

Safe Transport of Dangerous Goods by Air

Joseph LE-TONQUEZE – Pascal TATIN

DG Experts (EASA EU-South East Asia Aviation Partnership Project Experts)

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Your safety is our mission.

Safe Transport of Dangerous Goods by Air

Introduction



Doc 9284

Technical Instructions for the Safe
Transport of Dangerous Goods by Air

2019-2020 Edition



Approved and published by decision of the Council of ICAO

INTERNATIONAL CIVIL AVIATION ORGANIZATION

Dangerous Goods carried by Air – ICAO Regulations

Tour de Table :



Objectives of the whole course...

- To understand precisely **the ICAO regulations,**
- To present **Part by Part, the Technical Instructions Doc 9284 and the associated documentations,**
- To have an understanding of the **transportation process** and the **involved stakeholders,**
- To be able to use the regulation **as a reference** for **inspections** and **surveillance,**
- To be able to deliver **Approvals** and **Exemptions,**
- To understand the **process** of the **conduction** of a **DG audit**

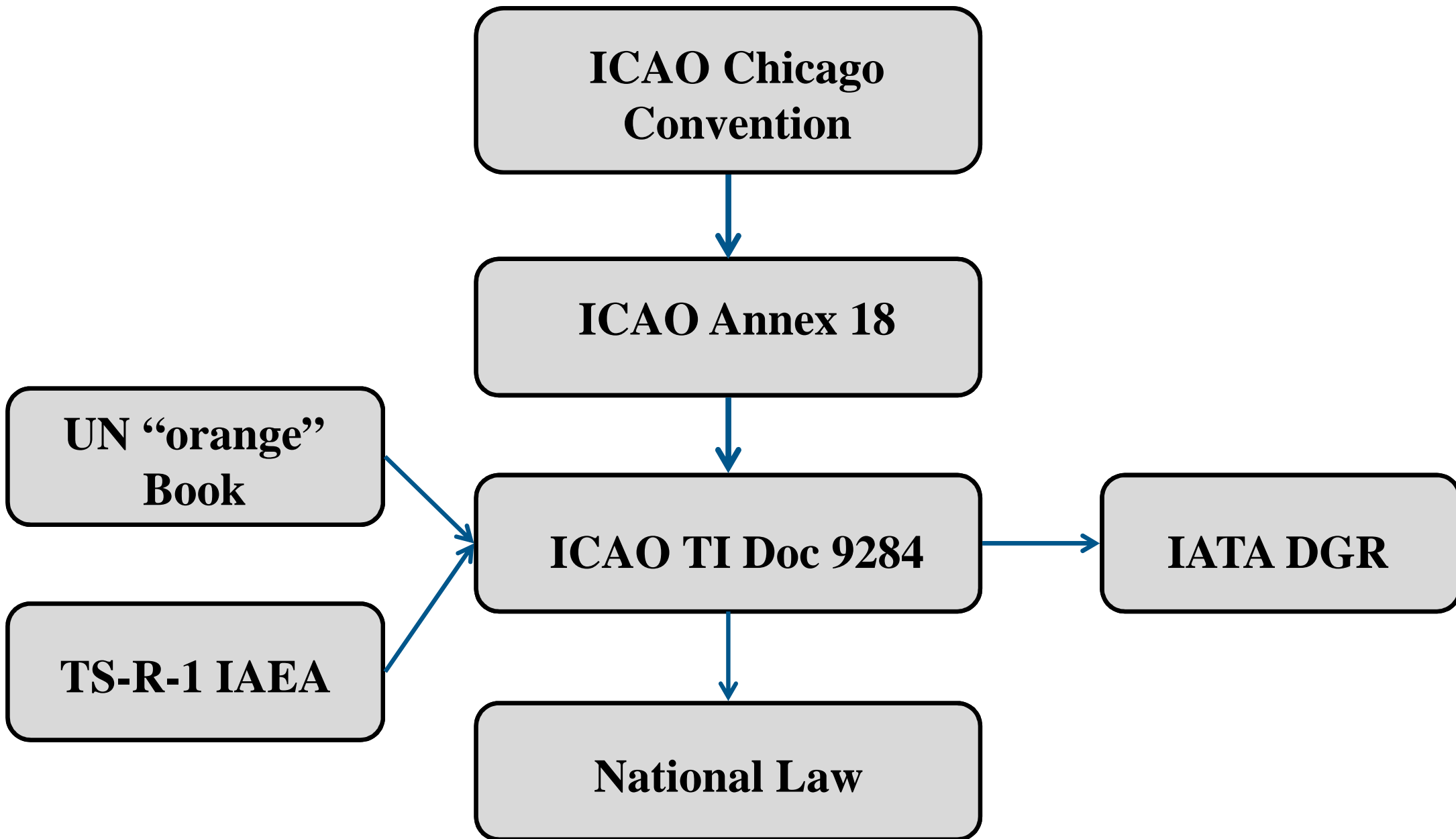
HISTORY

- *1893 : International convention for rail transport*
- *1929 : International convention for sea transport*
- **1955 : Airlines DG regulations through IATA (but no legal basis)**
- *1957 : European regulations for road transport*
- *1958 : First International UN committee of DG experts (multimodal)*
- **1976 : Creation of an ICAO group of experts on the DGs air transportation (first DG ICAO meeting)**
- **1981 : Publication of the ICAO Annex 18 – Standards and Recommended Practices**
- **1984 : Publication of the T.I.(s) - Doc 9284**

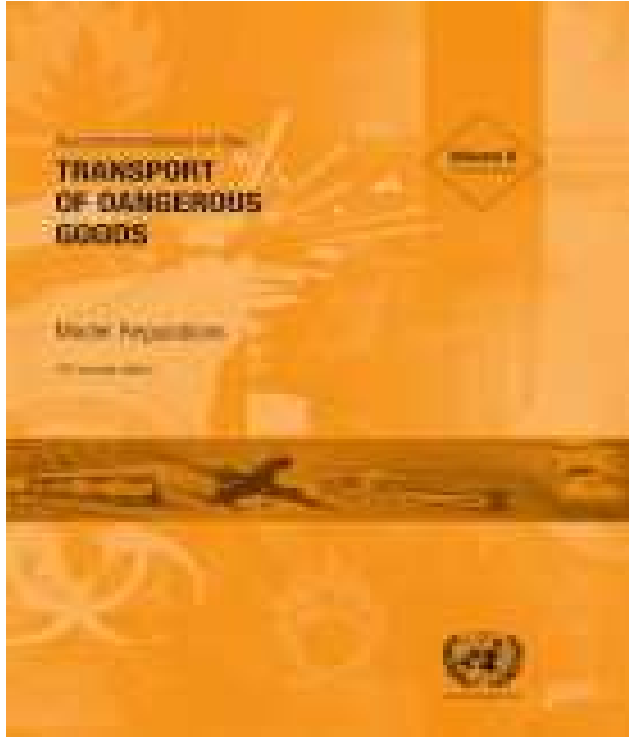
HISTORY

- **ICAO: 192 members states**
 - Permanent Working Group regarding DG, including 16 members states + 3 associations (I.A.T.A., I.F.A.L.P.A. and I.C.C.A.I.A)
- **IATA:** International Air Transport Association (230 airlines in over 120 countries representing 93% of the scheduled international air traffic)
 - DGR (Dangerous Goods Regulation) applicable to:
 - all airlines which are members or associate members of IATA
 - all shippers/agents offering DG consignments to these operators
- **IFALPA:** International Federation of Airline Pilots Association (representing more than 100,000 airline pilots represented by over 100 Member Associations from around the world)
- **ICCAIA:** International Coordination Council for Aerospace Industry Association (representing civil aviation industry and manufacturers)

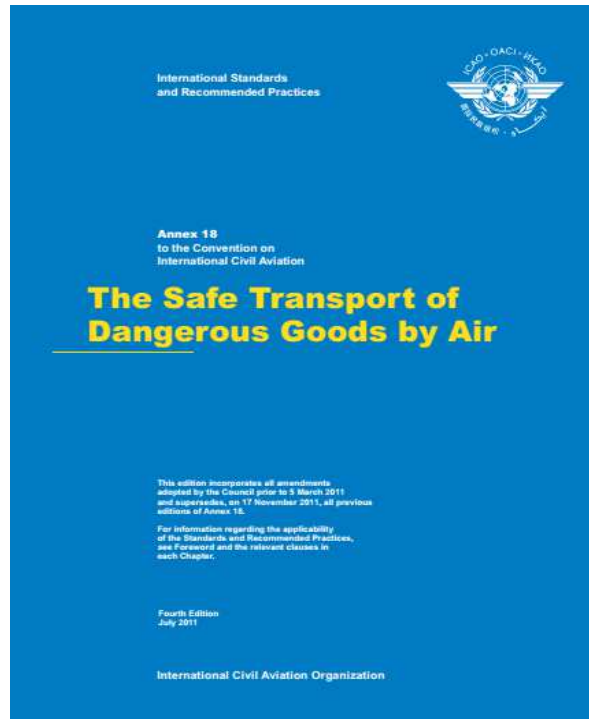
FRAMEWORK



FRAMEWORK



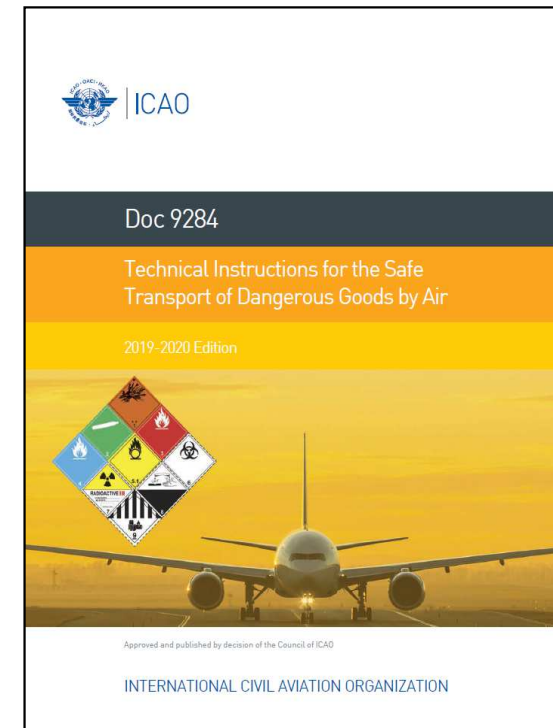
- UN Model Regulations, “orange book”, base for all international transport regulations
- 1958: Creation of the UN Experts Committee



- ICAO Annex 18
- 1981: ICAO adopted this Annex, SARP

➤ ICAO Technical Instructions Doc 9284

- 1984: States must comply with Technical Instructions

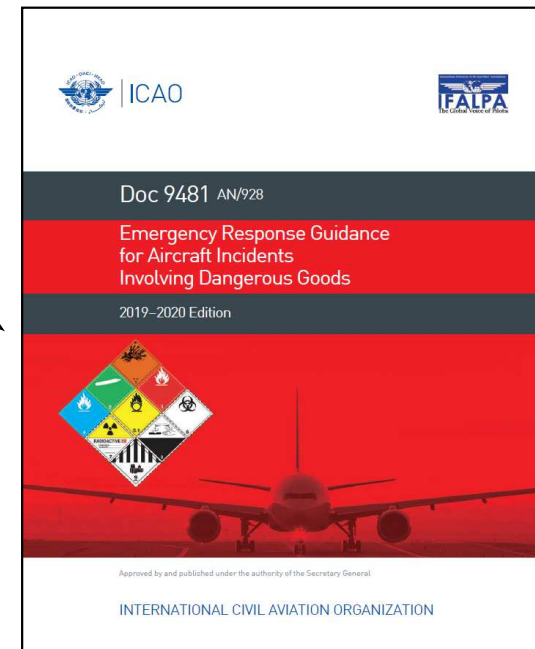
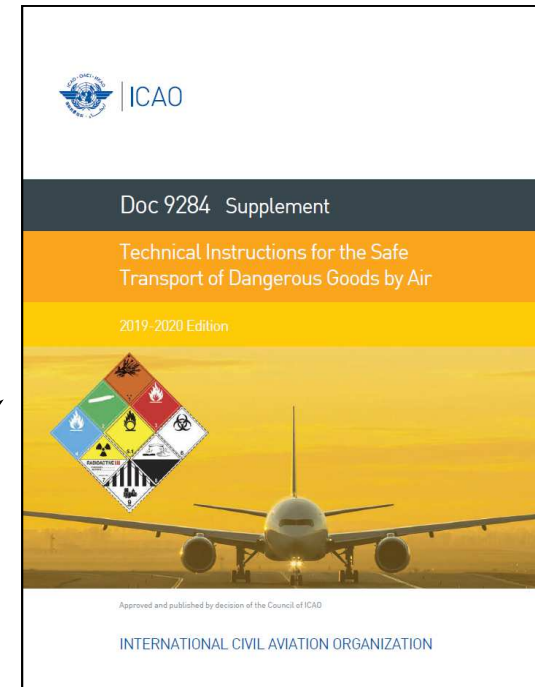
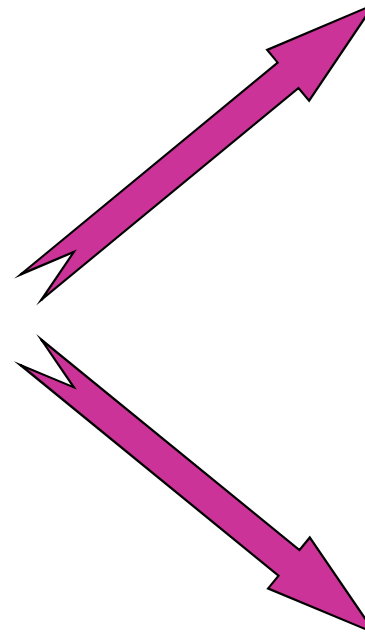


FRAMEWORK

➤ ... a Supplement (Doc 9284), which provides information mainly used by States, and guides them in the process of approvals and exemptions they may grant

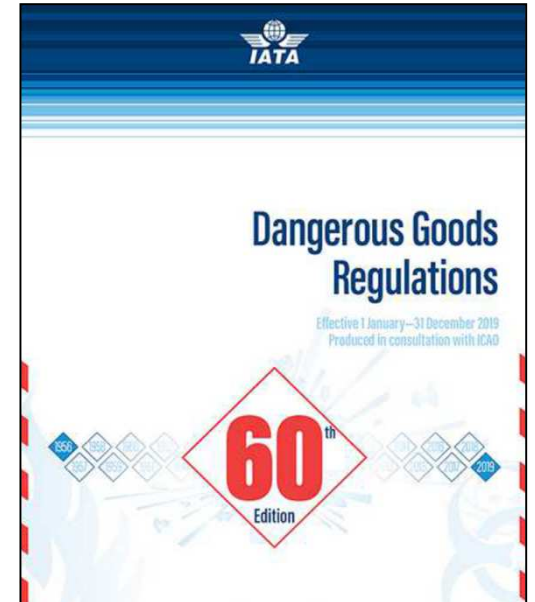
➤ In addition with TI, ICAO published ...

➤ ... an Emergency Response Guide (Doc 9481 AN/928), to provide guidance to States and Operators for developing procedures and policies for dealing with DG incidents on board aircraft



FRAMEWORK

- But the main documentation used by the Airlines is the IATA DGR (Dangerous Goods Regulation)
- Edited each year (when the TIs are edited each two years), this documentation is used by more than 230 member airlines from 126 nations, all their freight forwarders and handlers, and a majority of other airlines even if they are not IATA members
- DGR can be more restrictive than TIs, but TIs stay the reference according to the regulation



GENERAL DUTIES OF NAAs/CAAs

➤ EXAMINATION OF FILES

→ DG Training Programme Approval (+ study of the OPS Manual Part D) of Operators

→ Study of the OPS Manual Part A9 of the Operators (carrying or not DG)

In addition

✓ for Operators requiring an agreement to transport DG:

Study and Issuance of the authorization

✓ for Operators belonging a DG authorization:

Continuous survey regarding DG transportation process, renewal of the authorization

→ Issuance of Exemptions/Approbations (e.g. forbidden DG transportation, salvage packagings, etc.)

GENERAL DUTIES OF NAAs/CAAs

➤ INCIDENTS/ACCIDENTS PROCESSING

→ Review of preventive and corrective actions put in place

→ Information to foreign authorities, to ICAO

➤ OVERSIGHT ACTIONS

✓ “Dangerous Goods process” can be checked during surveillance audits:
e.g. audits related to “Organization – Flight Safety”, related to “Training”,
related to “Remote/Ground Handling Stations”

➤ INSPECTIONS

→ Ramp Inspections, Warehouse Inspections

REQUIREMENTS

➤ ICAO Annex 18 refers to the Technical Instructions

✓ A18-2.2.1: Each Contracting State shall take the necessary measures to achieve compliance with the detailed provisions contained in the Technical Instructions.

Each Contracting State shall also take the necessary measures to achieve compliance with any amendment to the Technical Instructions which may be published during the specified period of applicability of an edition of the Technical Instructions.

REQUIREMENTS

➤ No special approval is required by ICAO Annex 18 !

➤ A18-4.4.1: Dangerous Goods permitted for transport by air

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

➤ A18-4.4.2: Dangerous Goods forbidden for transport by air unless exempted

The dangerous goods described hereunder shall be forbidden on aircraft unless exempted by the States concerned under the provisions of 2.1 or unless the provisions of the Technical Instructions indicate they may be transported under an approval granted by the State of Origin:

- ✓ a) dangerous goods that are identified in the Technical Instructions as being forbidden for transport in normal circumstances; and
- ✓ b) infected live animals.

➤ A18-4.4.3: Dangerous Goods forbidden for transport by air under any circumstances ...

REQUIREMENTS

- **No special approval is required by ICAO Annex 18 !**
- **But since Annex 6 amendment 36 (November 2012) ...**
 - ➔ **A6-4.2.1.6: The operations specifications associated with the air operator certificate shall contain at least the information listed in Appendix 6, paragraph 3, and shall follow the layout of Appendix 6, paragraph 3**

SPECIAL AUTHORIZATIONS	YES	NO	SPECIFIC APPROVALS ⁹	REMARKS
Dangerous goods	<input type="checkbox"/>	<input type="checkbox"/>		

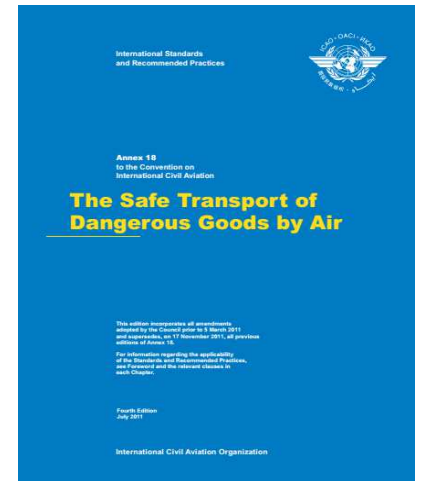
REQUIREMENTS

- **IR-OPS - SPA.DG.100: Transport of dangerous goods**
- ✓ **Except as provided for in Annex IV (Part-CAT), the operator shall only transport dangerous goods by air if the operator has been approved by the competent authority**

- **IR-OPS - CAT.GEN.MPA.200: Transport of dangerous goods**
- ✓ **(a) Unless otherwise permitted by this Annex, the transport of dangerous goods by air shall be conducted in accordance with Annex 18 to the Chicago Convention as last amended and amplified by the “Technical instructions for the safe transport of dangerous goods by air” (ICAO Doc 9284), including its supplements and any other addenda or corrigenda.**
- ✓ **(b) Dangerous goods shall only be transported by an operator approved in accordance with Annex V (Part-SPA), Subpart G**

REQUIREMENTS

- **Annex 18: 12 chapters (standard and recommended practices, including amendments 1 to 10)**
- **Chapter 1 = definitions**
- **Chapter 2 = applicability**
- **Chapter 3 = classification**
- **Chapter 4 = limitation on the transport of D.G. by air**
- **Chapter 5 = packing**
- **Chapter 6 = labelling and marking**
- **Chapter 7 = shipper's responsibilities**
- **Chapter 8 = operator's responsibilities**
- **Chapter 9 = provision of information**
- **Chapter 10 = establishment of training programmes**
- **Chapter 11 = compliance**
- **Chapter 12 = D.G. accident and incident reporting**
- **Chapter 13 = D.G. security provisions**



REQUIREMENTS

- **Technical Instructions = T.I.(s) -Doc 9284**
8 parts and 4 attachments (*effective 2019 - 2020*)
- **Part 1 = General**
- **Chapter 1 - Scope and applicability**
- **Chapter 2 - Limitations of DG on aircraft**
- **Chapter 3 - General information**
- **Chapter 4 - Training**
- **Chapter 5 - DG security**
- **Chapter 6 - General provisions concerning Class 7**
- **Chapter 7 – Incident and accident reporting**
- **Part 2 = Classification of Dangerous Goods**
- **Chapter 1 to 9 (Class 1 to 9)**



REQUIREMENTS

- **Technical Instructions (continuous)**
- **Part 3 = Dangerous Goods list, special provisions and limited and excepted quantities**
 - **Chapter 1 - General**
 - **Chapter 2 - Arrangement to the DG list (Table 3-1)**
 - **Chapter 3 - Special provisions**
 - **Chapter 4 - DG in limited quantities**
 - **Chapter 5 - DG packed in excepted quantities**
- **Part 4 = Packing instructions**
 - **Chapter 1 - General packing requirements**
 - **Chapter 2 - General**
 - **Chapter 3 to 11 - Class 1 to Class 9 packing instructions**



REQUIREMENTS

- **Technical Instructions (continuous)**

- **Part 5 = Shipper's responsibilities**

- **Chapter 1 - General**

- **Chapter 2 - Package markings**

- **Chapter 3 - Labelling**

- **Chapter 4 – Documentation**

- **Part 6 = Packaging nomenclature, marking, requirements & tests**

- **Chapter 1 - Applicability, nomenclature and codes**

- **Chapter 2 - Marking of packagings other than inner packagings**

- **Chapter 3 - Requirements for packagings**

- **Chapter 4 - Packaging performance tests**

- **Chapter 5 - Requirements for the construction and testing of cylinders and closed cryogenic receptacles, aerosol dispensers and small receptacles containing gas (gas cartridges) and fuel cell cartridges containing liquefied flammable gas**



REQUIREMENTS

- **Technical Instructions (continuous)**
- **Part 6 = Packaging,, tests (following)**
- **Chapter 6 - Packaging for infectious substances of Category A**
- **Chapter 7 - Requirements for the construction, testing and approval of packages and material of Class 7**

- **Part 7 = Operator's responsibilities**
- **Chapter 1 - Acceptance procedures**
- **Chapter 2 - Storage and loading**
- **Chapter 3 - Inspection and decontamination**
- **Chapter 4 - Provision of information**
- **Chapter 5 - Provisions concerning passengers and crew**
- **Chapter 6 - Provisions to aid recognition of undeclared DG**
- **Chapter 7 – Helicopter operations**



REQUIREMENTS

- **Technical Instructions (continuous)**
- **Part 8 = Provisions concerning passengers and crew**
- **Chapter 1 - Provisions for dangerous goods carried by passengers or crew**



- **Attachments**
- **Attachment 1 - List of proper shipping names**
- **Attachment 2 - Glossary of terms**
- **Attachment 3 - Notified variations from the Instructions**
- **Attachment 4 - Index and list of tables and figures**

REQUIREMENTS

- **IATA DGR - 61th edition**

(effective 1st January – 31th December 2020)

10 parts and 9 appendixes

(parallel only on important parts)

- **Part 1 = Applicability**

- **1.3 - Shipper's Responsibilities**

- **1.4 - Operator's Responsibilities**

- **1.5 - Training Requirements**

- **1.6 - Dangerous Goods Security**

- **1.7 - Incident and Accident reporting**



REQUIREMENTS

- **IATA DGR (continuous)**
- **Part 2 = Limitations**
- **2.0 - General**
- **2.1 - Forbidden Dangerous Goods**
- **2.2 - Hidden Dangerous Goods**
- **2.3 - Dangerous Goods Carried by Passengers or Crew**
- **2.4 - Transport of Dangerous Goods by Post**
- **2.5 - Dangerous Goods in Operator's Property**
- **2.6 - Dangerous Goods in Excepted Quantities**
- **2.7 - Dangerous Goods in Limited Quantities**
- **2.8 - States and Operators' Variations**



REQUIREMENTS

- **IATA DGR (continuous)**
- **Part 3 = Classification**
- **3.0 - General principle**
- **3.1 to 3.9 - Class 1 to Class 9**

- **Part 4 = Identification**
- **4.0 - General**
- **4.1 - Selecting Proper Shipping Name**
- **4.2 - List of Dangerous Goods**
- **4.3 - Numerical “Cross-Reference” List of Dangerous Goods**
- **4.4 - Special Provisions**

- **Part 5 = Packing**
- **5.1 to 5.9 - Class 1 to Class 9 packing instructions**



REQUIREMENTS

- **IATA DGR (continuous)**
- **Part 6 = Packaging Specifications and Performance Tests**
- **Part 7 = Marking and Labelling**
- **Part 8 = Documentation**
- **8.1 - Shipper's Declaration, 8.2 - Air Waybill**
- **Part 9 = Handling**
- **9.0 - General, 9.1 - Acceptance, 9.2 - Storage,**
- **9.3 – Loading, 9.4 – Inspection**
- **9.5 - Provision of Information, 9.6 - Reporting**
- **9.7 - Training, 9.8 - Retention of Documents**



REQUIREMENTS

- **IATA DGR (continuous)**

- **Part 10 = Radioactive material**
- **10.0 - Transport of Radioactive Material**
- **10.1 - Applicability, 10.2 – Limitations, 10.3 – Classification**
- **10.4 – Identification, 10.5 - Packing**
- **10.6 - Packaging Specifications and Performance Testing**
- **10.7 - Marking and Labelling, 10.8 - Documentation**
- **10.9 - Handling, 10.10 - Additional Shipment Preparation**

- **Appendix A = Glossary**

- **Appendix B = Nomenclature**

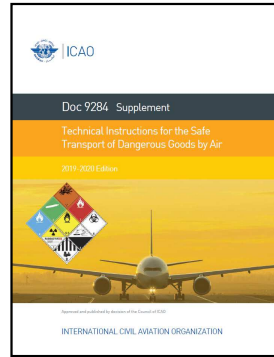


REQUIREMENTS

➤ Supplement to the T.I. - Doc 9284

7 supplementary Parts "S"

Each one is an additional part linked to a chapter of the T.I.



➤ Part S1 - General (Part 1 of T.I.)

➤ Part S3 - DG List, Special Provisions & Quantity Limitations (Part 3 of T.I.)

➤ Part S4 - Packing Instructions (Part 4 of T.I.)

➤ Part S5 – State’s Responsibilities with respect to Shippers (Part 5 of T.I.)

➤ Part S6 - Packaging Nomenclature, Marking, Requirements and Tests (Part 6 of T.I.)

➤ Part S7 - State’s Responsibilities with respect to Operators (Part 7 of T.I.)

➤ Part S8 - Passengers Awareness (Part 8 of T.I.)

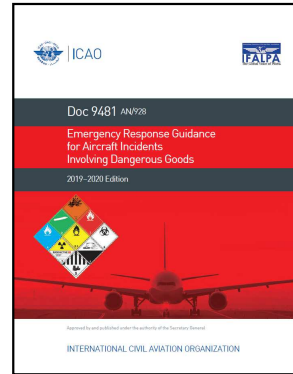
REQUIREMENTS

- **Emergency Response Guidance for aircraft incidents involving D.G. (usually called “red book”)**

Doc 9481 - AN/928

4 sections

- **Section 1 – General information (cargo compartment classification, oxygen equipment, emergency response kit, ...)**
- **Section 2 - General considerations (D.G. in the passenger cabin, in the under floor cargo compartments, on the main deck of combi aircrafts, on cargo aircrafts)**
- **Section 3 - Examples of D.G. incidents checklists (in the event of incidents concerning the dangerous goods during flight)**
- **Section 4 – Chart of Drills and List of the dangerous goods with Drill reference number (drill code & table 4.1)**



Thank you for your attention



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