UNITED STATES OF AMERICA
FEDERAL AVIATION AGENCY
WASHINGTON, D. C.

Civil Air Regulations Amendment 40-24
Effective: March 10, 1960
Issued: January 6, 1960

PART 40 — SCHEDULED INTERSTATE AIR CARRIER CERTIFICATION AND OPERATION RULES

Drinking and Serving of Alcoholic Beverages

A notice of proposed rule making was published in the FEDERAL REGISTER July 3, 1959 (24 F.R. 5424) and circulated to the industry as Draft Release 59-7 dated July 3, 1959, which proposed to amend Part 40 by adding a new § 40.371 to prohibit (1) the drinking of any alcoholic beverage aboard an air carrier aircraft unless the beverage has been served by the air carrier operating the aircraft, and (2) the serving by the air carrier of such beverage to any person who is or who appears to be intoxicated.

A large number of comments were received from individuals, air carriers, and other industry representatives. These comments ranged from opposition to hearty endorsement of the proposal, including suggestions that it did not go far enough and that all drinking and serving of alcoholic beverages aboard air carrier aircraft should be prohibited. Many of the comments were motivated by moral, religious, or social considerations, as well as safety.

The Federal Aviation Agency, when it proposed the rule, did so only after careful investigation and study. The Agency's responsibility is only for the air safety considerations and not for the social or moral aspects. The study and investigations which preceded the notice of proposed rule making were largely conducted by the Civil Aeronautics Administration, one of the predecessor agencies of the Federal Aviation Agency. The result indicated that there was no factual information, nor any specific occurrences sufficient to establish a safety hazard arising from the serving of alcoholic beverages by the air carrier to passengers aboard air carrier aircraft. The instances which were revealed tended to show that the occasional difficulties experienced had been caused either by passengers who had consumed a considerable quantity of alcoholic beverages prior to boarding the plane, or by those who drank from their own bottles during the course of the flight. This conclusion has been emphasized and verified by many of the comments received from the air carriers affected.

In addition to being confined to the safety aspects of this problem, the proposal was designed to regulate only so far as was necessary to meet safety requirements. It proposed to interfere as little as possible with the personal freedom of passengers and at the same time to prevent abuses that could possibly create a hazardous situation. It was for this reason that the proposed rule did not prohibit the consumption of alcoholic beverages, but sought to subject it to reasonable control. It is a generally accepted fact that flat prohibition has not proven successful in preventing consumption of alcoholic beverages. In this type of situation, it might even work adversely, since passengers who wish to drink might either do so to excess in advance of the flight, knowing that they could not obtain a drink aboard an aircraft, or would be encouraged to engage in surreptitious drinking from their own supply after boarding.

Some of the carriers and individuals who commented apparently misconstrued the intent of the proposed regulation insofar as they interpreted it as prohibiting passengers from bringing their own liquor aboard an aircraft. This was not our intention. The restriction proposed is against the consumption of alcoholic beverages unless they are served to the passengers by the air carriers. So construed, this would permit persons to bring liquor aboard and have it served to them by the air carrier, if the air carrier wishes to provide such service. Some of the comments received from individuals made the point that they were accustomed to having a drink before a meal, or that they required or desired some liquor for medicinal reasons or to contribute to their peace of mind while flying. The rule as proposed and adopted herein would permit a carrier to develop its own policies in this regard so that it might accommo-

date the varying needs of its passengers, and at the same time prevent any safety hazard.

There was also some misapprehension as to the extent of the carrier's and its personnel's responsibility for enforcing this regulation. Some apparently thought that the crew members would be required to restrain physically a passenger who wished to consume drinks that were not served to him by the carrier, and they foresaw difficulties with discharging such a responsibility. This regulation would impose no such responsibility on the flight crew members. This regulation, like all other regulations adopted by the Agency, would be enforced through the various enforcement processes of the Agency. It is expected of the carriers that they would advise their passengers of the restriction in such a regulation and make suitable reports to the Agency of any known violations. The only time it would be expected that a crew member would be required to take direct action would be when such action is required for the safety of the flight. This is no greater burden than that now on the crew members to do whatever is necessary for the safety of the aircraft and the persons aboard it.

Several comments were made pointing out that the proposed rule prohibited an air carrier from serving an alcoholic beverage to any person if such person "is or appears" to be intoxicated. It was pointed out that a person might not appear to be intoxicated when, in fact, he or she was, and those commenting did not feel that it was proper to impose responsibility for this type of judgment. With this the Agency agrees and the words "is or" will be stricken from the proposed regulation, so that the carrier and its personnel may rely on the appearance of the passenger in determining whether or not to serve him or her alcoholic beverages. Two of the carriers proposed that action on the proposed regulation be delayed to permit the air carrier industry to develop a code which would control the amount and time of serving alcoholic beverages aboard aircraft. The Agency is strongly in favor of any such voluntary agreements that can be reached among the carriers. To the extent that they are in effect and complied with, they would clearly contribute to decreasing any safety hazard arising from the consumption of alcoholic beverages aboard air carrier aircraft. On the other hand, a code of this kind could not reach the principal problem involved—that of uncontrolled consumption by a passenger of his own liquor supply. Therefore, the adoption of a code, while extremely helpful, would not meet the entire problem. The adoption of this regulation will not in any way inhibit the industry from adopting their own code, and in fact such a move would be viewed with favor by this Agency.

Interested persons have been afforded an opportunity to participate in the making of this regulation and due consideration has been given to all relevant matter presented.

In consideration of the foregoing, Part 40 of the Civil Air Regulations (14 CFR Part 40) is hereby amended by adding a new § 40.371 to read as follows:

§ 40.371 Drinking and serving of alcoholic beverages.

(a) No person shall drink any alcoholic beverage aboard an air carrier aircraft unless such beverage has been served to him by the air carrier operating the aircraft.

(b) No air carrier shall serve any alcoholic beverage to any person aboard an air carrier aircraft if such person appears to be intoxicated.

This amendment shall become effective on March 10, 1960.

(Secs. 313(a), 601; 72 Stat. 752, 775; 49 U.S.C. 1354, 1421)

Issued in Washington, D.C., on January 6, 1960.

E. R. QUESADA,
Administrator.

[F.R. Doc. 60-234; Filed, Jan. 8, 1960; 8:50 a.m.]

USCOMM-DC-20906

CIVIL AIR REGULATIONS

Part 41

PART 41—CERTIFICATION AND OPERATION RULES FOR SCHEDULED AIR CARRIER OPERATIONS OUTSIDE THE CONTINENTAL LIMITS OF THE UNITED STATES

As amended to April 15, 1955

CIVIL AERONAUTICS BOARD

WASHINGTON, D. C.

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TITLE 14—CIVIL AVIATION

Chapter I—Civil Aeronautics Board

Subchapter A—Civil Air Regulations

PART 41—CERTIFICATION AND OPERATION RULES FOR SCHEDULED AIR CARRIER OPERATIONS OUTSIDE THE CONTINENTAL LIMITS OF THE UNITED STATES

REVISION OF PART

Because of the number of outstanding amendments to Part 41, it has been decided to issue a revision of this part incorporating all amendments thereto in effect on April 15, 1955. Attention is also called to the following minor changes which have been made:

(1) Paragraph (e) of § 41.20 has been deleted.

(2) Paragraph (f) of § 41.20 has been redesignated as paragraph (e) and obsolete dates and references in subparagraphs (1), (2), and (3) have been deleted and the remaining references in these subparagraphs have been incorporated into paragraph (e).

(3) Provisos containing references to obsolete compliance dates have been deleted in §§ 41.24, 41.24a, 41.24b, 41.36, and 41.48 (c).

(4) Cross-references in § 41.25 (e) have been brought up to date.

(5) Section 41.26 has been changed to read substantially the same as Part 40. This involves no substantive change but incorporates dates in the regulations which are applicable at the present time.

(6) Provisos in effect during and immediately after World War II have been deleted from §§ 41.54 (d) and (e), 41.55 (c) and (d), and 41.56 (d).

(7) References to dates no longer applicable have been deleted in §§ 41.69, 41.73, and 41.74.

(8) All definitions in § 41.137 have been arranged alphabetically, without paragraph letters.

Since the changes effected by this revision are minor in nature and impose no additional burden on any person, notice and public procedure hereon are unnecessary and the revised part may be made effective on less than 30 days' notice.

In consideration of the foregoing, the Civil Aeronautics Board hereby revises Part 41 of the Civil Air Regulations (14 CFR Part 41, as amended) as attached hereto, effective on April 15, 1955.

By the Civil Aeronautics Board.

[SEAL] M. C. MULLIGAN,
Secretary.

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AUTHORITY: §§ 41.0 to 41.137 issued under sec. 205, 52 Stat. 984; 49 U. S. C. 425. Interpret or apply secs. 601, 602, 604, 52 Stat. 1007, as amended, 1008, 1010; 49 U. S. C. 551, 552, 554.

CERTIFICATE

§ 41.0 *General.* The regulations in this part are prescribed for scheduled air transportation operations conducted by air carriers between a place in any State of the United States, or the District of Columbia, and any place in a Territory or possession of the United States; or between any place in a Territory or possession and a place in any other Territory or possession of the United States; or between places in a Territory or possession; or between any place in the United States and any place outside thereof; or between any two places outside the United States.

§ 41.1 *Issuance.* An air carrier operating certificate prescribing the type of operation, the routes over which such operation may be conducted, the airports which may be used, and such other specifications and restrictions as may be reasonably required in the interest of safety shall be issued by the Administrator to an applicant who demonstrates that he is capable of conducting the proposed operations in accordance with the applicable regulations specified in this part.

(a) *Alaskan air carriers.* Whenever, upon investigation, the Administrator finds that the general standards of safety required for air carrier operations within the Territory of Alaska require or permit a deviation from any specific requirement of this part for a particular operation or a class of operations for which an application for an air carrier operating certificate has been made, he may issue an air carrier operating certificate with appropriate changes, specifying therein the period during which such deviations may be permitted. The Administrator shall promptly notify the Board of any deviations included in the air carrier operating certificates and the reasons therefor.

§ 41.2 *Compliance.* All operations shall be conducted in accordance with the specifications of the air carrier operating certificate and the rules contained in this part.

§ 41.3 *Duration.* An air carrier operating certificate will continue in effect until canceled, suspended, or revoked, after which it shall be surrendered to any officer or employee of the Administrator upon request.

§ 41.4 *Display.* The air carrier operating certificate shall be available at the appropriate operations office for inspection by any authorized representative of the Administrator or Board.

§ 41.5 *Inspection.* An authorized representative of the Administrator shall be permitted at any time and place to make inspections or examinations to determine the operator's compliance with the appropriate requirements of the regulations in this subchapter and the Civil Aeronautics Act of 1938, as amended.

PASSENGER OPERATION RULES

ROUTE REQUIREMENTS

§ 41.10 *Airport spacing.* In the case of operations employing aircraft having two engines, airports adequate for the aircraft used shall be located so that the aircraft, when flying along the route, will at no time be at a greater distance therefrom than 45 minutes flying at normal cruising speed, except where the Administrator finds that because of the character of the terrain, the type of operation, and the performance of aircraft used adequate safety will be provided with airports spaced at greater distances.

§ 41.11 *Communications facilities.* A two-way ground-to-aircraft radio communications system shall be available at such points as are necessary to insure adequate communication between plane and ground over the entire route.

§ 41.12 *Weather reporting services.* Weather reporting services shall be available at such points along the route as are necessary to insure sufficient weather reports prepared from observations made and released by a source acceptable to the Administrator.

§ 41.13 *Navigational facilities*—(a) *Short distance operation.* Except in the case of a day contact operation where the characteristics of the terrain are such that navigation can be accomplished by reference to landmarks, each route shall be equipped with radio navigational facilities so located as to permit navigation by such facilities over the entire route. For instrument operation a facility shall be so located with respect to each scheduled stop and required alternate airport as to provide adequate means for making an instrument approach. In day instrument operation such a facility is not required at an alternate used only when the weather conditions are as good as or better than: broken clouds, ceiling 1,000 feet, visibility 2 miles, with conditions stable or improving.

(b) *Long distance operation.* Each route shall be equipped with radio navigational facilities so located as to permit the obtaining of reliable radio bearings when within 200 miles of any regular or approved alternate airport and a facility shall be so located with respect to each such airport as to provide adequate means for making an instrument approach: *Provided,* That the Administrator, at particular airports, may approve facilities which provide less coverage than that required in this section if he finds that adequate safety is provided.

§ 41.14 *Airport lighting facilities.* For night operation each scheduled stop and required alternate airport shall be equipped with adequate lighting facilities.

AIRCRAFT REQUIREMENTS

§ 41.20 *General.* (a) Aircraft shall be certificated and equipped in accordance with the airworthiness requirements of this subchapter applicable to the type of operation conducted.

(b) Airplanes not certificated under the transport category requirements shall have such characteristics as to permit safe operation over the routes on which such airplanes will be operated.

(c) Land aircraft operated over water beyond gliding distance from shore without the aid of power shall be equipped with retractable landing gear.

(d) Multiengine airplanes shall be so equipped that engine rotation may be promptly stopped during flight.

(e) Irrespective of the basis for certification, all aircraft possessing engine(s) rated at more than 600 h. p. (each) for maximum continuous operation shall comply with the following, except that, if the Administrator finds that in particular types of existing aircraft literal compliance with specific items of these requirements might be extremely difficult of accomplishment and that such compliance would not contribute materially to the objective sought, he may

accept such measures of compliance as he finds will effectively accomplish the basic objectives of this part: Sections 4b.58, 4b.442, 4b.445, 4b.447, 4b.448 (b) and (c), 4b.478, 4b.484, 4b.503, 4b.516 through 4b.518, 4b.556, 4b.557, 4b.560, 4b.561, 4b.586, 4b.621 through 4b.624, 4b.651 through 4b.655, 4b.661 (a) and (c), and 4b.662 through 4b.676 of this subchapter.

NOTE: All references in this section to sections of Part 4b of this subchapter are those sections in effect on October 1, 1949 (14 F. R. 4102, July 16, 1949).

Instruments and Equipment

§ 41.21 *Radio equipment; short distance operation.* (a) For day contact operations over routes on which navigation can be accomplished by visual reference to landmarks, each aircraft shall be equipped with such radio facilities as are necessary to accomplish the following:

(1) Transmit communications and meteorological information to at least one ground station from any point on the route and transmit, from a distance of not less than 25 miles, to airport traffic control towers located at airports approved for the route;

(2) Receive communications at any point on the route;

(3) By either of two independent means, receive meteorological information at any point on the route and receive instructions from airport traffic control towers located at airports approved for the route.

If appropriate, one of the means provided for compliance with subparagraph (3) of this paragraph may be employed for compliance with subparagraph (2).

(b) For day contact operations over routes on which navigation cannot be accomplished by visual reference to landmarks and for night contact, day or night instrument operations, each aircraft shall be equipped with such radio facilities as are necessary to accomplish the following:

(1) Transmit communications and meteorological information to at least one ground station from any point on the route and transmit, from a distance of not less than 25 miles, to airport traffic control towers located at airports approved for the route;

(2) Receive communications at any point on the route;

(3) By either of two independent means, receive meteorological information at any point on the route and receive instructions from airport traffic control towers located at airports approved for the route;

(4) By either of two independent means, satisfactorily receive radio navigational signals from any radio aid to navigation required by § 41.13 (a).

If appropriate, one of the means provided for compliance with subparagraph (3) of this paragraph may be employed for compliance with subparagraph (2) of this paragraph or the means provided for compliance with subparagraph (4) of this paragraph may be employed for compliance with subparagraph (3) of this paragraph.

§ 41.22 *Radio equipment; long distance operation.* Each aircraft shall be equipped with such radio facilities as are necessary to accomplish the following:

(a) By either of two independent means, transmit communications and meteorological information to at least one ground station from any point on the route and transmit, from a distance of not less than 25 miles, to airport traffic control towers located at airports approved for the route;

(b) By either of two independent means, receive communications at any point on the route;

(c) By either of two independent means, receive meteorological information at any point on the route and receive instructions from airport traffic control towers located at airports approved for the route;

(d) By either of two independent means, satisfactorily receive radio navigational signals from any radio aid to navigation required by § 41.13 (b).

If appropriate, equipment provided for compliance with paragraph (c) of this section may be employed for compliance with either paragraph (b) or this paragraph.

§ 41.23 *First-aid and emergency equipment.* Each aircraft shall be equipped with a conveniently accessible first-aid kit adequate for the type of operation involved. Aircraft scheduled over routes requiring flights for long distances over uninhabited terrain must carry such additional emergency equipment as the Administrator designates for the particular operation involved. All aircraft operated over water shall be equipped with life preservers or flotation devices readily available for each person aboard and with a Very pistol or equivalent signal equipment, except that this requirement will not apply when such operations consist only of landings, take-offs, or flights for short distances over water and the Administrator finds in each case that such equipment is not necessary. In addition, all aircraft operated for long distances over water shall be equipped with a sufficient number of life rafts to accommodate adequately all occupants and such additional emergency equipment as may be required by the Administrator.

§ 41.23a *Safety belts.* Aircraft shall have installed a safety belt for each occupant. Safety belts shall be of an approved type. In no case shall the rated strength of a safety belt be less than that corresponding with the ultimate load factors specified in the pertinent currently effective aircraft airworthiness parts of this subchapter, taking due account of the dimensional characteristics of the safety belt installation for the specific seat or berth arrangement. The webbing of safety belts shall be subject to periodic replacement as prescribed by the Administrator.

§ 41.24 *Supplemental oxygen.* Except where supplemental oxygen is provided in accordance with the requirements of § 41.24a, supplemental oxygen shall be furnished and used as set forth below. The amount of supplemental oxygen required for a particular operation to comply with the rules in this part shall be determined on the basis of flight altitudes and flight duration consistent with the operating procedures established for such operation and route. As used in the oxygen requirements hereinafter set forth, "altitude" shall mean the pressure altitude corresponding with the pressure in the cabin of the airplane, and "flight altitude" shall mean the altitude above sea level at which the airplane is operated.

(a) *Crew members.* (1) At altitudes above 10,000 feet to and including 12,000 feet oxygen shall be provided for, and used by, each member of the flight crew on flight deck duty, and provided for all other crew members, during the portion of the flight in excess of 30 minutes within this range of altitudes.

(2) At altitudes above 12,000 feet oxygen shall be provided for, and used by, each member of the flight crew on flight deck duty, and provided for all other crew members, during the entire flight time at such altitudes.

(b) *Passengers.* Each air carrier shall provide a supply of oxygen for passenger safety as approved by the Administrator in accordance with the following requirements:

(1) For flights of over 30-minute duration at altitudes above 8,000 feet to and including 14,000 feet a supply of oxygen sufficient to furnish oxygen for 30 minutes to 10 percent of the number of passengers carried shall be required.

(2) For flights at altitudes above 14,000 feet to and including 15,000 feet a supply of oxygen sufficient to provide oxygen for the duration of the flight at such altitudes for 30 percent of the number of passengers carried shall generally be considered adequate.

(3) For flights at altitudes above 15,000 feet a suply of oxygen sufficient to provide oxygen for each passenger carried during the entire flight at such altitudes shall be required.

§ 41.24a *Supplemental oxygen requirements for pressurized cabin airplanes.* When operating pressurized cabin airplanes, the air carrier shall so equip such airplanes as to permit compliance with the following requirements in the event of cabin pressurization failure.

(a) *Crew members.* When operating such airplanes at flight altitudes above 10,000 feet, the air carrier shall provide sufficient oxygen for all crew members for the duration of the flight at such altitudes: *Provided,* That not less than a two-hour supply of oxygen shall be provided for the flight crew members on flight deck duty. (The oxygen supply required by § 41.24c may be considered in determining the supplemental breathing supply required for flight crew members on flight deck duty in the event of cabin pressurization failure.)

(b) *Passengers.* When operating such airplanes at flight altitudes above 8,000 feet, the air carrier shall provide the following amount of oxygen:

(1) Where an airplane is not flown at a flight altitude of over 25,000 feet a supply of oxygen sufficient to furnish oxygen for 30 minutes to 10 percent of the number of passengers carried shall be considered adequate, if at any point along the route to be flown the airplane can safely descend to a flight altitude of 14,000 feet or less within 4 minutes.

(2) In the event that such airplane cannot descend to a flight altitude of 14,000 feet or less within 4 minutes, the following supply of oxygen shall be provided:

(i) For the duration of the flight in excess of 4 minutes at altitudes above 15,000 feet, a supply sufficient to comply with § 41.24 (b) (3);

(ii) For the duration of the flight at altitudes above 14,000 feet to and including 15,000 feet, a supply sufficient to comply with § 41.24 (b) (2); and

(iii) For flight at altitudes above 8,000 feet to and including 14,000 feet, a supply sufficient to furnish oxygen for 30 minutes to 10 percent of the number of passengers carried.

(3) Where an airplane is flown at an altitude above 25,000 feet sufficient oxygen shall be furnished in accordance with the following requirements to permit the airplane to descend to an appropriate flight altitude at which the flight can be safely conducted. Sufficient oxygen shall be furnished to provide oxygen for 30 minutes to 10 percent of the number of passengers carried for the duration of the flight above 8,000 feet to and including 14,000 feet and to permit compliance with § 41.24 (b) (2) and (3) for flight above 14,000 feet.

(c) For purposes of this section it shall be assumed that the cabin pressurization failure will occur at a time during flight which is critical from the standpoint of oxygen need and that after such failure the airplane will descend, without exceeding its normal operating limitations, to altitudes permitting safe flight with respect to terrain clearance.

§ 41.24b *Equipment standards.* The oxygen apparatus, the minimum rates of oxygen flow, and the supply of oxygen necessary to comply with the requirements of § 41.24 shall meet the standards established in §§ 4b.831 and 4b.832 of this subchapter: *Provided*, That where full compliance with such standards is found by the Administrator to be impractical, he may authorize such changes in these standards as he finds will provide an equivalent level of safety.

NOTE: All references in this section to sections of Part 4b of this subchapter are those sections in effect on October 1, 1949 (14 F. R. 5307, Aug. 26, 1949).

§ 41.24c *Protective breathing equipment for the flight crew*—(a) *Pressurized cabin airplanes.* Each flight crew member on flight deck duty shall have easily available at his station protective breathing equipment covering the eyes, nose, and mouth, or the nose and mouth where accessory equipment is provided to protect the eyes, to protect him from the effects of smoke, carbon dioxide, and other harmful gases.

(1) Not less than a 300-liter STPD supply of oxygen for each flight crew member on flight deck duty shall be provided for this purpose.

(b) *Nonpressurized cabin airplanes.* The requirement stated in paragraph (a) of this section shall apply to nonpressurized cabin airplanes, if the Administrator finds that it is possible to obtain a dangerous concentration of smoke, carbon dioxide, or other harmful gases in the flight crew compartments in any attitude of flight which might occur when the aircraft is flown in accordance with either the normal or emergency procedures approved by the Administrator.

§ 41.25 *Instruments and equipment required for continuance of flight.* If any required instrument or item of equipment in an aircraft becomes unserviceable in flight, a landing must be made at either the nearest suitable landing area or at the next point of intended landing whichever, in the opinion of the pilot, is the safer procedure, unless the equipment specified in this section for the type of operation indicated is in serviceable condition, in which case the flight may continue as scheduled to the nearest point where repairs or replacements can be made.

The items listed in this section are required for all types of operation unless otherwise specified:

(a) One air-speed indicator and one sensitive type altimeter (contact operation); two air-speed indicators and two sensitive type altimeters (instrument operation),

(b) One approved compass,

(c) A tachometer for one engine, one fuel pressure gauge with warning indicator, one oil pressure gauge with warning indicator, and one oil temperature or cylinder temperature gauge for each engine,

(d) A manifold pressure gauge for one engine,

(e) In addition to fire detecting and fire extinguishing equipment necessitated as a result of compliance with § 41.20 (e), a minimum of two hand fire extinguishers of an approved type with an approved extinguishing agent, one of which installed in the crew compartment, others readily accessible to the passengers. Such additional hand fire extinguishers as the Administrator finds necessary for compliance with § 41.20 (e),

(f) One landing gear position indicator or equivalent facility, if equipment includes a retractable landing gear,

(g) One or more storage batteries or other source of electrical supply sufficient to operate all radio and electrical equipment necessary for the flight,

(h) (1) Two of the following three units of radio equipment:

(i) One transmitter for two-way communication,

(ii) One receiver for two-way communication,

(iii) One receiver capable of receiving navigational signals.

(2) In addition to the instruments named in subparagraph (1) of this paragraph, one of the radio navigational systems required by § 41.21 (b), if navigational facilities on the route are required by § 41.13,

(i) All radio equipment required by these regulations (night and instrument operation),

(j) Forward position and tail lights, two landing lights, one set of instrument lights, and two landing flares each rated for at least 3-minute duration (night operation),

(k) Fuel quantity indicators indicating the amount of fuel in each tank to be used for the remainder of the flight, or, in the case of aircraft having a third flight crew member assigned as a member of the operating crew, an alternate means approved by the Administrator for determining the amount of fuel in each tank (night and instrument operation),

(l) An electrically heated pitot tube serving each pilot's air-speed indicator (night and instrument operation),

(m) One gyro rate-of-turn indicator combined with a bank indicator, one artificial horizon indicator, and one gyro direction indicator (night and instrument operation),

(n) One outside air temperature gauge with indicating dial in the pilot compartment and one carburetor air temperature indicator or equivalent approved device (night and instrument operation),

(o) If vacuum system is used, one vacuum gauge with warning indicator on the instrument panel installed in lines leading to the rate-of-turn and artificial horizon indicators and the gyro direction indicator (night and instrument operation),

(p) One clock with sweep second hand (night and instrument operation),

(q) Three spare fuses of each capacity, or 25 percent of the number of each capacity, whichever is the greater,

(r) After May 31, 1956, an approved anti-collision light for aircraft having a maximum certificated weight of more than 12,500 pounds; except that in the event of failure of such light, the aircraft may continue flight to the next stop where repairs or replacements can be made (Night),

(s) Effective September 1, 1955, a means shall be provided for each reversible propeller on airplanes equipped with reversible propellers, which will indicate to the pilots when the propeller is in reverse pitch. Such means may be actuated at any point in the reversing cycle between the normal low pitch stop position and full reverse pitch. No indication shall be given at or above the normal low pitch stop position. The source of indication shall be actuated by the propeller blade angle or be directly responsive to the propeller blade angle.

Limitations

§ 41.26 *Airplane certification requirements*—(a) *Airplanes certificated on or before June 30, 1942.* Airplanes certificated as a basic type on or before June 30, 1942, shall either:

(1) Retain their present airworthiness certification status and meet the requirements of § 41.36, or

(2) Comply with either the performance requirements of §§ 4a.737–T through 4a.750–T of this subchapter or the performance requirements of §§

4b.110 through 4b.125 of this subchapter and in addition shall meet the requirements of § 41.27: *Provided*, That should any type be so qualified, all airplanes of any one operator of the same or related types shall be similarly qualified and operated.

(b) *Airplanes certificated after June 30, 1942.* Airplanes certificated as a basic type after June 30, 1942, and used in passenger operation shall be certificated as transport category airplanes and shall meet the requirements of § 41.27.

§ 41.27 *Operating limitations upon airplanes certificated under transport category requirements.* When operating any airplane certificated in accordance with the provisions of Part 4b of this subchapter, or of §§ 4a.737–T through 4a.750–T of this subchapter, the provisions of §§ 41.28–41.35 shall apply unless deviations therefrom are specifically authorized by the Administrator when he finds that, due to a peculiarity of a specific case, such application is unnecessary for safety.

In determining compliance with these provisions the data obtained in testing the airplane for type certification may be applied, by interpolation or by computation of the effects of changes in specific variables, to conditions differing from those for which specific tests were made, where such interpolations or computations will give results substantially equalling in accuracy the results of a direct test.

§ 41.28 *General limitations.* (a) Airplanes shall be operated only from airports at altitudes within the altitude range for which maximum take-off weights have been determined and set forth in the airplane operating manual and shall be dispatched only to airports of intended destination, or to airports specified as alternates, which are at altitudes within the range for which maximum landing weights have been determined and set forth in the airplane operating manual.

(b) The weight of an airplane at take-off shall not exceed the certificated maximum take-off weight for the altitude of the airport from which the take-off is made.

(c) The weight at take-off shall be such that, allowing for the consumption of the amount of fuel and oil which would normally be consumed in flight to the intended destination, the weight on arrival at the destination will not exceed the certificated maximum landing weight for the altitude of the airport of intended destination.

(d) No airplane shall be taken off at a weight which exceeds the allowable weight for the runway being used as determined in accordance with the take-off runway limitations of the transport category operating rules, after taking into account the temperature operating correction factors required by § 4a.749a–T or § 4b.117 of this subchapter, and set forth in the Airplane Flight Manual for the airplane.

§ 41.29 *Take-off limitations to provide for engine failure.* Take-off shall be made only from such airports, in such directions, and under such weight limitations that the following conditions are fulfilled as shown by the performance data determined under § 4a.747–T or § 4b.91 of this subchapter and set forth in the airplane operating manual:

(a) From any point on the take-off up to the time of attaining the critical-engine-failure speed set forth in the airplane operating manual it shall be possible to bring the airplane to a safe stop within the landing area, as shown by the accelerate-and-stop distance data.

(b) If the critical engine should fail at any instant after the airplane attains the critical-engine-failure speed, it shall be possible to proceed with the take-off and attain a height of 50 feet, as indicated by the take-off path data, before passing over the end of the take-off area. Thereafter it must be possible to clear all obstacles either by at least 50 feet vertically, as shown by the take-off path data, or by at least 200 feet horizontally within the airport boundaries and 300 feet horizontally after passing beyond such boundaries.

In determining the allowable deviation of the flight path in order to avoid obstacles, it is assumed that the airplane is not banked before reaching a height of 50 feet, as shown by the take-off path data, and that the maximum bank thereafter does not exceed 15°.

(c) In applying the requirements of paragraphs (a) and (b) of this section, corrections shall be made for any gradient of the take-off surface. To allow for wind effect, take-off data based on still air may be corrected by not more than 50 percent of the reported wind component along the take-off path if opposite to the direction of take-off, and shall be corrected by not less than 150 percent of the reported wind component if in the direction of take-off.

NOTE: All references in this section to sections of Part 4b of this subchapter are those sections in effect on October 1, 1949 (14 F. R. 4102, July 16, 1949).

§ 41.30 *En route limitations*—(a) *All airplanes; all engines operating.* Airplanes shall be dispatched only at such take-off weights that, in proceeding along the intended track with the weight of the airplane progressively reduced by the anticipated consumption of fuel and oil, the rate of climb with all engines operating (as set forth in the airplane operating manual), shall be, in feet per minute, 6 V_{s_0} at an altitude at least 1,000 feet above the elevation of the highest ground or obstruction within 10 miles of either side of the intended track; except that this requirement need not apply to airplanes certificated under the performance requirements of the regulations issued prior to November 9, 1945 (Part 4a of this subchapter).

(b) *All airplanes; one engine inoperative.* Airplanes shall be dispatched only at such take-off weights that, in proceeding along the intended track with the weight of the airplane progressively reduced by the anticipated consumption of fuel and oil, the rate of climb with one engine inoperative (as set forth in the Airplane Flight Manual) shall be, in feet per minute

$$0.06-\frac{0.08}{N}\Big)V_{s_0}{}^2,$$

where N is the number of engines installed and V_{s_0} is expressed in miles per hour, at an altitude at least 1,000 feet above the elevation of the highest ground or obstruction within 10 miles of either side of the intended track; except that for airplanes certificated under the performance requirements of Part 4a of this subchapter the above rate-of-climb value shall be 0.02 $V_{s_0}{}^2$ irrespective of the number of engines installed.

(c) *Airplanes with four or more engines; two engines inoperative.* The provisions of this paragraph shall apply only to airplanes certificated in accordance with the performance requirements of Part 4b of this subchapter. No airplane having four or more engines shall be flown along an intended track except under the conditions of either subparagraph (1) or subparagraph (2) of this paragraph.

(1) No place along the intended track shall be more than 90 minutes away from an available landing area at which a landing can be made in accordance with the requirements of § 41.34, assuming all engines to be operating at cruising power.

(2) The take-off weight shall not be greater than that which would permit the airplane, with the two critical engines inoperative, to have a rate of climb in feet per minute equal to 0.01 $V_{s_0}{}^2$ (V_{s_0} being expressed in miles per hour) along all points of the route, from the point where the two engines are assumed to fail simultaneously to the landing area, either at an altitude of 1,000 feet above the elevation of the highest ground or obstruction within 10 miles on either side of the intended track or at an altitude of 5,000 feet, whichever is higher. The point where the two engines are assumed to fail shall be that point along the route which is most critical with respect to the take-off weight. In showing compliance with this prescribed rate of climb, the following shall apply:

(i) It shall be permissible to consider that the weight of the airplane as it proceeds along its intended track is progressively reduced by normal consumption of fuel and oil with all engines operating up to the point where the two engines are assumed to fail and with two engines operating beyond that point.

(ii) Where the engines are assumed to fail at an altitude above the prescribed minimum altitude, compliance with the prescribed rate of climb at the prescribed minimum altitude need not be shown during the descent from the cruising altitude to an altitude at which the rate of descent becomes zero, if the latter is sufficiently above the prescribed minimum altitude to assure compliance with the prescribed rate of climb at the prescribed minimum altitudes during the subsequent portion of the flight.

(iii) If fuel jettisoning is provided, the airplane's weight at the point where the two engines are assumed to fail shall be considered to be not less than that which would include sufficient fuel to proceed

to an available landing area at which a landing can be made in accordance with the requirements of § 41.34 and to arrive there at an altitude of at least 1,000 feet directly over the landing area.

(d) *Special air navigation facilities.* Where special air navigation facilities provide for reliable and accurate identification of high ground or obstruction extending for less than 20 miles along the track, the lateral distance of 10 miles specified in § 41.30 (a), (b), (c) may be reduced to 5 miles.

§ 41.33 *Landing distance limitations.* (a) An airplane shall be dispatched only under such conditions that it would be possible, as shown by the still-air landing data obtained in § 4b.122 of this subchapter, or § 4a.750–T of this subchapter and set forth in the airplane operating manual, at a weight corresponding to the maximum weight expected to exist at the time of arrival at the airport of intended destination, and under standard air conditions for the altitude of such airport, to bring the airplane to rest from a point 50 feet directly above the intersection of the obstruction clearance line (as defined in § 41.35) and the landing surface, within a total distance not in excess of 60 percent of the effective length of the landing area (as defined in § 41.35) most suitable for landing in still air.

(b) For every probable condition of wind velocity and direction and the corresponding landing direction at the airport of intended destination required either by the ground handling characteristics of the airplane type involved or by other conditions (e. g., landing aids, terrain, etc.) the ratio of landing distance to effective length of landing area shall not be greater than that as specified in paragraph (a) of this section, after allowing for the effect on landing path and roll of not more than 50 percent of the wind component along the landing path if opposite to the direction of landing, or not less than 150 percent of the wind component if in the direction of landing.

(c) If the requirement of paragraph (a) of this section can be met, but the requirement of paragraph (b) of this section cannot be fully met, at an airport of intended destination, a flight to such airport may be dispatched if at least one approved alternate airport is designated in the flight plan at which the requirements of paragraphs (a) and (b) of this section, as modified by § 41.34, are met.

§ 41.34 *Landing distance at alternate fields.* The conditions of § 41.35 will apply with respect to alternate airports specified in the flight plan, except that in the case of alternate airports the landing distance as defined in that section shall not exceed 70 percent of the effective length of the landing area.

§ 41.35 *Definition of effective length of landing area.* The effective length of the landing area is the distance from the point where the obstruction clearance line, as defined in this section, intersects the landing surface to the far end of the landing area.

The obstruction clearance line is a line drawn tangent to or clearing all obstructions showing in a profile of the approach area as defined in this section. The obstruction clearance line is further limited by having a slope to the horizontal of 1:20 as it approaches the landing area.

The approach area, as used in this section, shall be an area symmetrical about a center line coinciding with and prolonging the center line of the runway, except that where there is a multiplicity of parallel runways or a large area continuously available for landing, the center line of the approach area shall coincide with the most probable landing path for instrument approaches. The approach area shall be considered as extending longitudinally from the landing area out to the most remote obstacle touched by the obstruction clearance line, assuming the center line of the approach area in plan view to be straight for at least 1,500 feet from the intersection of the obstruction clearance line with the landing surface and thereafter continuing in a path consistent with the instrument approach procedures for the runway in question, or, where such procedures are not specified, consistent with turns of at least 4,000 feet in radius; and as extending laterally to a distance of 200 feet on either side of its center line at the point of intersection of the obstruction clearance line with the landing surface, with this distance increasing uniformly to 500 feet on either side of the center line of the area at a longitudinal distance of 1,500 feet from the intersection of the obstruction clearance line with the landing surface, and maintaining a distance of 500 feet from the center line thereafter.

§ 41.36 *Nontransport category airplane operating limitations.* In operating any nontransport category airplane in passenger service, the provisions of §§ 41.36a through 41.36d shall be complied with, unless deviations therefrom are specifically authorized by the Administrator on the ground that the special circumstances of a particular case make a literal observance of the requirements unnecessary for safety. Performance data published or approved by the Administrator for each such nontransport category airplane shall be used in determining compliance with the provisions of §§ 41.36a through 41.36d.

§ 41.36a *Take-off limitations.* No take-off shall be made at a weight in excess of that which will permit the airplane to be brought to a safe stop within the effective length of the runway from any point during the take-off up to the time of attaining 105 percent of minimum control speed or 115 percent of the power-off stalling speed in the take-off configuration, whichever is the greater. In applying the requirements of this section:

(a) It may be assumed that take-off power is used on all engines during the acceleration;

(b) Account may be taken of not more than 50 percent of the reported wind component along the take-off path if opposite to the direction of take-off, and account shall be taken of not less than 150 percent of the reported wind component if in the direction of the take-off;

(c) Account shall be taken of the average runway gradient when the average gradient is greater than ½ percent. The average runway gradient is the difference between the elevations of the end points of the runway divided by the total length;

(d) It shall be assumed that the airplane is operating in the standard atmosphere.

§ 41.36b *En route limitations; one engine inoperative.* (a) No take-off shall be made at a weight in excess of that which will permit the airplane to climb at a rate of at least 50 feet per minute with the critical engine inoperative at an altitude of at least 1,000 feet above the elevation of the highest obstacle within 5 miles on either side of the intended track or at an altitude of 5,000 feet, whichever is the higher: *Provided*, That in the alternative an air carrier may utilize a procedure whereby the airplane is operated at an altitude such that, in event of an engine failure, the airplane can clear the obstacles within 5 miles on either side of the intended track by 1,000 feet, if the air carrier can demonstrate to the satisfaction of the Administrator that such a procedure can be used without impairing the safety of operation. If such a procedure is utilized, the rate of descent for the appropriate weight and altitude shall be assumed to be 50 feet per minute greater than indicated by the performance information published or approved by the Administrator. Before approving such a procedure, the Administrator shall take into account, for the particular route, route segment, or areas concerned, the reliability of wind and weather forecasting, the location and types of aids to navigation, the prevailing weather conditions, particularly the frequency and amount of turbulence normally encountered, terrain features, air traffic control problems, and all other operational factors which affect the safety of an operation utilizing such a procedure.

(b) In applying the requirements of paragraph (a) of this section, it shall be assumed that:

(1) The critical engine is inoperative;

(2) The propeller of the inoperative engine is in the minimum drag position;

(3) The wing flaps and landing gear are in the most favorable positions;

(4) The operative engine or engines are operating at the maximum continuous power available;

(5) The airplane is operating in the standard atmosphere;

(6) The weight of the airplane is progressively reduced by the weight of the anticipated consumption of fuel and oil.

§ 41.36c *Landing distance limitations; airport of intended destination.* No take-off shall be made at a weight in excess of that which, allowing for the anticipated weight reduction due to consumption of fuel and oil, will permit the airplane to be brought to a stop within 60 percent of the effective length

of the most suitable runway at the airport of intended destination.

(a) This weight shall in no instance be greater than that permissible if the landing were to be made:

(1) On the runway with the greatest effective length in still air, and

(2) On the runway required by the probable wind, taking into account not more than 50 percent of the probable headwind component and not less than 150 percent of the probable tailwind component.

(b) In applying the requirements of this section it shall be assumed that:

(1) The airplane passes directly over the intersection of the obstruction clearance plane and the runway at a height of 50 feet in a steady gliding approach at a true indicated air speed of at least 1.3 V_{s_0};

(2) The landing is made in such a manner that it does not require any exceptional degree of skill on the part of the pilot;

(3) The airplane is operating in the standard atmosphere.

§ 41.36d *Landing distance limitations; alternate airports.* No airport shall be designated as an alternate airport in a dispatch release unless the airplane at the weight anticipated at the time of arrival at such airport can comply with the requirements of § 41.36c: *Provided,* That the airplane can be brought to rest within 70 percent of the effective length of the runway.

Maintenance

§ 41.38 *Maintenance organization.* The air carrier is responsible for the continuous airworthiness of all aircraft, engines, propellers, and appliances. Unless maintenance is performed by another agency under a contract approved by the Administrator, it is responsible for maintaining adequate maintenance facilities, the adequacy and competence of maintenance personnel, and for the preparation of such maintenance reports as are required by the Administrator.

§ 41.39 *Alterations and repairs.* Aircraft, engines, propellers, and appliances must be altered or repaired only in conformity with the procedures and, insofar as they apply, the methods provided for in Part 18 of this subchapter. Reports of such alterations or repairs must be submitted promptly to the Administrator.

§ 41.40 *Inspection.* The air carrier shall maintain an inspection organization which is responsible for determining that all maintenance conforms to at least the minimum standards prescribed by the Administrator as to workmanship, methods employed, and materials used. Each inspector must hold a valid mechanic certificate and rating for the type of inspection involved.

§ 41.41 *Maintenance manual.* The air carrier shall prepare and maintain a manual for the use and guidance of maintenance personnel which contains full information pertaining to the repair and service of flight equipment and clearly outlines the responsibilities of maintenance personnel. It must be in a form approved by the Administrator and copies furnished to all persons designated by the Administrator or Board. All copies in the hands of designated company personnel must be kept up to date.

(a) *Changes.* The extension of any overhaul, check, or inspection period must have the written approval of the Administrator. Other changes in the maintenance manual may be made without the prior approval of the Administrator, if such changes are not inconsistent with any Federal regulation, the air carrier operating certificate, or safe maintenance practice.

§ 41.42 *Training program.* The air carrier must provide for the proper and periodic instruction of all maintenance personnel, particularly in connection with the introduction into service of new or unfamiliar equipment.

§ 41.43 *Records.* Current records shall be kept of the total time in service, the time since last overhaul, and the time since last inspection on all aircraft components, engines, propellers, and, where practicable, on instruments, equipment, and accessories, except that in the case of a propeller for which there is no previous operating history, the Administrator may authorize the use of a new record if the hub is rebuilt and is fitted with blades which are free from defects and within the manufacturer's production tolerances. Such rebuilding of the propeller shall be accomplished by the manufacturer or by a certificated repair station having the proper rating. The new record shall be signed by the manufacturer or by the repair agency, giving the date the propeller hub or blade was rebuilt and such other information as the Administrator may require.

§ 41.44 *Cockpit check list.* (a) The air carrier shall provide for each type aircraft a cockpit check list, approved by the Administrator, adapted to each operation in which the aircraft is to be utilized. An approved check list shall be installed in a readily accessible location in the cockpit of each aircraft and shall be appropriately used by the flight crew for each flight.

(b) The cockpit check list shall include procedures prior to starting engines, prior to take-off, prior to landing, and for powerplant emergencies.

§ 41.45 *Air-speed indicators, limitations, and related information.* (a) Air-speed limitations and related information contained in the Airplane Flight Manual and pertinent placards shall be expressed in the same units as used on the air-speed indicator.

(b) When more than one air-speed indicator is required, all such indicators shall be calibrated to read in the same units.

(c) When an air-speed indicator is calibrated in statute miles per hour, a readily usable means shall be provided for the flight crew to convert statute miles per hour to knots.

(d) On and after April 1, 1956, all air-speed indicators shall be calibrated in knots, and all air-speed limitations and related information contained in the Airplane Flight Manual and pertinent placards shall be expresed in knots.

AIRMAN RULES

Pilot

§ 41.48 *Certificate.* (a) Any pilot serving as pilot in command shall hold a valid airline transport pilot certificate and a rating for the aircraft in which he is to serve.

(b) Any pilot serving as second in command in an aircraft requiring two pilots shall hold at least a commercial pilot certificate and instrument rating and must have demonstrated to an air carrier inspector of the Administrator, or to an authorized check pilot of the air carrier, his ability to take off and land aircraft in which he is to serve.

(c) Any pilot serving as second in command in an aircraft requiring three or more pilots shall meet the requirements of paragraph (a) of this section.

(d) Any pilot serving in a pilot capacity other than as pilot in command or second in command shall meet the requirements of paragraph (b) of this section.

§ 41.49 *Number of pilots required.* The number of pilots required shall be sufficient to provide adequate safety. The type of aircraft used, the type of operation involved, and the duration of flights between points where flight crews are changed shall be the basis for making this determination.

§ 41.50 *Requirements for pilot route qualification.* The air carrier shall be responsible for insuring that each pilot is thoroughly qualified for the route over which he is to serve as pilot in command in scheduled air transportation. The qualifying procedure shall be established by the air carrier in the air carrier operations manual and shall include at least the following:

(a) A written or oral examination on:

(1) Weather conditions peculiar to the route,

(2) Navigational facilities,

(3) Instrument approach procedures,

(4) Communication procedures,

(5) Minimum safe flight levels,

(6) Position reporting points,

(7) Holding procedures, and

(8) All other traffic control procedures for the route.

(b) Familiarization with the terrain, obstructions, or congested areas and physical layout for the airport and approaches at each regular, provisional, refueling, and alternate airport approved for the route.

(c) Flying through the letdown procedures at each regular, provisional, or refueling airport specified for use on the trip to which the pilot is or is to be assigned. Such letdown procedures should be made under visual flight conditions whenever possible. Compliance with this paragraph will not be required, provided the pilot makes his first entry into an airport under visual flight rules or is accompanied by a check pilot.

(d) Demonstration of ability either under instrument flight rule conditions

or on a synthetic instrument trainer to accomplish letdowns for all airports approved for the route.

(e) Making at least one round trip or two one-way trips over the route with one of the carrier's check pilots. When, in the opinion of the check pilot, the pilot is qualified for the route, the check pilot shall so certify to the carrier, and this certification shall be made a matter of record by the carrier. Compliance with this paragraph will not be required when qualifying over extensions to, or modifications of, an existing route, provided the pilot makes his first flight under visual flight rules or is accompanied by a check pilot.

§ 41.51 *Maintenance of pilot route qualification.* A pilot in command shall not serve as such over a particular route unless he has either:

(a) Made at least one one-way trip over the route as pilot in command or second in command within the preceding 12 calendar months, or

(b) After an absence from the route of more than 12 consecutive months, requalified in accordance with the appropriate provisions of § 41.50.

§ 41.52 *Maintenance of pilot technique.* If within any 90-day period a pilot in command or second in command has not made at least three take-offs and landings in aircraft of a particular type, such person shall not thereafter serve as a pilot in command or second in command in aircraft of that type in scheduled air transportation without having made at least three take-offs and landings in such aircraft with not less than one-half the maximum useful load. If he is to serve in air transportation at night at least one of the three take-offs and landings specified by this section must have been made at night.

§ 41.53 *Periodic flight checks and instruction.* Each air carrier must provide a sufficient number of check pilots to insure that each pilot in command employed continues to meet the minimum requirements both with regard to route competency and technique. Each of these checks must be accomplished twice each year at intervals of not less than four months. Periodic instruction must be given all pilots. In the case of pilots in command, instruction must include the obtaining of optimum performance under simulated maximum authorized weight conditions with one engine inoperative and instrument approach procedures and landings under the same conditions in the type aircraft in which such pilots serve in scheduled air transportation. In the case of all pilots other than pilots in command, instruction must include familiarization with the operations manual, with the types of equipment used, and with the duties of a second in command.

§ 41.54 *Flight time limitations for aircraft having a crew of one or two pilots.* (a) A pilot may be scheduled to fly 8 hours or less during any 24 consecutive hours without a rest period during such 8 hours. If a pilot is scheduled to fly in excess of 8 hours during any 24 consecutive hours, he shall be given an intervening rest period at or before the termination of 8 scheduled hours of flight duty. Such rest period must equal at least twice the number of hours flown since the last preceding rest period and in no case will such rest period be less than 8 hours. During such rest period the pilot must be relieved of all duty with the air carrier.

(b) When a pilot has flown in excess of 8 hours during any 24 consecutive hours he must receive at least 18 hours of rest before being assigned any duty with the air carrier.

(c) A pilot shall not fly in excess of 32 hours during any 7 consecutive days. Relief from all duty for not less than 24 consecutive hours must be provided for and given to a pilot at least once during any 7 consecutive days.

(d) A pilot shall not fly as a member of the crew more than 100 hours during any one month.

(e) A pilot shall not fly as a member of the crew more than 1,000 hours in any 12-month period.

§ 41.55 *Flight time limitations for aircraft having two pilots and one additional flight crew member.* (a) A pilot may not be scheduled to fly a total of more than 12 hours during any 24 consecutive hours.

(b) When a pilot has flown 20 hours or more during any 48 consecutive hours, or 24 hours or more during any 72 consecutive hours, he must receive at least 18 hours of rest before being assigned to any duty with the air carrier. In any case each pilot shall be relieved from all duty for not less than 24 consecutive hours during any 7 consecutive days.

(c) A pilot shall not fly as a member of the flight crew more than 120 hours in any 30 consecutive days or 300 hours in any 90 consecutive days.

(d) A pilot shall not fly as a member of the flight crew more than 1,000 hours in any 12-month period.

NOTE: Interpretation 1, 14 F. R. 1409, March 30, 1949, provides as follows:

Minimum crew complement; flight radio operators. We have been asked for an interpretation of the effect of Civil Air Regulations Amendment 41-1, dated October 5, 1948, on the minimum number of flight radio operators required on a scheduled flight of over 12 hours from airport to airport, where radiotelegraphy is necessary for communication with ground stations over a route segment of the flight which is less than 12 hours in length.

Section 41.70 of the Civil Air Regulations provides that, "when one flight radio operator is required the flight-time limitations prescribed in § 41.55 apply. When two or more flight radio operators are required, the flight-time limitations of § 41.56 apply." Section 41.55 states that where a crew consists of two pilots and an additional flight crew member, a "pilot may not be scheduled to fly more than 12 hours during any 24 consecutive hours." Since aircraft with which the regulation is concerned require two pilots at the controls at practically all times, the phrase "scheduled to fly" as used in this section does not necessitate precise definition with respect to the flight time of pilots since they are on duty throughout the flight. However, the expression is ambiguous when applied to radio operators whose duty watch, from a safety standpoint, need not in all instances be continuous from airport to airport while the aircraft is in the air. As applied to such airmen the term "to fly" when used as part of the phrase "scheduled to fly," may be interpreted in two possible ways—it may mean the entire time the aircraft is in the air, or it may mean the time the radio operator is on flight duty on the aircraft.

In dealing with this problem it is necessary to bear in mind that the Board's power over maximum hours of service of airmen derives from section 601 (a) of the Civil Aeronautics Act and relates solely to promoting safety of flight in air commerce. It is evident that the Board does not consider that an airman's being in the air for more than 12 hours creates a hazardous condition in and of itself, for exactly such a situation is contemplated in § 41.56 with respect to pilots. In effect, what is required by that section is that when the flight is to be of more than 12 hours' duration, provision be made for a relief pilot to permit the captain and first officer to be relieved from time to time of the strain of a continuous flight watch. The same principle is applicable to radio operators. Where the radio operator's flight watch is scheduled for more than 12 hours in a given 24, it is apparent that a second operator must be carried to relieve the first. However, what is essential is that after 12 hours of duty the radio operator be relieved, not that he be relieved by another operator, and consequently, if such relief is afforded by reason of the fact that the radio operator's services are not required for the operation of the aircraft for more than 12 hours, the same safety standard would appear to have been met.

Prior to the adoption of Amendment 41-1 on October 5, 1948, which specifically defined what was intended by "route segment," it may not have been clear in all cases when a radio operator was required to be on flight duty under the regulation. However, since the adoption of the definition of "route segment," the Administrator is permitted to specify the exact limits of a route segment, which may be considerably more confined than the route between the airports of take-off and landing for the flight. Thus, under the regulations, the time scheduled over the route segment or segments for which the Administrator has determined radio telegraphy is necessary represents the minimum on-duty time for which a flight radio operator is required. If the air carrier desires to maintain a radio flight watch beyond the minimum time thus prescribed or to utilize the services of the airmen in some other certificated capacity on the flight, of course, the time so spent must be included as part of the airman's on-duty flight time.

Accordingly, we interpret "scheduled to fly" as used in § 41.55 and as applied to radio operators as meaning "scheduled for flight duty on the aircraft." Thus, only one flight radio operator is required on a scheduled flight over 12 hours from airport to airport where such operator is only required or assigned for duty as an airman over a route segment which is less than 12 hours in length.

§ 41.56 *Flight time limitations for aircraft having three or more pilots and an additional flight crew member.* (a) Flight hours shall be scheduled in such a manner as to provide for adequate rest periods on the ground while the pilot is away from his base. Adequate sleeping quarters on the aircraft must be provided in all cases where a pilot is scheduled to fly more than 12 hours during any 24 consecutive hours.

(b) A pilot, upon return to his base from any flight or series of flights, shall receive a rest period of not less than twice the total number of hours flown since the last rest period at his base

and during such period will not be required to perform any duty for the company. When the required rest period exceeds 7 days, that portion of the rest period in excess of 7 days may be given at any time before the pilot is again scheduled for flight duty on any route.

(c) A pilot shall not fly as a member of the flight crew more than 350 hours in any 90 consecutive days.

(d) A pilot shall not fly as a member of the flight crew more than 1,000 hours in any 12-month period.

§ 41.57 *Flight time limitations for pilots not regularly assigned.* A pilot not regularly assigned as a flight crew member for an entire month under the provisions of § 41.55 or § 41.56 must not fly in excess of 100 hours in any 30 consecutive days.

§ 41.58 *Deadhead transportation.* The time spent in deadhead transportation to or from duty assignment will not be considered a part of any rest period.

§ 41.59 *Other commercial flying.* A pilot shall not do other commercial flying while employed by an air carrier when such flying, in addition to that in scheduled air transportation service, will exceed any flight time limitations specified herein.

§ 41.60 *Logging flight time.* (a) A pilot in command may log the total flight time elapsing during his command of the aircraft.

(b) A second in command holding an airline transport pilot certificate and rating for the aircraft flown may log the total time during which he serves as second in command.

(c) A second in command not holding an airline transport pilot certificate and rating for the aircraft flown may log 50 percent of the total flight time.

(d) Additional pilots when required, and serving as such, may log 50 percent of the total flight time.

§ 41.61 *Logging instrument flight time.* Instrument flight time may be logged as such by the pilot actually manipulating the controls only when the aircraft is flown solely by reference to instruments either under actual or properly simulated flight conditions.

§ 41.62 *Pilots at controls.* In the case of aircraft requiring two or more pilots, two pilots shall remain at the controls at all times while the aircraft is taking off, landing, and while en route, except when the absence of one is necessary in connection with his regular duties or when he is replaced by a person authorized under the provisions of § 41.121.

§ 41.63 *Pilot in command rules*—(a) *Pilot in command.* The pilot in command is in command of the aircraft at all times during flight and is responsible for the safety of persons and goods carried and for the conduct and safety of members of the crew.

(b) *Emergency decisions.* (1) The pilot in command is authorized to follow any course of action which appears necessary in emergency situations which, in the interest of safety, require immediate decision and action. He may, in such situations, deviate from prescribed methods, procedures, or minimums to the extent required by considerations of safety. When such emergency authority is exercised the pilot shall keep the proper control station fully informed regarding the progress of the flight. He shall submit a written report of any such deviation to the Administrator of Civil Aeronautics within 7 days after the completion of the trip.

(2) In an emergency requiring either the dumping of fuel or a landing at a weight in excess of the authorized landing weight the pilot in command may elect to follow whichever procedure he considers safer.

(c) *Flight equipment.* Before any flight is started the pilot in command shall have readily available in the aircraft appropriate and current flight and navigational facility maps, including instrument procedures when instrument flight is authorized, and such other equipment as may be necessary to properly conduct the proposed flight.

§ 41.64 *Compliance with foreign air traffic rules and local airport rules.* Pilots flying in the airspace of any foreign country shall, at all times, comply with the air traffic rules of the foreign government and with local airport rules, except where any rule prescribed in this part is more restrictive and may be followed without violating the laws or rules of such country.

§ 41.65 *Composition of flight crew.* (a) No air carrier shall operate an aircraft with less than the minimum flight crew required for the type of operation and the type aircraft as determined by the Administrator in accordance with the standards prescribed in this part and specified in the air carrier operating certificate for each route or route segment.

(b) Where the provisions of this part require for a particular route, route segment, or aircraft the performance of two or more functions for which an airman certificate is necessary, such requirement shall not be satisfied by the performance of multiple functions at the same time by any airman over such route or route segment.

Flight Radio Operator

§ 41.68 *Flight radio operator; when required.* An airman holding a flight radio operator certificate shall be required for flight over any area, route, or route segment over which the Administrator has determined that radiotelegraphy is necessary for communication with ground stations during flight.

§ 41.69 *Certificate.* Each flight radio operator shall hold a valid flight radio operator certificate issued in accordance with the provisions of Part 33 of this subchapter.

§ 41.70 *Flight time limitations.* When one flight radio operator is required the flight time limitations prescribed in § 41.55 apply. When two or more flight radio operators are required the flight time limitations of § 41.56 apply.

§ 41.71 *Other flight crew members to be qualified.* In all flights requiring only one flight radio operator, one other flight crew member must be capable of operating the equipment in an emergency.

§ 41.72 *Qualification for duty.* No individual shall perform, or be assigned to peform, the duties of a flight radio operator unless he has met the recent experience requirements specified in Part 33 of this subchapter.

Flight Engineer

§ 41.73 *Flight engineer; when required.* An airman holding a flight engineer certificate shall be required on all four-engine aircraft certificated for more than 80,000 pounds maximum take-off weight, and on all other four-engine aircraft certificated for more than 30,000 pounds maximum take-off weight where the Administrator finds that the design of the aircraft used or the type of operation is such as to require a flight engineer for the safe operation of the aircraft.

§ 41.74 *Certificate.* Each flight engineer shall hold a valid flight engineer certificate issued in accordance with the provisions of Part 35 of this subchapter.

§ 41.75 *Qualification for duty.* A certificated flight engineer shall not be assigned to nor perform duties for which he is required to be certificated unless, within the preceding 12-month period, he has had at least 50 hours of experience as a flight engineer on the type aircraft on which he is to serve; or until the air carrier has checked the airman and determined that he is (a) familiar with all current information and operating procedures relating to the type aircraft to which he is to be assigned and (b) competent with respect to such aircraft.

§ 41.76 *Flight time limitations.* When one flight engineer is required, the flight time limitations prescribed in § 41.55 apply. When two or more flight engineers are required, the flight time limitations prescribed in § 41.56 apply.

§ 41.77 *Other flight crew members to be qualified.* In all flights requiring the use of only one flight engineer, one other flight crew member must be capable of performing the duties of such engineer in an emergency during flight.

Flight Navigator

§ 41.80 *Flight navigator; when required.* An airman holding a flight navigator certificate shall be required for flight over any area, route, or route segment when the Administrator has determined either that celestial navigation is necessary or that other specialized means of navigation necessary for the safe conduct of flight cannot be adequately accomplished from the pilot station.

§ 41.81 *Flight time limitations.* The flight time limitations prescribed in § 41.56 apply.

§ 41.82 *Qualification for duty.* A certificated flight navigator shall not be assigned to nor perform duties for which

he is required to be certificated unless, within the preceding 12-month period, he has had at least 50 hours' experience as a flight navigator; or until the air carrier has checked the airman and determined that he is (a) familiar with all current navigational information pertaining to the routes to be flown and (b) competent with respect to the operating procedures and navigational equipment to be used.

Dispatcher

§ 41.84 *Number and location.* The air carrier shall provide an adequate number of certificated aircraft dispatchers located at such points as may be necessary to insure safe operations.

§ 41.85 *Certificate.* Each dispatcher shall hold a valid aircraft dispatcher certificate issued in accordance with the provisions of Part 27 of this subchapter.

§ 41.86 *Qualification for route.* Each dispatcher within 6 months immediately preceding his qualification for a route, or part thereof, shall have made at least one trip over the route on which he is to serve prior to dispatching any aircraft. In addition he must be familiar with:

(a) The contents of the air carrier operations manual;

(b) The radio facilities in the aircraft used; and

(c) With respect to the route, the following:

(1) The prevailing weather phenomena.

(2) The sources of weather information available.

(3) All phases of the air carrier operation.

(4) The maximum authorized loads for the aircraft used.

(5) The peculiarities and limitations of each radio navigational facility and similar information with regard to such additional facilities located off the route as are approved for use in obtaining fixes by means of cross bearings, and

(6) The effect of weather conditions on the radio reception of the aircraft used.

§ 41.87 *Maintenance of qualification.* Each dispatcher shall maintain his familiarity with the route or routes on which he dispatches aircraft.

§ 41.88 *Route qualification expiration.* After 24 consecutive months of absence from dispatching duty over a route or part thereof, a dispatcher will no longer be considered qualified to dispatch aircraft over such route.

FLIGHT OPERATION RULES

Dispatching Rules

§ 41.92 *Dispatching rules*—(a) *Short distance operation.* Flights may be dispatched over any approved route between two terminal points.

(b) *Long distance operation.* Flights may be dispatched over any track between two terminal points within the route approved by the Administrator for the operation.

§ 41.93 *Dispatching authorization.* Flights shall be started only on the authority of an aircraft dispatcher qualified for the route. In short distance operation this authority is not required at intermediate points specified in the original clearance unless the flight is delayed more than 30 minutes at any such point. In long distance operation redispatch is not required unless the flight is delayed more than 6 hours.

§ 41.94 *Dispatcher duty period.* A dispatcher may clear a flight only when he has been on duty at the station from which the clearance is effected for a period of time sufficient to become familiar with existing conditions. He must continue on duty until the aircraft has landed in completion of a trip, or has proceeded beyond his jurisdiction, or until he has been properly relieved by another qualified dispatcher.

§ 41.95 *Use of weather reports and forecasts in dispatch.* (a) Weather reports used to control flight movements shall be prepared from observations made and released by a source acceptable to the Administrator.

(b) Weather reports used shall be the latest reports available. Weather reports, other than off-course or on-call reports made a part of the clearance form, shall not be more than one hour and 30 minutes old at the time the aircraft departs.

(c) Weather forecasts made by the United States Weather Bureau, in the case of dispatch from points within the United States, or other sources acceptable to the Administrator, in the case of dispatch from points outside of the United States, shall be taken into account.

§ 41.96 *Weather minimums*—(a) *Dispatch under contact flight rules, short distance operations.* Aircraft may be dispatched only if current weather reports and forecasts show a trend indicating that the ceilings and visibilities along the route to be flown are, and will remain, at or above the minimums required for flight under contact flight rules until the flight arrives at the next point of intended landing specified in the clearance.

(b) *Instrument or over-the-top dispatch, short distance operations.* Aircraft may be dispatched only if the observed weather information and current weather forecasts pertaining to the next point of intended landing specified in the clearance show a trend indicating that the ceiling and visibility will be at or above the minimums specified when the flight is scheduled to arrive; and at least one alternate airport, meeting the minimum weather requirements for the airport when used as an alternate, is designated in the clearance.

(c) *Dispatch, long distance operation.* Aircraft may be dispatched only in compliance with the following conditions:

(1) The current weather forecasts must indicate that the ceiling and visibility either at the next point of intended landing or at any required alternate therefor will be at or above the approved minimums at the time the flight is estimated to arrive.

(2) In the case of overwater flights or any other flight where the point of intended landing has no available alternate, the current weather forecasts must also indicate that the ceiling and visibility either at the point of departure or at any required alternate therefor will be above the approved minimums at the time of arrival back to such point from any point along the route closer than the point-of-no-return.

§ 41.97 *Icing conditions.* Aircraft shall not be dispatched or flown into known heavy icing conditions and may be dispatched or flown into any less serious icing condition only if the aircraft is equipped for de-icing wings, propellers, and such other parts of the aircraft as are essential to safety.

§ 41.98 *Fuel supply*—(a) *Short distance contact operation.* An aircraft may be dispatched or take off only if it carries sufficient fuel, considering the wind and other weather conditions expected, to (1) fly to the next point of landing specified in the clearance and thereafter (2) for a period of at least 45 minutes at normal cruising consumption.

(b) *Short distance instrument or over-the-top operation.* An aircraft may be dispatched or take off only if it carries sufficient fuel, considering the wind and other weather conditions expected, to fly to the next point of landing specified in the clearance; and thereafter (1) to fly to and land at the most distant alternate airport designated for that point in the clearance; and thereafter (2) to fly for a period of at least 45 minutes at normal cruising consumption.

(c) *Long distance operation.* An aircraft may be dispatched or take off only if it carries sufficient fuel, considering the wind and other weather conditions expected, to fly to the next point of landing specified in the clearance; and thereafter (1) to fly to and land at the most distant alternate airport designated for that point in the clearance; and thereafter (2) to fly for a period of at least two hours at normal cruising consumption. An aircraft may be redispatched to return to the point of departure or to an alternate airport for that point only when such redispatch is accomplished while the aircraft has sufficient fuel to return to such point and thereafter to fly for a period of at least two hours at normal cruising consumption. In the case of a route approved without an available alternate for a particular stop, an aircraft dispatched to that point must carry sufficient fuel, considering wind and other weather conditions expected, to fly to that point and thereafter for at least 3 hours at normal cruising consumption. The Administrator may require fuel in excess of any of the minimums specified in this paragraph when he finds that additional fuel is necessary on a particular route in the interest of safety and, in the case of an overland operation where adequate intermediate airports and navigational facilities are available, may permit the operation to be conducted with the fuel reserves specified in paragraph (b) of this section.

§ 41.99 *Maintenance release, clearance, and load manifest forms.* All maintenance release, clearance, and load manifest forms used shall be approved by the Administrator. The original copies of such forms shall be given to the pilot in command and duplicate copies kept in the station file for at least 90 days.

§ 41.100 *Preparation of maintenance release form.* A maintenance release form shall be prepared for each aircraft delivered by the maintenance department to the operations department. This form must be signed by personnel of the air carrier charged with the duty of supervising the maintenance of the aircraft.

§ 41.101 *Preparation of clearance form.* A clearance form shall be prepared for each flight between specified clearance points. The information for such clearance shall be prepared by the authorized aircraft dispatcher of the air carrier operating the aircraft. This form shall be signed by the pilot in command and by the authorized aircraft dispatcher only when both believe the flight may be made with safety. The authority to sign such clearance may be delegated for a particular flight by the authorized aircraft dispatcher, but the authority to dispatch cannot be delegated, and such dispatcher remains responsible for the dispatch and continued supervision of the flight.

§ 41.102 *Preparation of load manifest form.* A load manifest form showing the loading of the aircraft shall be prepared and signed for each flight by qualified personnel of the air carrier charged with the duty of supervising the loading of the aircraft and the preparation of the load manifest forms, or by qualified persons authorized by the air carrier. The aircraft when loaded shall not exceed the center of gravity limits or maximum allowable weight limits set forth in the aircraft certificate for the particular aircraft.

§ 41.103 *Traffic conditions.* Immediately prior to departure it is the responsibility of the dispatcher, dispatching an instrument flight outside of an airway traffic control area, to ascertain from the best available information what other flights affecting the proposed flight are in progress over the route and to report this information to the pilot in command.

§ 41.104 *Dispatcher emergency procedure.* In the event of inability to maintain two-way communication with the aircraft while it is in flight the dispatcher is responsible for notifying all other known traffic in the area of such failure, giving the last approved flight plan and the expected time of arrival at the destination.

§ 41.105 *Redispatch from alternate airports.* Aircraft may be redispatched from any alternate airport. In the case of an off-route alternate, the return to the authorized route must be made in accordance with conditions specified by the Administrator.

Flight Preparation and Take-Off Rules

§ 41.108 *Tests and checks.* Before departure the pilot in command is responsible for the testing or checking of each item in the check list approved by the Administrator, at the time and to the extent specified.

§ 41.109 *View of traffic.* The pilot shall maneuver the aircraft to a position from which incoming and outgoing aircraft can be observed until immediately prior to take-off.

Flight Course and En Route Rules

§ 41.110 *Continuance of flight, short distance operation.* No flight shall be continued toward any point to which it is cleared unless the weather conditions at alternate airports specified in the clearance remain at or above the minimums specified for each such airport when used as an alternate.

§ 41.111 *Change in clearance en route.* The clearance may be amended en route by the substitution of another alternate airport within the fuel range of the aircraft, as outlined in § 41.98 (b), where weather conditions are at or above the minimums for such airport when used as an alternate. If a change in clearance is made while an aircraft is in flight, the two-way conversation shall be entered in the ground station radio log. After clearance for contact flight no aircraft shall be recleared en route for instrument flight, unless all instruments and items of equipment required by § 41.25 for the type of operation are in serviceable condition.

§ 41.112 *Deviation from route.* No aircraft may deviate from the route over which it is dispatched except when circumstances render such deviation necessary as a safety measure. Any deviation from the route must be explained by the pilot in a written report dispatched to the Administrator within 7 days after return to his base.

§ 41.113 *Reporting unusual conditions.* When an icing or other unusual meteorological condition is encountered in flight the pilot shall notify his company radio ground station as soon as practicable and such information shall be relayed to all flights which may be affected.

§ 41.114 *Flight altitude rules*—(a) *Day contact operation.* Except during take-offs and landings no aircraft shall be flown at an altitude less than 500 feet above the ground or water, or within 500 feet of any mountain, hill, or other obstruction to flight, except in such cases as may be specifically approved.

(b) *Night and instrument operation.* Except during take-offs and landings or when operating in accordance with specific procedures for definite localities approved by the Administrator, no aircraft shall be flown at an altitude of less than 1,000 feet above the highest obstacle located within a horizontal distance of 5 miles from the center of the course intended to be flown.

§ 41.115 *Communication failure.* In the event of inability to maintain two-way radio communication, the pilot in command shall observe one of the following procedures in the order listed:

(a) Proceed according to current flight plan, maintaining the minimum instrument altitude or the last acknowledged assigned altitude, whichever is higher, to the airport of intended landing and commence descent at approach time last authorized or, if not received and acknowledged, at the estimated time of arrival specified in the flight plan; or

(b) If weather conditions permit, proceed in accordance with contact flight rules; or

(c) Land as soon as practicable.

Instrument Approach and Landing Rules

§ 41.117 *Altitude on initial approach.* When making an initial approach to a radio station on instruments or on top of overcast, an aircraft shall not be operated below the initial approach altitude specified for such station until arrival over the station has been definitely established, except where a marker facility is available and a procedure for a straight-in approach is authorized.

§ 41.118 *Letting-down-through procedure.* When instrument operation is authorized the standard instrument approach procedure, or the one authorized by the control tower if more than one procedure is specified for the airport, must be used for letting-down-through. The procedures and minimum altitudes of flight specified shall be strictly observed.

§ 41.119 *Approach and landing limitations.* No instrument approach procedure shall be executed or landing made at an airport when the latest U. S. Weather Bureau weather report for that airport indicates the ceiling or visibility to be less than that prescribed by the Administrator for landing at such airport: *Provided,* That, if an instrument approach procedure is initiated when the current U. S. Weather Bureau report indicates that the prescribed ceiling and visibility minimums exist and a later weather report indicating below minimum conditions is received after the aircraft (a) is on an ILS final approach and has passed the outer marker, or (b) is on a final approach using a radio range station or comparable facility and has passed the appropriate facility and has reached the authorized landing minimum altitude, or (c) is on GCA final approach and has been turned over to the final approach controller, such approach may be continued and a landing may be made in the event weather conditions equal to or better than the prescribed minimums for the airport are found to exist by the pilot in command of the flight upon reaching the authorized landing minimum altitude.

MISCELLANEOUS OPERATIONS RULES

§ 41.120 *Operations manual.* (a) The air carrier shall prepare and maintain a manual for the use and guidance of operations personnel which contains full information necessary to guide flight and ground personnel in the conduct of flight operations and to inform such personnel regarding their duties and re-

sponsibilities. It must be in a form approved by the Administrator and furnished to all persons designated by the Administrator or Board. All copies in the hands of company personnel must be kept up to date.

(b) *Any changes issued by the Administrator* shall be promptly incorporated in the manual. Other changes not inconsistent with any Federal regulation, the air carrier operating certificate, or safe operating practice may be made without the prior approval of the Administrator.

§ 41.121 *Admission to pilot compartment.* (a) No person except a member of the operating crew or an air carrier inspector of the Administrator may be admitted to the pilot compartment during flight unless his admission is approved by the pilot in command after he has identified himself as one of the following:

(1) An employee of the Federal Government, of an air carrier, or other aeronautical enterprise whose duties are such that his presence in the compartment is necessary or advantageous to the conduct of safe air carrier operations or the improvement of the safety of such operations;

NOTE: Federal employees who deal responsibly with matters relating to air carrier safety and such air carrier employees as pilots, dispatchers, meteorologists, communication operators, and mechanics whose efficiency would be increased by familiarity with flight conditions in the pilot compartment may be considered eligible for admission to the pilot compartment under this requirement. Employees of traffic, sales, and other air carrier departments not directly related to flight operations cannot be considered eligible unless authorized under § 41.121 (a) (2).

(2) A person whose presence in such compartment has been specifically authorized by the management of the air carrier operating the aircraft and by the Administrator.

(b) No person may occupy a seat in the pilot compartment or the companionway thereto unless such seat is securely attached to the structure of the aircraft and is provided with a safety belt which shall be kept fastened by the occupant throughout his occupancy of such seat.

(c) Unless a seat is also available for his use in the passenger compartment, no person may be admitted to the pilot compartment during flight except:

(1) Air carrier inspectors engaged in checking flight operations; and

(2) Certificated airmen of the air carrier and certificated airmen of another air carrier who have been authorized by the air carrier concerned and the Administrator to make specific trips over the route.

(d) An air carrier inspector of the Administrator must be admitted to the pilot compartment of an air carrier aircraft at any time while performing his official duty.

§ 41.122 *Manipulation of controls.* No person other than a qualified pilot of the air carrier may manipulate the flight controls of an air carrier aircraft while in scheduled flight, except that at the discretion of the pilot in command such restriction will not apply to other pilots as follows:

(a) Authorized air carrier inspectors of the Administrator, or

(b) Properly qualified pilot personnel of another air carrier, if the pilot in command is at one set of controls.

§ 41.123 *Smoking rules.* No smoking will be permitted in an aircraft:

(a) While on the ground or water,

(b) During take-offs and landings,

(c) In the berths of sleeper planes, or

(d) Elsewhere, unless suitable ash containers are provided.

§ 41.124 *Passenger information signs.* Aircraft shall be equipped with the following signs so located as to be plainly visible to passengers:

(a) "No smoking" signs located in the cabin and in individual berths,

(b) "Fasten seat belt" signs located in cabin,

(c) "Use oxygen equipment" signs located in the cabin of aircraft not having pressurized cabins when operated at altitudes in excess of 12,000 feet above sea level for any period of time, unless a competent cabin attendant is provided to care for passengers.

§ 41.125 *Marking door handles.* The latched and unlatched positions of door handles shall be plainly marked.

§ 41.126 *Marking emergency exits.* Emergency exits shall be clearly marked as such with luminous paint in letters not less than three-fourths of an inch high, such markings to be located either on or immediately adjacent to the pertinent exits and readily visible to passengers. The location and method of operation of the handles shall be marked with luminous paint.

§ 41.127 *Use of emergency equipment.* The emergency equipment required by § 41.23 must be periodically inspected and tested in accordance with specifications issued by the Administrator. The crew of aircraft used in overwater flights shall be drilled periodically in "abandon ship" procedures. Passengers shall be acquainted with the location of emergency exits, with emergency equipment provided for individual use, and with the procedure to be followed in the case of an emergency landing on the water.

§ 41.128 *Route operation proving flights.* Before passengers are carried on any new route or any extension of over 100 miles of a route previously authorized, the air carrier shall demonstrate ability to conduct a safe operation by making such flights over the route as the Administrator may require in the interest of safety.

§ 41.129 *Aircraft proving tests.* (a) A new type of air carrier aircraft shall have at least 100 hours of proving tests under the supervision of an authorized representative of the Administrator before authority for carrying passengers is issued. At least 50 hours of such tests shall be flown over authorized routes and shall include at least 10 hours of night operation.

(b) In a case of major changes on aircraft previously proved, or the use of the same aircraft on a substantially different operation, 50 hours of tests similar to those outlined in paragraph (a) of this section shall be required, of which at least 25 hours shall be flown over authorized routes, unless deviations are specifically authorized by the Administrator on the ground that the special circumstances of a particular case make a literal observance of the requirements of this paragraph unnecessary for safety.

(c) During the tests specified in paragraphs (a) and (b) of this section no person shall be carried other than those essential to the tests. Mail, express, and cargo may be carried at the discretion of the Administrator.

§ 41.130 *Reports.* Each air carrier shall furnish the Administrator the following reports:

(a) A monthly operations report shall be submitted on and in accordance with the form supplied or approved by the Administrator for the purpose not later than the 20th day of the next succeeding month.

(b) A mechanical interruption report shall be submitted on the form supplied for the purpose not later than 10 days after the return of the aircraft to its operating base. Any partial or complete instrument or equipment mechanical failure which occurs during flight shall be reported. The records of such mechanical failure must be made available to any authorized representative of the Administrator or Board on request.

§ 41.131 *Irregularity report.* All airmen, including flight and ground personnel, shall immediately report to the operations manager any irregularity or hazard which in their opinion makes for unsafe operation. If such report is found to be justified, notice of the irregularity or hazard must be submitted to the Administrator at once.

§ 41.132 *Communication priority.* Where a communications channel serves point-to-point contacts in addition to ground-to-plane, priority shall be given to plane-to-ground and ground-to-plane communications.

§ 41.133 *Flight records.* The air carrier shall maintain and make available to any authorized representative of the Administrator or Board, for not less than 1 year from the date of flight, the records pertaining to any flight which was interrupted because of weather conditions and failed to land at the point to which it was originally cleared. Such records shall include the flight plan, flight log, clearance, and any other data necessary to complete the record of the operation.

DEFINITIONS

§ 41.137 *Definitions.* As used in this part, terms shall be defined as follows:

Alternate airport. An alternate airport is one listed in the clearance as a point to which a flight may be directed if, subsequent to departure, a landing at the point to which the flight is cleared becomes undesirable.

Broken clouds. The term "broken clouds" means a condition where more than 50 but less than 90 percent of the sky is covered by clouds.

Category. Category shall indicate a classification of aircraft such as airplane, helicopter, glider, etc.

Ceiling. The term "ceiling" means the height of the base of the lowest cloud layer reported as "broken clouds" or "overcast."

Check pilot. A check pilot is a pilot authorized by the Administrator to check pilots of the air carrier for familiarity with route procedures and for piloting technique.

Class. Class shall indicate a difference in basic design of aircraft within a category, such as single-engine land, multiengine sea, etc.

Contact operation. A contact operation is an operation conducted under contact flight rules as prescribed in Part 60 of this subchapter.

Crew member. Crew member means any individual assigned by an air carrier for the performance of duty on the aircraft other than as flight crew member during flight time.

Flight crew member. Flight crew member means a pilot, flight radio operator, flight engineer, or flight navigator assigned to duty on the aircraft during flight time.

Flight time. Flight time shall mean the total time from the moment the aircraft first moves under its own power for the purpose of flight until the moment it comes to rest at the end of the flight (block to block).

Instrument operation. An instrument operation is an operation conducted under instrument flight rules as prescribed in Part 60 of this subchapter.

Long distance operation. A long distance operation is one in which the time interval between stops is of sufficient duration to require that the dispatch be based entirely on forecasts of weather expected at the intended destination and alternates.

Pilot compartment. The term "pilot compartment" means that part of the aircraft designed for the use of the flight crew.

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

Point-of-no-return. The term "point-of-no-return" means that point at which the aircraft no longer has sufficient fuel, under existing conditions, to return to the point of departure or any alternate for that point.

Provisional airport. A provisional airport is an airport approved for the purpose of providing adequate service to a community when the regular airport serving that community is not available.

Refueling and holding airport. A refueling and holding airport is an airport approved as a point to which flights may be cleared for refueling.

Regular airport. A regular airport is an airport used as a regular stop on a route.

Route. A route is a path through the navigable airspace identified by an area on the surface of the earth, the boundaries of which are designated or approved by the Administrator.

Route segment. A route segment is a portion of a route, the boundaries of which are identified by:

(1) A continental or insular geographic location;

(2) A point at which some specialized aid to air navigation is located; or

(3) A point at which a definite radio fix is located.

Second in command. Second in command shall mean a pilot other than the pilot in command who is designated by the air carrier to act as second in command of an aircraft.

Short distance operation. A short distance operation is one which involves intermediate stops of sufficient frequency to permit the dispatch from each such stop to be based on spot weather reports or a combination of spot weather reports and forecasts.

Type. Type shall mean all aircraft of the same basic design including all modifications thereto except those modifications which result in a change in handling or flight characteristics.

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NOTICE

Inform the Publications Section, Civil Aeronautics Board, Washington 25, D. C., that you have purchased this Part of the Civil Air Regulations and that agency will supply you with copies of amendments which have been issued since this printing. Be sure to indicate whether you wish to receive copies of amendments which may be issued in the future.

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