Thailand

Guidance Material for the Safe Transport of Dangerous Goods by Air

CAAT-GM-OPS-TDG

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0. Introduction

0.1 Background

This Guidance Material (GM) is issued by the Civil Aviation Authority of Thailand and contain information for the safe transport of dangerous goods by air for operator to complied The Thailand Civil Aviation Regulation - Air Operations (TCAR-OPS), ICAO Annex 18 and TI.

0.2 Purpose

a) This Part prescribes the requirements of the Kingdom of Thailand that apply to the receive, store, loading, unloading and transport of dangerous goods by air in international and domestic operations of aircraft as specified in –

- 1) The International Civil Aviation Organization Manual, Technical Instructions for the Safe Transport of Dangerous Goods by Air. and all applicable amendments; and
- 2) As amplified by, the Dangerous Goods Regulations of the International Air Transport Association.

b) This Part is applicable to all Dangerous Goods (DG) Carry and Non-DG carry operators of aircraft in Commercial air transport; and

c) Any instructions or limitations contained in the Technical Instructions for the carriage of dangerous goods on passenger or cargo aircraft, as therein defined shall for the purpose of this Part be interpreted as applying also to the carriage of such goods beneath passenger or cargo aircraft.

0.3 Applicability

All operator.

0.4 References

The Thailand Civil Aviation Regulation - Air Operations (TCAR-OPS)

- Part DEF - Definitions for Air Operations
- Part CAT - Commercial Air Transport
- Part ORO - Organisation Requirements for Air Operations
- Part SPA - Specific Approvals
- Part NCC - Non-Commercial Air Operations with Complex Motor Powered Aircraft
- Part NCO - Non-Commercial Air Operations with Other-Than Complex Motor-Powered Aircraft
- Part SPO - Specialised Operations

1. Definition

As used in this Part, these words or phrases are defined as follows –

Acceptance Check List. A document used to assist in carrying out a check on the external appearance of packages of dangerous goods and their associated documents to determine that all appropriate requirements have been met.

Approval. An authorization granted by an appropriate national authority for:

- a) the transport of dangerous goods forbidden on passenger and/or cargo aircraft where the Technical Instructions state that such goods may be carried with an approval; or
- b) other purposes as provided for in the Technical Instructions.

Note: In the absence of a specific reference in the Technical Instructions allowing the granting of an approval, an exemption may be sought.

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 a flight duty period.

Dangerous goods. Articles or substances which are capable of posing a hazard to health, safety, property or the environment and which are shown in the list of dangerous goods in the Technical Instructions or which are classified according to those Instructions;

Dangerous goods accident. An occurrence associated with and related to the transport of dangerous goods which results in fatal or serious injury to a person or major property or environmental 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 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 jeopardizes the aircraft or its occupants is also deemed to constitute a dangerous goods incident.

Dangerous goods transport document. A document specified by the ICAO Technical Instructions for the Safe Transportation of Dangerous Goods by Air (See definition, below). It is completed by the person who offers dangerous goods for air transport and contains information about those dangerous goods. The document bears a signed declaration indicating that the dangerous goods are fully and accurately described by their proper shipping names and UN numbers (if assigned) and that they are correctly classified, packed, marked, labelled and in a proper condition for transport.

Exception. A provision in ICAO Annex 18 or this Part which excludes a specific item of dangerous goods from the requirements normally applicable to that item.

Exemption. An authorization, other than an approval, granted by CAAT providing relief from the provisions of the Technical Instructions.

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

Freight container. A freight container is an article of transport equipment for radioactive materials, designed to facilitate the transport of such materials, either packaged or unpackaged, by one or more modes of transport.

Handling agent. An agency which performs on behalf of the operator some or all of the latter's functions including receiving, loading, unloading, transferring or other processing of passengers or cargo.

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.

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.

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 the Authority or a person accompanying a consignment or other cargo.

Pilot-in-command. The pilot designated by the operator, or in the case of general aviation, the owner, as being in command and charged with the safe conduct of a flight.

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 packaging

Safety management system (SMS). A systematic approach to managing safety, including the necessary organizational structures, accountabilities, policies and procedures.

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 hemorrhage, 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 Destination. The State in the territory of which the consignment is finally to be unloaded from an aircraft.

State of Origin. The State in the territory of which the consignment is first to be loaded on an aircraft.

State of the Operator. The State in which the operator's principal place of business is located or, if there is no such place of business, the operator's permanent residence.

Technical instructions. The Technical Instructions for the Safe Transport of Dangerous Goods by Air (Doc. 9284), approved and issued periodically in accordance with the procedure established by the ICAO Council.

UN number. The four-digit number assigned by the United Nations Committee of Experts on the Transport of Dangerous Goods and on the Globally Harmonized System of Classification and Labeling of Chemicals to identify an article or substance or a particular group of articles or substances.

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

2. Dangerous Goods Operation Manual

2.1 The operations manual should indicate whether or not a specific approval for the carriage of dangerous goods is held and what conditions apply to that specific approval. Operators who carry dangerous goods should also include in their operations manual information regarding the means of identifying dangerous goods, their manner of loading and the responsibilities of crew members concerning such goods. The conditions for the carriage of dangerous goods are covered in 3.

2.2 Operators who do not seek specific approval to carry dangerous goods must state the prohibition of dangerous goods carriage in the operations manual and give guidance to staff and agents concerning which goods may not be carried.

3. Carriage of Dangerous Goods

3.1 The operator shall determine the nominated person at an appropriate level within the organization as responsible for dangerous goods policy may be carried by passenger and (e.g. processes for provision of information etc.) and also provide personnel who must be trained in the requirements commensurate with their responsibilities.

3.2 The Regulation on the Civil Aviation Authority of Thailand Number 4 on Transportation of Dangerous Goods by Air sets out the requirements to be complied by an operator carrying dangerous goods. The carriage of dangerous goods shall be in accordance with the latest edition of the ICAO Doc 9284 Technical Instructions for the Safe Transport of Dangerous Goods by Air, herein referred to as Technical Instructions (TI).

3.3 An operator must obtain a Dangerous Goods specific approval issued by the Authority in order to transport dangerous goods. An operator applying for such a specific approval is required to give full details of its procedures, including the acceptance, handling, storage, loading of the dangerous goods, etc; before the intended date of carriage. In cases of extreme urgency, or when other forms of transport are inappropriate, or full compliance with the prescribed requirements is contrary to public interest, the Authority may grant an exemption from the provisions of the ICAO Doc 9284 TI provided that in such cases every effort is made to achieve a level of safety equivalent to that provided by those TI.

3.4 The operator must indicate in its Operations Manual whether or not it holds a Dangerous Goods specific approval from the Authority. The content of operation manual of the operator, whether approved or non-approved dangerous goods carrier, shall be in accordance with appendix B, Paragraph 2.1.35 and the Guidance Material for the preparation of dangerous goods section in the Operations Manual – Aeroplanes and Helicopters.

3.5 An operator holding a Dangerous Goods specific approval must include in its Operations Manual procedures on the use of an acceptance checklist. The use of such a checklist is to prevent the inadvertent acceptance of dangerous goods for carriage by air unless they are accompanied by a completed dangerous goods transport document and to verify that, as far as is practical, the package or freight container complies with the requirements of the Technical Instructions (TI).

3.6 An operator holding a Dangerous Goods specific approval must also develop procedures to enable its staff or the ground handling agent to carry out their duties, including appropriate loading, segregation of incompatible dangerous goods and inspection for damage and performing of leakage procedures. Other procedures to be developed by the operator includes the provision of written Notification To Captain (NOTOC) as specified in the TI. 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. These procedures and instructions shall apply from the time dangerous goods are accepted for carriage until they cease to be in the care of the operator or its ground handling agent.

3.7 There are general exceptions for certain types of dangerous goods which do not require a specific approval for carriage. These include installed aircraft equipment, certain items carried by passengers or crew and items required for use in flight to provide veterinary aid to an animal or medical aid to a person. All operators, regardless if it holds a Dangerous Goods specific approval, are required to provide guidance to its crew on what items constitute dangerous goods and what items can be carried on-board the aircraft in all circumstances.

3.8 All operators are required to provide initial and recurrent training to flight and cabin crew on the transportation of dangerous goods by air as specified in the TI. This training applies even if the operator does not hold a Dangerous Goods specific approval, since incidents may arise from dangerous goods taken on board an aircraft unwittingly. In addition, all operators shall also ensure that all other relevant staff including staff of his handling agent involved with the carriage of passengers or cargo by air, has received initial and recurrent dangerous goods training as specified in the TI.

3.9 All operators must report to the Authority, within the timeframe indicated in The Civil Aviation Authority of Thailand Requirement No. 22/2562 on "Reporting of Civil Aviation Occurrences" any accidents or incidents rising from the carriage of dangerous goods.

3.10 All operators approved for the public transport of passengers, including those that do not hold a dangerous Goods approval, shall ensure that dangerous goods notices for passengers, advising on the type of dangerous goods that are prohibited to be brought on-board the aircraft, are displayed prominently at places visible to passengers (such as check-in desks, ticket sales desks and aircraft boarding areas). All operators shall ensure that information on the carriage of dangerous goods is brought to the attention of passengers during check-in. As passengers may, either in ignorance or deliberately, try to take prohibited items onto the aircraft in either their checked or carry-on baggage, the operator should train its agents and check-in staff accordingly and put in place procedures to address this issue.

Note: *The list of items that passengers can carry is found in Part 8, Chapter 1 of the TI.*

3.11 Forbidden Dangerous Goods

3.11.1 All operator must not offer, carriage or accept in an aircraft:

(a) The dangerous goods specifically identified by name or by generic description in ICAO Technical Instructions, as being forbidden for transport by air under any circumstances;

(b) The dangerous goods identified in ICAO Technical Instructions as being forbidden for transport by air under normal circumstances;

(c) Any other dangerous goods, unless in accordance with the provisions of the Authority Regulations and the requirements and standards prescribed in ICAO Technical Instructions.

3.11.2 Exemption:

(a) The Authority may, upon application in writing by any person or operator exempt the application of 3.11.1, in the case of:

(i) Extreme urgency; or

(ii) Other forms of transport are inappropriate; or

(iii) Full compliance with the prescribed requirement is contrary to public interest.

(b) The Authority may grant an exemption if the applicant has made every effort to achieve the overall level of safety in transport which is equivalent to the level safety provided for in the ICAO Technical Instructions.

For the state of overflight, if none of the criteria for granting an exemption are relevant, an exemption may be granted based solely on whether it is believed that an equivalent level of safety in air transport has been achieved.

Note 1: For the purpose of approvals, “States concerned” are the States of Origin and the Operator, unless otherwise specified in these Instructions.

Note 2: For the purpose of exemptions, “States concerned” are the States of Origin, Operator, Transit, Overflight and Destination.

Note 3: Guidance for the processing of exemptions, including examples of extreme urgency, can be found in the Supplement to the Technical

Instructions (Part S-1;1.2 and 1.3).

Note 4: Refer to 1;2.1 in ICAO Technical Instruction for dangerous goods forbidden for transport by air under any circumstance.

Note 5: Due to the differences in the type of operations carried out by helicopters compared with aeroplanes, some additional considerations

need to be made when dangerous goods are carried by helicopter, can be found in Technical Instructions for the Safe Transport of Dangerous Goods by Air (Doc9284) item 7;7.

3.12 Packing

Packing requirements

The operator shall ensure that Dangerous Goods are packed in accordance with the following requirements:

(a) Dangerous goods shall be packed in accordance with the provisions as provided in the Technical Instructions;

(b) The packaging 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;

(c) 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 in accordance with the Technical Instructions;

(d) Packaging shall meet the material and construction specifications in the Technical Instructions.

(e) Packaging shall be tested in accordance with the provisions of the Technical Instructions.

(f) 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.

(g) 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 packaging.

(h) No packaging shall be re-used until it has been inspected and found free from corrosion or other damage. Where a packaging is re-used, all necessary measures shall be taken to prevent contamination of subsequent contents.

(i) If, because of the nature of their former contents, uncleaned empty packaging may present a hazard, they shall be tightly closed and treated according to the hazard they constitute.

(j) No harmful quantity of a dangerous substance shall adhere to the outside of packages.

3.13 Aircraft loading restrictions

(a) Except as provided in paragraph (b), an operator shall not carry dangerous goods in an aircraft cabin occupied by passengers or on the flight deck of an aircraft.

(b) An operator may

(i) Permit a passenger or crew member to carry dangerous goods in checked or carry-on baggage or on their person if permitted to do so under the Technical Instructions; and

(ii) Permit carriage of radioactive material in an aircraft cabin occupied by passengers or on the flight deck of an aircraft if permitted to do so as an excepted package under the Technical Instructions; and

(iii) Carry dangerous goods in a main deck cargo compartment of an aircraft that carries passengers if the compartment meets all certification requirements for a class B cargo or baggage compartment.

(iv) Each operator who accepts dangerous goods for carriage by air shall load packages of dangerous goods bearing the Cargo Aircraft Only label on cargo aircraft.

(c) Incompatible Dangerous Goods

An operator who accepts dangerous goods for carriage by air shall not stow packages containing dangerous goods which might react dangerously together, next to each other or in a position that would allow interaction between them in the event of leakage.

(d) Separation, segregation, and security

Each operator who accepts dangerous goods for carriage by air shall:

(i) Stow packages of poisons and infectious substances in accordance with the Technical Instructions; and

(ii) Stow radioactive materials separate from persons, live animals, and undeveloped film in accordance with the Technical Instructions; and

(iii) Protect the dangerous goods loaded on an aircraft from being damaged; and

(iv) Secure such goods in the aircraft in a manner that will prevent any movement in flight which would change the orientation of the packages.

(e) Loading inspection

An operator shall not load:

(i) A package or over pack containing dangerous goods onto an aircraft or into a unit load device unless it has been

1. Inspected immediately prior to loading; and
2. Found free from evidence of leakage or damage; and

(ii) A unit load device onto an aircraft until the device has been

1. Inspected immediately prior to loading; and
2. Found free of any evidence of leakage from, or damage to, any dangerous goods contained within.

3.14 Labels

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

3.15 Markings

Unless otherwise provided for in the Technical Instructions, each package of dangerous goods shall be-

- (a) Marked with the proper shipping name of its contents; and
- (b) When assigned, the UN number, Shipper and Consignee full name and address and such other markings as may be specified in those Instructions.

Specification Marking on Package

(a) 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.

(b) No packaging shall be marked with a packaging specification marking unless it meets the appropriate packaging specification contained in the Technical Instructions.

3.16 Dangerous Goods Transport Document

(a) Unless otherwise provided for in the Technical Instructions, no person may offer dangerous goods for transport by air unless they have completed, signed and provided to the operator a dangerous goods transport document, which shall contain the information required by those Instructions.

(b) The transport document shall bear a declaration signed by the person who offers dangerous goods for transport indicating that the dangerous goods are-

- (i) Fully and accurately described by their proper shipping names; and
- (i) Classified, packed, marked, and labelled, and
- (iii) In proper condition or transport by air in accordance with the relevant regulations
- (iiii) The dangerous goods transport document shall be completed in duplicate.

4. Classification

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

5. Passenger or Crew Member Personal Items

5.1 Passengers or crew are forbidden to carry dangerous goods either as or in carry-on baggage, checked baggage or on their person unless the dangerous goods are:

- a) permitted in accordance with ICAO TI Part 8 and
- b) for personal use only.

5.2 The list of dangerous goods which each passenger or crew member can carry must follow comply with ICAO TI Part 8 (Table 8-1), possibly reduced by the operator)

6. Dangerous Goods Training

6.1 An operator shall establish and maintain staff training programmes, as required by the ICAO Technical Instructions Part 1 Chapter 4. These training programmes shall be approved by the Authority.

6.2 An operator shall ensure that all staff who are competent to perform any function for which they are responsible prior to performing any of these functions. This must be achieved through training and assessment commensurate with the functions for which they are responsible. Such training must include:

(a) General awareness/familiarization training - Personnel must be trained to be familiar with the general provisions;

(b) Function-specific training - Personnel must be trained to perform competently any function for which they are responsible; and

(c) Safety training - Personnel must be trained on how to recognize the hazards presented by dangerous goods, on the safe handling of dangerous goods, and on emergency response procedures.

6.3 An operator shall ensure that all staffs have received training but who are assigned to new functions must be assessed to determine their competence in respect of their new function. If competency is not demonstrated, appropriate additional training must be provided.

6.4 An operator shall ensure that all staffs must be trained to recognize the hazards presented by dangerous goods, to safely handle them and to apply appropriate emergency response procedures.

6.5 An operator shall ensure that all staff must receive recurrent training and assessment within 24 months of previous training and assessment to ensure that competency has been maintained. However, if recurrent training and assessment is completed within the final three months of validity of the previous training and assessment, the period of validity extends from the month on which the recurrent training and assessment was completed until 24 months from the expiry month of that previous training and assessment.

6.6 An operator shall ensure that records of dangerous goods training and assessment are maintained for all staff trained and shall include the following;

(a) The individual's name;

(b) The month of completion of the most recent training and assessment;

(c) A description, copy or reference to training and assessment materials used to meet the training and assessment requirements;

(d) The name and address of the organization providing the training and assessment; and

(e) Evidence which shows that the personnel have been assessed as competent.

6.7 The records of training and assessment must be retained by the employer for a minimum period of 36 months from the most recent training and assessment completion month and must be made available upon request by the Authority.

6.8 Instructor qualifications and competencies

(a) Instructors of initial and recurrent dangerous goods training must demonstrate or be assessed as competent in instruction and the function(s) that they will instruct prior to delivering such training.

(b) Instructors delivering initial and recurrent dangerous goods training must deliver such courses at least every 24 months, or in the absence of this, attend recurrent training.

(c) Instructors shall receive and understand the latest information on dangerous goods and be well aware of these changes through training or other means, on an annual basis, or when applicable regulations change.