CIVIL AIR REGULATIONS

PART 49

TRANSPORTATION OF EXPLOSIVES AND OTHER DANGEROUS ARTICLES

Effective June 25, 1958

CIVIL AERONAUTICS BOARD

WASHINGTON, D. C.

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PART 49—TRANSPORTATION OF EXPLOSIVES AND OTHER DANGEROUS ARTICLES

Regulations governing the air transportation of explosives were originally promulgated in 1942 and expanded to cover "other dangerous articles" in 1944. These rules were amended in 1949 by the promulgation of a revised Part 49 to permit the carriage of additional articles as the experience gained by operators had shown that they were capable of handling a greater variety of these materials with safety. The safety standards used were the then current Interstate Commerce Commission Regulations applicable to shipments by rail express since this type of shipment closely approximated conditions met in air transportation. These requirements were more conservative and provided a greater margin of safety than were required for other means of transportation.

In 1949, Appendices A and B were added which listed those articles prohibited from transportation by air and those articles prohibited from transportation on passenger-carrying aircraft, respectively. The articles listed in Appendix A were derived from those which were not acceptable under the ICC Regulations for shipment by rail express. The articles listed in Appendix B were derived from those which were not exempt from the packing, marking, and labeling requirements of the ICC Regulations for shipment by rail express. In promulgating Part 49, the Board envisioned that the commodities listed in the appendices would be examined periodically on the basis of information furnished by the Bureau of Explosives, changes in the ICC Regulations, and such other data as became available. On the basis of information furnished by the Bureau of Explosives, the ICC Regulations have been amended quarterly. However, the appendices of Part 49 have not been amended since they were adopted in 1949. In order to insure that Part 49, without further amendment, will be continuously in accord with the ICC Regulations as they are amended from time to time, this revision contains references to the appropriate ICC Regulations and the appendices have been deleted. However, it should be emphasized that the Board's close working relationship with the Bureau of Explosives, the Interstate Commerce Commission, the Civil Aeronautics Administration, and other organizations expert in this field will be continued.

The special authority provisions of present Part 49 authorize the Administrator to permit deviations from this part for a particular flight in emergency situations, or where other forms of transportation are impracticable, where he finds that the conditions under which the articles are to be carried are such as to permit the safe carriage of persons or cargo. This revision is similar except that the Administrator may impose such terms, conditions, and limitations as he finds necessary in the interest of safety in air commerce. This change gives discretion to the Administrator to impose conditions, such as prior approval of the management of the airport of intended landing, as are necessary to insure a safe operation.

Present Part 49, as amended by Amendment 49-2, refers to Board action on December 27, 1954, approving, under Section 412 of the Civil Aeronautics Act, International Air Transport Association Traffic Conference Resolution 608 (as amended) with respect to shippers' certification and labeling requirements. Subsequent action was taken by the Board on June 15 and December 16, 1955, approving the IATA Resolutions which contain "IATA Regulations Relating to the Carriage of Restricted Articles." Labels approved by this subsequent Board action have been accepted by the ICC and are presently approved for use by the ICC Regulations. Accordingly, reference to the IATA labels has been deleted. While either the pictorial or nonpictorial label as contained in the ICC Regulations is acceptable to the United States, Canada, and Mexico for both domestic and international air shipments, only the pictorial label is acceptable to other countries as a result of the IATA Resolution. Therefore, while this part continues to permit the use of either label, it may facilitate the international air movement of commodities covered under Part 49 if the pictorial label is initially affixed to such commodities.

This part, by referencing the ICC Regulations, automatically requires the marking of proper shipping names as shown in Part 72 of the ICC Regulations. The names of restricted articles listed in the IATA Tariff are not always identical with the proper shipping names in the ICC Regulations. Therefore, to facilitate international air movement of these articles, a note has been added to § 49.11 which permits additional parenthetical identification of such articles.

Technically, some of the materials carried to be dispensed during aerial application operations are not permitted to be carried in air transportation under current Part 49. In order to correct this situation, a new section is being added which will exempt these materials when carried during actual aerial application operations.

Under present Part 49 notification to the pilot of the loading of dangerous goods on board his aircraft may be made by entering the required information on the load manifest. It has been brought to our attention that in many instances this procedure is not adequate, as often the pilot is not aware that articles subject to the provisions of Part 49 have been loaded aboard his aircraft. Accordingly, the appropriate section has been reworded in this revision to assure that the pilot in command is cognizant of such shipments and their location aboard the aircraft.

The carriage of nitrocellulose base film and pyroxylin plastics in passenger and cargo operations is permitted under currently effective Part 49. The carriage of this film is predicated upon its being packed, marked, and labeled in accordance with the requirements of the ICC Regulations. In Civil Air Regulations Draft Release No. 56-23 it was proposed that such articles be prohibited from shipment in air commerce. The comments received indicate that there is a continuing need to permit the shipment of this film in air transportation, and that it has been carried for many years under the present provisions without incident. Information received from the Bureau of Explosives indicates that there have been no incidents of a fire of this film other than old and worn-out or scrap material. In view of the above, certain film will continue to be permitted to be shipped in both passenger-carrying and cargo aircraft subject to the packing, marking, and labeling requirements contained in the ICC Regulations for such film. With respect to pyroxylin plastics in sheets, rolls, rods, or tubes, experience in the shipment of these products over the past years has indicated that these articles may be shipped safely in passenger-carrying and cargo aircraft in accordance with the specifications in the ICC Regulations. Additionally, the Bureau of Explosives has advised that these materials will not heat spontaneously under conditions normal to transportation. Accordingly, the shipment of these articles will continue to be permitted in air commerce.

Present Part 49 permits flammable liquids to be carried in quantities of not more than one quart in inside metal containers or in quantities of not more than one pint in inside glass or earthenware containers, and permits acids and other corrosive liquids in bottles of not more than one pint and Class B poisonous liquids in quantities of not more than one pint in glass containers or not more than one quart in metal containers. By referencing the ICC Regulations, this revision eliminates the present requirements in Part 49 which prescribe the type of inside container so that other adequate containers may be used as provided in the ICC Regulations. Provision is also made so that quantities up to a total net capacity of one quart may be packed in any one strong outside container. While no provision is made in the part, multiple outside containers meeting the requirements of this part may be consolidated in a suitable manner for ease of handling and shipping. If this is accomplished in an additional container, this container or package would not be interpreted to be "an outside container."

Part 49 presently permits the carriage of most nonflammable compressed gases. However, there are seven such gases which, according to expert opinion, should continue to be prohibited in passenger-carrying operations. This revision continues such a prohibition.

While safety matches (strike-on-the-box type) are presently listed by Part 49 as flammable solids and are required to be packed in tightly closed metal containers in quantities of not more than 25 pounds in strong outside containers, these articles are not presently subject to ICC regulation and, accordingly, are not regulated under this revision.

In addition to the comments received in response to Draft Release 56-23 (21 F. R. 6574), extensive discussions have been held with representatives of the Civil Aeronautics Administration, the Interstate Commerce Commission, the Bureau of Explosives, industry associations, and other interested persons, and due consideration has been given to all relevant matter presented.

In consideration of the foregoing, the Civil Aeronautics Board hereby revises Part 49 of the Civil Air Regulations (14 CFR Part 49, as amended) as follows, effective June 25, 1958:

APPLICABILITY AND DEFINITIONS

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PASSENGER-CARRYING AIRCRAFT

49.31 Articles which may be carried on passenger-carrying aircraft.

CARGO AIRCRAFT

Sec.
49.41 Articles which may be carried on cargo aircraft.

AUTHORITY: §§ 49.1 to 49.41 issued under sec. 205, 52 Stat. 984, as amended; 49 U. S. C. 425. Interpret or apply secs. 601, 902, 52 Stat. 1007, as amended, 1015, as amended; 49 U. S. C. 551, 622.

APPLICABILITY AND DEFINITIONS

§ 49.1 *Applicability of this part.* (a) Explosives and other dangerous articles, as defined and regulated in Parts 72 through 78 of the ICC Regulations (49 CFR Parts 72 through 78) including but not limited to flammable liquids, flammable solids, oxidizing materials, corrosive liquids, compressed gases, and poisonous articles shall not be loaded in or transported by civil aircraft in the United States, or transported anywhere in air commerce in civil aircraft of United States registry, except as hereinafter provided.

(b) Explosives and other dangerous articles listed in Part 72 of the ICC Regulations (49 CFR Part 72) as articles not accepted for rail express shall not be loaded in or transported by civil aircraft in the United States or transported anywhere in air commerce in civil aircraft of United States registry.

(c) The provisions of this part shall not be applicable to radioactive materials meeting the requirements of Parts 72 and 73 of the ICC Regulations (49 CFR Parts 72, 73) which exempt them from the prescribed packing, marking, and labeling requirements thereof for shipment by rail express.

(d) The provisions of this part shall not be applicable to aircraft equipment such as signaling devices, aviation fuel and oil carried in tanks complying with the fuel and oil tanks installation provisions of the Civil Air Regulations, and other equipment and materials necessary for the safe operation of the aircraft on which they are carried.

(e) The provisions of this part shall not be applicable to materials while carried in the hoppers or tanks of aircraft certificated for use in aerial seeding, dusting, spraying, fertilizing, crop improvement, or pest control and which are to be dispensed during such operations.

NOTE: In addition to other authorized sanctions, section 902 of Title IX of the Civil Aeronautics Act of 1938, as amended (52 Stat. 1015, as amended; 49 U. S. C. 622), provides that any person who knowingly delivers or causes to be delivered to an air carrier or to the operator of any civil aircraft for transportation in air commerce, or who causes the transportation in air commerce of, any shipment, baggage, or property, the transportation of which is prohibited by any rule, regulation, or requirement prescribed by the Civil Aeronautics Board, pursuant to authority under Title VI of the Civil Aeronautics Act of 1938, as amended, relating to the transportation, packing, marking, or description of explosives or other dangerous articles shall, upon conviction thereof for each such offense, be subject to the applicable penalties set forth therein.

§ 49.2 *Special authority.* (a) In emergency situations or where other forms of transportation are impracticable:

(1) Deviation from any of the provisions of this part for a particular flight may be authorized by the Administrator subject to such terms, conditions, and limitations as he finds necessary in the interest of safety in air commerce.

(2) Shipments made by the Atomic Energy Commission shall be exempt from the quantity limitation prescribed for radioactive materials in the ICC Regulations for shipment by rail express provided such shipments are otherwise in accordance with the requirements approved by the Interstate Commerce Commission for shipment by rail express and prior notification of each shipment is given by the Atomic Energy Commission in the form and manner prescribed by the Administrator.

(b) Shipments of radioactive materials made by the Atomic Energy Commission or under its direction or supervision, which are escorted by personnel who are especially designated by the Atomic Energy Commission, shall be exempt from the provisions of this part where special arrangements are made with and approved by the Administrator.

§ 49.5 *Definitions.* As used in this part, terms are defined as follows:

Cargo aircraft. A cargo aircraft is an aircraft which is not a passenger-carrying aircraft and which is used for the carriage of goods.

Explosives and other dangerous articles. (As defined in Part 73 of the ICC Regulations (49 CFR Part 73)):

Acids and other corrosive liquids.
Compressed gases.
Explosives.
Flammable liquids.
Flammable solids.
Oxidizing materials.
Poisonous articles.

ICC Regulations. ICC Regulations are the currently effective "Interstate Commerce Commission's Regulations for Transportation of Explosives and Other Dangerous Articles," as amended or revised from time to time (49 CFR Parts 71–78).

NOTE: These ICC Regulations may be obtained from the Government Printing Office, Washington 25, D. C., or from the Bureau of Explosives, 30 Vesey Street, New York 7, New York.

Labeling. Labeling is the display on a container of the appropriate label specified in the ICC Regulations for the particular class of article.

Marking. Marking is the display on the outside of a container of the name of the article inside as required by this part.

Operator of aircraft. Operator of aircraft is any person who causes or authorizes the operation of any civil air-

craft, whether with or without the right of legal control (in the capacity of owner, lessee, or otherwise) of such aircraft.

Passenger-carrying aircraft. A passenger-carrying aircraft is an aircraft carrying any individual other than a flight crew or crew member, company employee, or an authorized Government representative, or individuals accompanying shipments.

Person. Person is any individual, firm, copartnership, corporation, company, association, joint-stock association, or body politic; and includes any trustee, receiver, assignee, or other similar representative thereof.

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

Quantity. Quantity is that net amount specified in United States liquid measure or in avoirdupois weight, unless otherwise provided in this part.

Unit of radiation. As defined in Part 73 of the ICC Regulations (49 CFR Part 73).

SHIPPING REQUIREMENTS

§ 49.11 *Packing and marking requirements.* Unless otherwise specifically provided in this part, explosives and other dangerous articles shall be packed and marked in accordance with the requirements prescribed in Parts 72, 73, and 78 of the ICC Regulations (49 CFR Parts 72, 73, 78) as are applicable to rail express.

NOTE: The marking required by this provision may be followed by additional identification in parentheses.

§ 49.12 *Labeling requirements.* Unless otherwise specifically provided in this part, explosives and other dangerous articles acceptable under the provisions of this part for transportation in air commerce shall be labeled by the shipper with the appropriate label specified in the ICC Regulations even though they may be exempt from ICC labeling requirements by virtue of ICC quantity and packing limitations.

§ 49.13 *Certification requirements.* (a) No shipper shall offer and no air carrier or other operator of aircraft shall knowingly accept explosives and other dangerous articles for carriage by air unless the package is accompanied by or shows a clear and plainly visible statement signed by the shipper or his duly authorized agent that the shipment complies with the requirements of this part. No such shipment shall be accepted for transportation by passenger-carrying aircraft unless the shipper's certification includes an additional statement that the shipment is within the limits prescribed by this part for passenger-carrying aircraft. Any air carrier or other operator of aircraft may rely on such a certification as prima facie evidence that the shipment so certified complies with the requirements of this part.

NOTE: The following statement signed by the shipper or his duly authorized agent will be accepted as meeting this requirement: This is to certify that the contents of this package are properly described by name and are packed, marked, and labeled and are in proper condition for transportation according to the regulations prescribed by the Interstate Commerce Commission and ~~the Civil Aeronautics Board~~.

For shipment on passenger-carrying aircraft the following must be added to the above: This shipment is within the limitations prescribed for passenger-carrying aircraft.

(b) The shipper's certification of compliance with this part shall be made upon the ICC label affixed to each package containing explosives or other dangerous articles when there is a provision on the face of the label for such certification. When the label used does not so provide, such certification shall be made in duplicate and signed by the shipper or his duly authorized agent for each consignment. One signed copy shall accompany the shipment and the other signed copy shall be retained by the originating carrier. The air carrier or other operator of aircraft may also require the shipper to have the shipper's statement certified by an authority approved by the carrier.

§ 49.14 *Quantity equivalents.* Quantities measured by the metric system or the imperial system may be substituted on the basis of one liter or one imperial quart per quart specified, and 500 grams per pound specified, up to one gallon for liquids or 10 pounds for solids.

§ 49.15 *Containers for liquids.* (a) Liquids shall be packed only in inside containers which are securely closed, sufficient in strength to prevent any leakage or distortion of the containers caused by change in temperature or pressure during transit, and so filled as to provide adequate outage.

(b) When liquids are restricted to quantities of one quart in inside containers, each such inside container shall be packed in a strong outside container with suitable cushioning and absorbent material to prevent breakage or leakage.

(c) When liquids are restricted to quantities of less than one quart in inside containers, each such inside container shall be packed in a strong outside container with suitable cushioning and absorbent material to prevent breakage or leakage: *Provided,* That such inside containers of a total capacity not to exceed one quart may be packed in a strong outside container with suitable cushioning and absorbent material to prevent breakage or leakage.

LOADING AND HANDLING REQUIREMENTS

§ 49.21 *Cargo location.* (a) Articles subject to the requirements of this part shall not be carried in the cabins of passenger-carrying aircraft.

(b) Any article acceptable only for cargo aircraft shall be carried in a location accessible to a crew member in flight.

(c) Articles shall not be placed in the same cargo pit or bin nor placed side by side in cabins so that yellow label material is mixed with white label material.

§ 49.22 *Notification of pilot in command.* When articles subject to the provisions of this part are carried on aircraft, the operator of the aircraft shall be responsible for informing the pilot in command of the name of the explosive or other dangerous article, the type of label, the quantity, and the location thereof. The cargo load manifest shall be conspicuously marked to indicate articles subject to the provisions of this part.

§ 49.23 *Damaged articles.* If any package subject to the provisions of this part, except as otherwise provided in § 49.25, appears to the pilot in command or the operator of the aircraft to be damaged or leaking, the operator of the aircraft shall remove it from the aircraft and it shall not be returned to transportation by air until it has been determined that the package and its contents comply with the requirements of this part. In such instances, the operator of the aircraft shall promptly report the circumstances to a representative of the Administrator, ~~or the Board~~.

§ 49.24 *Quantity limitations.* Except as provided below, not more than 50 pounds net weight of any article subject to the packing, marking, and labeling provisions of this part may be carried in any cargo pit or bin on passenger-carrying aircraft, or in any inaccessible cargo pit or bin on any aircraft:

(a) Not more than 150 pounds net weight of nonflammable compressed gas may be carried in any single cargo pit or bin on passenger-carrying aircraft or in any inaccessible cargo pit or bin on any aircraft.

(b) Not more than 40 units of radioactive material Groups I or II may be carried on any aircraft.

§ 49.25 *Special requirements for radioactive materials.* (a) Whenever any shipment of radioactive materials is damaged or appears to the pilot in command or the operator of the aircraft to be damaged, the operator shall remove it from the aircraft and segregate it from human contact. The operator of the aircraft shall immediately contact the shipper for disposal instructions and notify the Administrator or the Board of the incident.

(b) Whenever there is any actual spillage of radioactive materials of such nature that the materials are no longer contained within their inner containers, no attempt shall be made to remove or clean up the materials until instructions are received from the shipper or other qualified persons, and then only when necessary protective measures have been taken, and qualified persons are present to supervise the handling.

(c) A container or group of containers of radioactive materials shall not be placed closer than the distance specified in the distance table below to any area that may be continuously occupied by crew members or passengers. If more than one such container is present, the distance shall be computed from such table by adding together the number of units shown on the label of each package.

TABLE FOR PERSONNEL SEPARATION [1]

Total number of units [2]	Minimum distance to crew members and passengers feet [3]
0–2	1
3–5	2
6–10	3
11–20	4
21–30	5
31–40	6

[1] This table is designed to afford maximum protection to human beings from the effects of radiation and will not protect X-ray film from such effects under all conditions of exposure. Distance separation required by this table for Groups I and II, red label, radioactive materials is not required for Group III, blue label, radioactive materials.

[2] Total number of units refers to the number found on the red label of a single package entered on the line reading, "Radiation Units from Package No. * * *". For two or more packages stored together, the total of the numbers of all such packages is meant.

[3] Distance means the number of feet from the nearest edge of the nearest radioactive container.

(d) If any aircraft is engaged frequently in the transportation of radioactive materials, it shall be the responsibility jointly of the shipper and the operator of the aircraft to monitor all personnel involved so that the accepted limits of personnel radiation exposure are not exceeded.

PASSENGER-CARRYING AIRCRAFT

§ 49.31 *Articles which may be carried on passenger-carrying aircraft.* No explosive or other dangerous article shall be carried on passenger-carrying aircraft, other than the following:

(a) Explosives and other dangerous articles which are exempt under the ICC Regulations from the specification packing, marking, and labeling requirements of Parts 72, 73, and 78 thereof (49 CFR Parts 72, 73, 78) applicable to rail express.

(b) Class C explosives when packed, marked, and labeled in accordance with the requirements of Parts 72 and 73 of the ICC Regulations (49 CFR Parts 72, 73) for shipment by rail express except that the maximum that may be packed in one outside container is 50 pounds.

(c) Subject to the limitations contained in § 49.24 (a), nonflammable compressed gases when in ICC approved cylinders and at pressures not to exceed those permitted by the ICC Regulations for shipment by rail express except that the following may not be carried: Anhydrous ammonia, boron trifluoride, chlorine, hydrogen bromide, hydrogen chloride, nitrosyl chloride, and sulfur dioxide.

(d) Motion picture film and X-ray film (nitrocellulose base) exposed and unexposed when packed, marked, and labeled in accordance with the requirements of Parts 72 and 73 of the ICC Regulations (49 CFR Parts 72, 73) for shipment by rail express.

(e) Pyroxylin plastics containing nitrocellulose in sheets, rolls, rods, or tubes when packed, marked, and labeled in accordance with the requirements of Parts 72 and 73 of the ICC Regulations (49 CFR Parts 72, 73) for shipment by rail express.

(f) (49-1)

CARGO AIRCRAFT

§ 49.41 *Articles which may be carried on cargo aircraft.* In addition to the articles acceptable for transportation on passenger-carrying aircraft, the following articles may be carried on cargo aircraft:

(a) Any article acceptable under the ICC Regulations for transportation by rail express. The maximum quantity in any one outside package or container shall not exceed that prescribed for rail express in the commodity list of Part 72 of the ICC Regulations (49 CFR Part 72).

(b) (1) Radioactive materials such as ores, residues, etc., of low activity packed in strong, tight containers are exempt from the packing and labeling requirements of this part for shipment in planeload lots, provided the per-planeload radiation intensity at one meter from any outside surface of the load (as loaded in place in the airplane) does not exceed 10 milliroentgens per hour of gamma radiation or equivalent. There shall be no loose radioactive material in the airplane, and the shipment must be braced and lashed so as to prevent leakage or shift of lading under normal conditions of flight.

(2) It is the responsibility of the consignor and/or consignee as appropriate to supervise all loading and unloading operations and to monitor all personnel involved so that the accepted limits of personnel radiation exposure are not exceeded.

Effective: June 25, 1958.

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By the Civil Aeronautics Board.

[SEAL] M. C. MULLIGAN,
Secretary.

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