Federal Aviation Agency

Washington, D.C.

Civil Aeronautics Manual 40

Scheduled Interstate Air Carrier Certification and Operation Rules

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Supplement No. 2, CAM 40 dated Sept. 15, 1959 — August 18, 1960

SUBJECT: Revisions to CAM 40.

This supplement is issued to incorporate in CAM 40 Civil Air Regulations Amendments 40–26 and 40–27, and Special Civil Air Regulations SR–436A and SR–440.

With the discontinuance of the distribution of individual amendments to the Civil Air Regulations, it is believed that the preamble material contained in the amendments should be reproduced in the manuals. Therefore, this supplement incorporates into CAM 40 the *preambles* of all amendments to Part 40 of the Civil Air Regulations issued since the part was last revised and published in the Federal Register as a complete document. In addition to the preamble, the date of adoption, the effective date, Federal Register citation, and the sections affected are given for each amendment.

These preambles are set up as an addendum to CAM 40 and the page numbers are prefixed with the letter "P." It is recommended that these pages be retained in the back of the current CAM 40. Additional pages will be added as amendments to Part 40 are issued.

New or revised material is enclosed in black brackets on the pages submitted with this supplement. However, because Special Civil Air Regulations SR–436A and SR–440 and the addendum containing the preambles to amendments to Part 40 are new in their entirety they are not so marked.

Remove the following pages:	*Insert the following new pages:*
IX and X	IX and X
55 and 56	55 and 56–1
59 and 60	59 and 60–1
201 through 205	201 through 206
	Addendum, pages P–1 through P–27



OSCAR BAKKE, *Director,*
Bureau of Flight Standards.

ATTACHMENTS.

	Section	Page
Takeoff and landing weather minimums; IFR	**40.406**	77
IFR takeoff and landing, and instrument approach procedure, weather minimums (*FAA interpretations which apply to sec. 40.406*)	40.406–1	77
Ceiling and visibility minimums—IFR (*FAA policies which apply to sec. 40.406*)	40.406–2	77
Instrument approach procedures and IFR landing weather minimums at airports served by both ILS and GCA (*FAA interpretations which apply to sec. 40.406(c)*)	40.406–3	83
Flight altitude rules	**40.408**	83
Altitude maintenance on initial approach	**40.409**	84
Preparation of dispatch release	**40.411**	84
Preparation of load manifest	**40.412**	84

Required Records and Reports

Crew member and dispatcher records	**40.501**	84
Crew member and dispatcher records (*FAA policies which apply to sec. 40.501*)	40.501–1	84
List of airplanes	**40.502**	85
Dispatch release form	**40.503**	85
Dispatch release form (*FAA interpretations which apply to sec. 40.503 (a)(2)*)	40.503–1	85
Load manifest	**40.504**	85
Disposition of load manifest, dispatch release form and flight plans	**40.505**	85
Maintenance records	**40.506**	85
Maintenance log	**40.507**	86
Daily mechanical reports	**40.508**	86
Mechanical interruption summary report	**40.509**	86
Alteration and repair reports	**40.510**	86
Maintenance release	**40.511**	87
Purpose and form of maintenance release (*FAA* interpretations which apply to sec. 40.511)	40.511–1	87
Communication records	**40.512**	87

Appendixes

Appendix A:		
Examples explaining use of figures 1–11		89
Figures 1–11		91
Appendix B: Special Civil Air Regulations which affect Part 40		101
SR–389B.	**Emergency Exits for Airplanes Carrying Passengers for Hire**	103
	Amendment No. 1 to SR–389B	107
SR–392B.	**Facilitation of Experiments with Exterior Lighting Systems**	109
SR–395A.	**Authorization for Air Taxi Operators to Conduct Operations Under the Provisions of Part 42 of the Civil Air Regulations—Extension of Expiration Date for Air Taxi Operator Certificates**	111
SR–405.	**Crew Flight Time Limitations for Certain Transcontinental Nonstop Operations**	113
	Interpretation of SR–405	115
SR–406C.	**Application of Transport Category Requirements to C–46 Type Airplanes**	119
SR–411A.	**Trial Operation of Transport Category Airplanes in Cargo Service at Increased Zero Fuel and Landing Weights**	123
SR–420.	**Emergency Evacuation Equipment for DC–3 Type Airplanes**	127
SR–422.	**Turbine-Powered Transport Category Airplanes of Current Design**	129
SR–422A.	**Turbine-Powered Transport Category Airplanes of Current Design**	143
SR–422B.	***Turbine-Powered Transport Category Airplanes of Current Design***	163
SR–423.	**Type Certification of Transport Category Airplanes with Turbo-Prop Replacements**	181

Page

SR–425B. Provisional Certification and Operation of Aircraft 185
SR–426. Performance Credit for Transport Category Airplanes Equipped with Standby Power 191
SR–432. Carriage of Persons Other Than "Crew Members" and "Passengers" Aboard All-Cargo Aircraft 197
[SR–436A. Airborne Weather Radar Equipment Requirements for Airplanes Carrying Passengers 201
[SR–440. Occupancy of Forward Observer's Seat During En Route Inspection ..... 205]
Appendix C: Civil Air Regulations Amendment 40–21 207

Addendum

[Preambles to Amendments to Part 40 ..... P–1]

of ice on the portions of the wings which are critical from the standpoint of ice accumulation. When illuminating means are used, such means shall be of a type which will not cause glare or reflection which would handicap crew members in the performance of their normal functions.

40.208 *Flight recorders.*

[(a) An approved flight recorder which records at least time, altitude, airspeed, vertical acceleration, and heading shall be installed in accordance with the following requirements:

[(1) On all airplanes of more than 12,500 pounds maximum certificated takeoff weight which are certificated for operations above 25,000 feet altitude; and

[(2) On and after November 1, 1960, on all turbine-powered airplanes of more than 12,500 pounds maximum certificated takeoff weight; *Provided,* That, the Director, Bureau of Flight Standards, or his authorized representative, may extend the November 1, 1960, compliance date for any air carrier who, prior to September 1, 1960, submits to the Federal Aviation Agency, in writing, a request for approval for such an extension, together with substantiating data, which shows to the satisfaction of the Director, or his authorized representative:

[(i) That the air carrier will be unable to comply with the November 1, 1960, date due to flight recorder procurement or installation problems, and;

[(ii) The action the air carrier has undertaken to insure that a progressive installation of the required flight recorder equipment will be completed at the earliest practicable date following November 1, 1960. In no event will the November 1, 1960, compliance date be extended beyond May 1, 1961.

[(b) When a flight recorder is installed it shall be operated continuously from the instant the airplane commences the takeoff roll until it has completed the landing roll at an airport.

[(c) Recorded information shall be retained by the air carrier for a period of at least 60 days. For a particular flight or series of flights, the information shall be retained for a longer period if requested by an authorized representative of the Administrator or the Civil Aeronautics Board.

[(Amendment 40-27, published in 25 F.R. 6826, July 19, 1960, effective Aug. 18, 1960.)]

Radio Equipment

40.230 *Radio equipment.* Each airplane used in scheduled air transportation shall be equipped with radio equipment specified for the type of operation in which it is engaged. Where two independent radio systems are required by sections 40.231 and 40.232, each system shall have an independent antenna installation: *Provided,* That where rigidly supported nonwire antennas or other antenna installations of equivalent reliability are used, only one such antenna need be provided.

40.230–1 *Independent radio systems (FAA interpretations which apply to sec. 40.230).* Radio systems are independent where each such system is separate and complete, and the function of any part or the whole of one system is not dependent on the continued functioning of any component of the other, and in event of failure in one system, the other system is capable of continued independent operation.

(Published in 18 F.R. 8612, December 22, 1953, effective January 1, 1954.)

40.231 *Radio equipment for operations under VFR over routes navigated by pilotage.*

(a) For operations conducted under VFR over routes on which navigation can be accomplished by pilotage, each airplane shall be equipped with such radio equipment as is necessary under normal operating conditions to fulfill the following functions:

(1) Communicate with at least one appropriate ground station (as specified in sec. 40.34) from any point on the route and other airplanes operated by the air carrier;

(2) Communicate with airport traffic control towers from any point in the control zone within which flights are intended; and

(3) Receive meteorological information from any point en route by either of two independent systems.

(b) For all operations at night conducted under VFR over routes on which navigation can be accomplished by pilotage, each airplane shall be equipped with such radio equipment as is necessary under normal operating conditions to fulfill the functions specified in paragraph (a) of this section and to receive radio navigational signals applicable to the route flown except that no marker beacon receiver or ILS receiver need be provided.

40.232 *Radio equipment for operations under VFR over routes not navigated by pilotage or for operations under IFR or over-the-top.*

(a) For operations conducted under VFR over routes on which navigation cannot be accomplished by pilotage or for operations conducted under IFR or over-the-top each airplane shall be equipped with such radio equipment as is necessary under normal operating conditions to fulfill the functions specified in section 40.231(a) and to receive satisfactorily by either of two independent systems, radio navigational signals from all primary en route and approach navigational facilities intended to be used, except that only one marker beacon receiver which provides visual and aural signals and one ILS receiver need be provided. Equipment provided to receive signals en route may be used to receive signals on approach, if it is capable of receiving both signals.

(b) In the case of operation on routes using procedures based on automatic direction finding, only one automatic direction finding system need be installed: *Provided,* That ground facilities are so located and the airplane is so fueled that, in case of failure of the automatic direction finding equipment, the flight may proceed safely to a suitable airport which has ground radio navigational facilities whose signals may be received by the use of the remaining airplane radio systems.

(c) During the period of transition from low frequency to very high frequency radio navigational systems, one means of satisfactory receiving signals over each of these systems shall be considered as complying with the requirement that two independent systems be provided to receive en route or approach navigational facility signals: *Provided,* That ground facilities are so located and the airplane is so fueled that in case of failure of either system the flight may proceed safely to a suitable airport which has ground radio navigational facilities whose signals may be received by use of the remaining airplane radio system.

40.232–1 *Dispatch of aircraft equipped with one VHF and one low frequency radio receiver (FAA interpretations which apply to sec. 40.232(c)).* When an aircraft equipped with one VHF radio navigation receiver and one low frequency radio navigation receiver is dispatched under conditions requiring an alternate airport for departure or destination, such alternate airport must be:

(a) An alternate airport served by both low frequency and VOR (or VAR) radio navigation facilities each of which has an approved instrument approach procedure established for such airport, or

(b) An alternate airport served by a VOR (or VAR) radio navigation facility, provided another alternate airport is specified which is served by a low frequency radio navigation facility and an approved instrument approach procedure is established at each such airport, or

(c) An alternate airport for which the weather reports and forecasts, or a combination thereof, indicate that the weather conditions will remain at or above the weather minimums prescribed in section 40.390(c) until such time as the flight would arrive at such alternate airport.

(Published in 19 F.R. 1410, March 13, 1954, effective April 1, 1954.)

Maintenance and Inspection Requirements

40.240 *Responsibility for maintenance.* Irrespective of whether the air carrier has made arrangements with any other person for the performance of maintenance and inspection functions, each air carrier shall have the primary responsibility for the airworthiness of its airplanes and required equipment.

40.241 *Maintenance and inspection requirements.*

(a) The air carrier, or the person with whom arrangements have been made for the performance of maintenance and inspection functions, shall establish an adequate inspection organization responsible for determining that workmanship, methods employed, and material used are in conformity with the requirements of the regulations of this subchapter, with accepted standards and good practices, and that any airframe, engine, propeller, or appliance released for flight is airworthy.

(b) Any individual who is directly in charge of inspection, maintenance, overhaul, or repair of any airframe, engine, propeller, or appliance shall hold an appropriate license or airman certificate.

40.241-1 *Persons directly in charge of inspection, maintenance, overhaul, or repair of airframes, engines, propellers, or appliances (FAA interpretations which apply to sec. 40.241(b)).* The individual "directly in charge" is interpreted to mean each individual assigned by the carrier or other person performing maintenance, to a position in which he is responsible for the work of a shop or station which performs inspections, maintenance, repairs, alterations, or other functions affecting aircraft airworthiness. Such individuals need not necessarily physically observe and direct each worker constantly, but must be available

Each pilot shall ascertain the proper values for speeds V_1 and V_2;

(ii) At the authorized maximum landing weight, flight in a four-engine airplane, where appropriate, with the most critical combinations of two engines inoperative, or operating at zero thrust, utilizing appropriate climb speeds as set forth in the Airplane Flight Manual;

(iii) At the authorized maximum landing weight, simulated pull-out from the landing and approach configurations accomplished at a safe altitude with the critical engine inoperative or operating at zero thrust;

(iv) Suitable combinations of airplane weight and power less than those specified in subdivisions (i), (ii), and (iii) of this subparagraph may be employed if the performance capabilities of the airplane under the above conditions are simulated.

(2) Conduct of flight under simulated instrument conditions, utilizing all types of navigational facilities and the letdown procedures used in normal operations. If a particular type of facility is not available in the training area, such training may be accomplished in a synthetic trainer.

40.284 *Initial flight engineer training.*

(a) The training for flight engineers shall include at least the instruction specified in section 40.281 (a) through (e).

(b) Flight engineers shall be given sufficient training in flight to become proficient in those duties assigned them by the air carrier. Except for emergency procedures, this training may be accomplished during scheduled flight under the supervision of a qualified flight engineer.

40.286 *Initial crew member emergency training.*

(a) The training in emergency procedures shall be designed to give each crew member appropriate individual instruction in all emergency procedures, including assignments in the event of an emergency, and proper coordination between crew members. At least the following subjects as appropriate to the individual crew member shall be taught: The procedures to be followed in the event of the failure of an engine, or engines, or other airplane components or systems, emergency decompression, fire in the air or on the ground, ditching, evacuation, the location and operation of all emergency equipment, and power setting for maximum endurance and maximum range.

(b) Synthetic trainers may be used for training of crew members in emergency procedures where the trainers sufficiently simulate flight operating emergency conditions for the equipment to be used.

40.286–1 *Initial crew member emergency training—synthetic trainers* (FAA *interpretations which apply to sec. 40.286(b)*). Synthetic trainers will be deemed to sufficiently simulate flight operating emergency conditions if the trainer is so designed as to accurately reproduce the placement of flight station instruments and controls of the particular type and model of aircraft for which the training is given, and the operation of such trainer permits accurate reproduction of the instrument and control characteristics found in the emergency conditions simulated.

(Published in 18 F.R. 6619, October 17, 1953, effective January 1, 1954.)

40.288 *Initial aircraft dispatcher training.*

(a) The training program for aircraft dispatchers shall provide for training in their duties and responsibilities and shall include a study of the flight operation procedures, air traffic control procedures, the performance of the airplanes used by the air carrier, navigational aids and facilities, and meteorology. Particular emphasis shall be placed upon the procedures to be followed in the event of emergencies, including the alerting of proper Governmental, company, and private agencies to render maximum assistance to an airplane in distress.

(b) Each aircraft dispatcher shall, prior to initially performing the duty of an aircraft dispatcher, satisfactorily demonstrate to the supervisor or ground instructor authorized to certify to his proficiency, his knowledge of the following subjects:

(1) Contents of the air carrier operating certificate;

(2) Appropriate provisions of the air carrier operations specifications, manual, and regulations of this subchapter;

(3) Characteristics of the airplanes operated by the air carrier;

(4) Cruise control data and cruising speeds for such airplanes;

(5) Maximum authorized loads for the airplanes for the routes and airports to be used;

(6) Air carrier radio facilities;

(7) Characteristics and limitations of each type of radio and navigational facility to be used;

(8) Effect of weather conditions on airplane radio reception;

(9) Airports to be used and the general terrain over which the airplanes are to be flown;

(10) Prevailing weather phenomena;

(11) Sources of weather information available;

(12) Pertinent air traffic control procedures; and

(13) Emergency procedures.

40.289 *Recurrent training.*

(a) Each air carrier shall provide such training as is necessary to insure the continued competence of each crew member and dispatcher and to insure that each possesses adequate knowledge of and familiarity with all new equipment and procedures to be used by him.

(b) Each air carrier shall, at intervals established as part of the training program, but not to exceed 12 months, check the competence of each crew member and dispatcher with respect to procedures, techniques, and information essential to the satisfactory performance of his duties. Where the check of the pilot in command requires actual flight, such check shall be considered to have been met by the checks accomplished in accordance with section 40.302.

(c) The appropriate instructor, supervisor, or check airman shall certify as to the proficiency demonstrated, and such certification shall become a part of the individual's record. In the case of pilots other than pilots in command, a pilot in command may make such certification.

Flight Crew Member and Dispatcher Qualification

40.300 *Qualification requirements.*

(a) No air carrier shall utilize any flight crew member or dispatcher, nor shall any such airman perform the duties authorized by his airman certificate, unless he satisfactorily meets the appropriate requirements of section 40.280 or section 40.289, and sections 40.301 through 40.310. All pilots serving as pilot in command shall hold appropriate airline transport pilot certificates and ratings. All other pilots shall hold at least commercial pilot certificates and instrument ratings.

(b) Check airmen shall certify as to the proficiency of the pilot in command being examined, as required by sections 40.302 and 40.303, and such certification shall become a part of the airman's records.

40.301 *Pilot recent experience.* No air carrier shall schedule a pilot to serve as such in scheduled air transportation unless within the preceding 90 days he has made at least 3 take-offs and 3 landings in the airplane of the particular type on which he is to serve.

40.302. *Pilot checks.*

(a) *Line check.* Prior to serving as pilot in command, and at least once each 12 months thereafter, a pilot shall satisfactorily accomplish a line check in one of the types of airplanes normally to be flown by him. [The line check may be given at any time during the month preceding or following the month in which it becomes due. The effective date of the check, if given within the preceding or following month, shall be the same as if given within the month in which it became due.] This check shall be given by a check pilot who is qualified for the route. It shall consist of at least a scheduled flight between terminals over a route to which the pilot is normally assigned during which the check pilot shall determine whether the individual being checked satisfactorily exercises the duties and responsibilities of pilot in command.

[(Amendment 40–26, published in 25 F.R. 3850, May 4, 1960, effective June 1, 1960.)]

(b) *Proficiency check.*

(1) An air carrier shall not utilize a pilot as pilot in command until he has satisfactorily demonstrated to a check pilot or a representative of the Administrator his ability to pilot and navigate airplanes to be flown by him. Thereafter, he shall not serve as pilot in command unless each 6 months he successfully completes a similar pilot pro-

SPECIAL CIVIL AIR REGULATION NO. SR-436A

Effective: June 30, 1960
Adopted: June 27, 1960

Airborne Weather Radar Equipment Requirements for Airplanes Carrying Passengers

Special Civil Air Regulation SR-436, effective February 15, 1960, (25 F.R. 167), as amended by Amendment No. 1[1] (25 F.R. 1987), requires the installation of airborne weather radar equipment in most of the transport category airplanes used for the carriage of passengers under Parts 40, 41, or 42 of the Civil Air Regulations. Other provisions of the operation and airworthiness rules require dual sources of electrical power for such required equipment.

In regard to the requirement for dual sources of electrical power, airborne weather radar equipment uses approximately 500 to 700 VA (voltamperes) of 115 volt AC power. Airplanes which generate direct current (DC) power obtain alternating current (AC) power from power converters generally known as inverters. Inasmuch as some instruments and other equipment require AC power, transport category airplanes which basically generate DC power presently are required to have 2 inverters to supply dual power to required AC-powered equipment.

Airborne weather radar equipment uses a large portion of the output capability of the typical airplane inverter. To accommodate weather radar, prior to the promulgation of SR-436, the various AC power loads were divided between the two existing inverters in such manner that the weather radar could be turned off in the event of a single inverter failure. The remaining inverter would supply the AC power for required instruments and equipment, consistent with the dual power source requirement in the operating and airworthiness rules.

When airborne weather radar became required equipment, the installation described above would not provide for dual power sources for both the airborne weather radar and the required AC-powered instruments and equipment. To comply with the dual power requirement, the installation of an additional inverter (with suitable switching, failure indicators, and metering) would be necessary, and such installation would involve extensive modifications to all airplanes which generate DC power. In addition, for most, if not all, 2-engine airplanes equipped with 2 DC generators, the installation of an additional inverter would not fully satisfy the dual power source supply requirement, since in the event of a generator failure the combined electrical load of the weather radar and other required equipment would overload the remaining DC generator, irrespective of the number of inverters installed on the airplane.

In reconsidering the requirement for dual electrical power supply for airborne weather radar equipment, the Federal Aviation Agency recognizes the difficult engineering problem involved in providing for dual power for such equipment. Consideration has also been given to the present reliability of

[1] No distribution was made of this amendment. It corrected an inadvertent error in SR-436 by adding the word "radar" between the words "weather" and "is" in the first sentence of section 2a.

inverters as evidenced by the satisfactory use of airborne radar by the airlines with the single inverter installation. Furthermore, SR-436 requires the operator to establish procedures for the continuance of flight when the weather radar becomes inoperative during en route operations.

In view of the above, present section 5 of SR-436 is being deleted and a new section 5 is being added to permit the installation of airborne weather radar equipment which is not provided with an alternate electrical power supply.

This superseding Special Civil Air Regulation incorporates into one document all of the provisions of SR-436, as amended herein and by Amendment No. 1. Since this superseding Special Civil Air Regulation, which is substantively the same as SR-436, imposes no additional burden on any person and relieves a restriction, the Administrator finds that notice and public procedure are unnecessary and that good cause exists for making this regulation effective on less than 30 days' notice.

In consideration of the foregoing, the following Special Civil Air Regulation is hereby adopted:

1. *Airborne weather radar equipment requirement.* After the dates specified, the following transport category airplanes shall not be used for the carriage of passengers under the provisions of Parts 40, 41, or 42 of the Civil Air Regulations, unless approved airborne weather radar equipment is installed in such airplanes:

(a) July 1, 1960, for all turbine-powered airplanes certificated under the transport category rules.

(b) January 1, 1961, for the airplane types listed below:

Douglas DC-7 Series,
Douglas DC-6 Series, and
Lockheed 1049 and 1649 Series.

(c) January 1, 1962, for all airplanes certificated under the transport category rules, except C-46 type airplanes.

NOTE: Airplanes subject to the provisions of paragraph (c) of this section include, but are not limited to, the following types: Boeing 377; Convair 240, 340, and 440; Lockheed 049 and 749; Martin 202 and 404; and Douglas DC-4.

2. *Schedule for installation of equipment.*

(a) Each operator conducting passenger operations under the provisions of Parts 40, 41, or 42 of the Civil Air Regulations with transport category airplanes on which airborne weather radar is not installed, shall establish a schedule for the progressive completion of such radar installations, in accordance with the provisions of section 1 of this regulation. The schedule shall provide for the completion of all required radar installations on or before the dates specified in section 1 of this regulation, and the completion of at least 40 percent of the required installations on or before the following dates:

(1) August 1, 1960, for airplanes of the types specified in section 1(b), and

(2) February 1, 1961, for airplanes of the types specified in section 1(c).

(b) On or before July 1, 1960, a copy of the schedule required by paragraph (a) of this section shall be submitted to an authorized representa-

tive of the Administrator, together with a list of any airplanes the operator intends to discontinue using in the carriage of passengers prior to the date on which radar equipment must be installed.

3. *Requirement for dispatch and continuance of flight.* After the effective date specified in section 6 of this regulation, all transport category airplanes having approved airborne weather radar installed shall be operated in accordance with the following rules when used in passenger operations under Parts 40, 41, or 42:

(a) *Dispatch.* No airplane shall be dispatched (or flight of an airplane started under the provisions of Part 42) under IFR or night VFR conditions when current weather reports indicate thunderstorms, or other potentially hazardous weather conditions which can be detected by airborne weather radar, may reasonably be expected to be encountered along the route to be flown, unless approved airborne weather radar equipment installed in the airplane is in a satisfactory operating condition.

(b) *En Route.* In the event the airborne weather radar becomes inoperative en route, the airplane shall be operated in accordance with the instructions and procedures specified in the operations manual for such occurrence. After the date specified by section 1 of this regulation for the mandatory installation of approved airborne weather radar on the type of airplane involved, such instructions and procedures shall meet with the approval of an authorized representative of the Administrator.

4. *Exceptions.* The provisions of this regulation shall not apply to those airplanes used solely within the States of Alaska or Hawaii, or during all-cargo, training, test, or ferry flights.

5. *Electrical power supply.* Contrary provisions of the Civil Air Regulations notwithstanding, an alternate electrical power supply need not be provided for airborne weather radar equipment.

6. *Effective date.* This Special Civil Air Regulation shall become effective on June 30, 1960, and supersedes Special Civil Air Regulation No. SR–436.

SPECIAL CIVIL AIR REGULATION NO. SR-440

Effective: June 7, 1960
Adopted: June 7, 1960

Occupancy of Forward Observer's Seat During En Route Inspection

Sections 40.22, 41.5, and 42.8 of the Civil Air Regulations contain provisions which make it mandatory to permit an authorized representative of the Federal Aviation Agency at any time and place to make inspections or examinations to determine an air carrier's compliance with the requirements of the Federal Aviation Act of 1958, and the Civil Air Regulations. Similar inspection provisions have existed without interruption since the regulation of civil aviation by the former Aeronautics Branch, U.S. Department of Commerce, which provided in its regulations that the "owner, operating agency, or pilot" was required to give Federal inspectors "free and uninterrupted access to the aircraft" while conducting government inspections.

Historically, the required Government inspections of air carrier operations known as en route inspections have been conducted from a seat or station on the flight deck of the aircraft which permits the inspector to observe the operation of the aircraft by the flight crew members at their respective stations. This was done for the obvious reason that an inspection conducted from a location which would not permit observation of the operation would be essentially futile. As a result of this well established and accepted practice, it has been unnecessary for the Federal Aviation Agency or its predecessor agencies to further prescribe by regulatory action the authority of the inspector to occupy such seat in the conduct of his required en route inspections.

With the introduction into service of new type turbo jet airplanes two observers' seats were made available for use on the flight deck of such airplanes, in addition to those required for the minimum flight crew. In some of these airplanes one of these seats, the forward observer's seat, is located directly behind that occupied by the pilot in command and permits FAA inspectors while occupying such seat to observe the operation of the airplane by the flight crew members. The location of the second observer's seat, however, does not permit such observation.

By agreement entered into between the Air Line Pilots Association and certain air carriers, an additional pilot flight crew member has been assigned to assist the pilot in command in the operation of turbo jet airplanes. This agreement was entered into notwithstanding the fact that such airplanes were certificated for safe operation by the FAA with a minimum flight crew of two pilots and a flight engineer. Moreover, these airplanes are still being operated safely with such a flight crew complement by all of the other air carriers not parties to such an agreement. The Air Line Pilots Association has now advised the FAA that under the provisions of this agreement it has decided that the forward observer's seat must be occupied by the additional pilot flight crew member or the airplane will not be operated by its members—even during en route inspec-

(Rev. 8/18/60)

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tions. In support of this decision, resolutions have been entered into by the Master Executive Council of the pilots of the air carriers which are parties to such agreements directing its members not to operate turbo jet airplanes for en route inspections, when the forward observer's seat is occupied by the FAA inspector instead of the additional third pilot.

Pursuant to such agreements and resolutions, the pilots of one of the air carriers have now refused to operate turbo jet airplanes which were scheduled for en route inspections by authorized representatives of the Administrator occupying the forward observers' seats. Such overt acts by the pilots involved have created a situation which requires immediate corrective action. The statutory safety responsibilities of the Federal Aviation Agency can not be derogated by the provisions of agreements between the pilots and the air carriers, or by unilateral resolutions of the pilots and their associations purporting to implement such agreements. In the exercise and performance of their statutory responsibilities, FAA inspectors conducting en route inspections must be provided with a seat in the cockpit from which they are able properly to discharge such responsibilities. This requirement is both obvious and fundamental for the conduct of inspections which will assure the highest degree of safety in the fast growing system of air transportation.

Because of the emergency nature of the situation, I find that compliance with the notice, procedures and effective date provisions of the Administrative Procedure Act would be impracticable and impede the due and timely execution of the functions of the Federal Aviation Agency.

In consideration of the foregoing this emergency Special Civil Air Regulation is adopted to make clear that the authorized representatives of the Administrator must be given full and uninterrupted access to the aircraft, including a suitable seat on the flight deck, as determined by the Administrator, for the proper performance and discharge of their en route inspection duties. This regulation is declaratory of a longstanding practice and makes explicit, with respect to certain aircraft, the location of such seat.

The following Special Civil Air Regulation is hereby adopted to become effective immediately.

Each air carrier shall make available a seat on the flight deck of each aircraft used by it in air transportation for occupancy by an authorized representative of the Administrator while conducting en route inspections. The location and equipment of such seat, in respect to its suitability for use in conducting en route inspections, shall be as required by the Administrator or his representative. In all Boeing 707's, Douglas DC–8's, and other types of aircraft having more than one observer's seat in excess of that required for the crew complement for which the aircraft was certificated, the forward observer's seat shall be made available to such representative.

Addendum

Preambles to Amendments to Civil Air Regulations Part 40

NOTE

Part 40 of the Civil Air Regulations was last revised by the Civil Aeronautics Board with an effective date of December 31, 1955. This was not a general revision of the part, but only a reprint to incorporate outstanding amendments and to make minor editorial changes. This revision was published in the Federal Register on December 31, 1955 (20 F.R. 10131).

Amendment 40–1

Weather Reporting Facilities and Requirements Covering Landing Limitations Outside Continental United States	**Adopted:** May 18, 1956 **Effective:** June 22, 1956 **Published:** May 23, 1956 (21 F.R. 3405)

Part 40 of the Civil Air Regulations contains the certification and operation rules for scheduled air carriers conducting interstate operations. Part 41, on the other hand, contains the regulations applicable to scheduled air carriers operating outside the continental limits of the United States. However, section 40.1 of Part 40 permits the Administrator to authorize air carriers whose operations are essentially domestic in character to operate on routes extending beyond the continental limits of the United States in accordance with the provisions of Part 40 in lieu of the provisions of Part 41 in order to permit continuity of operating procedures throughout the air carriers' systems.

Currently effective section 40.35 of Part 40 requires air carriers to show that sufficient weather reporting services are available en route to insure necessary weather reports and forecasts prepared and released by the United States Weather Bureau or by a source approved by the Weather Bureau. However, reports prepared by the United States Weather Bureau or a source approved by the Weather Bureau are not normally available for areas under the jurisdiction of other nations.

Currently effective section 40.406 of Part 40 prescribes the take-off and landing weather minimum requirements for IFR flight. These requirements include provisions allowing pilots to "take-a-look" to determine whether conditions at the airport are at or above prescribed weather minimums and, if so, to continue to approach and land. Authority to "take-a-look" is limited to airports served by ILS and GCA in operative condition or to airports at which certain instrument approach procedures are commenced when weather conditions above prescribed minimums exist but which a later report indicates are below minimum requirements. Part 41, on the other hand, prohibits air carriers from "taking-a-look" only at airports at which United States Weather Bureau reports indicate below minimum conditions exist. At airports outside the United States which do not possess a United States Weather Bureau reporting service, a pilot may in his discretion "take-a-look." If he finds that weather conditions at the airport are at or above prescribed weather minimums, he may complete the approach and land.

The inapplicability of section 40.35 to air carrier operations outside the United States and the inconsistency between Parts 40 and 41 with respect to "take-a-look" restrictions appear to have been an oversight. In order to correct this situation, section 40.35 is being amended to provide for the use of weather reports prepared by sources other than those approved by the United States Weather Bureau on routes extending beyond the continental limits of the United States on which operations are conducted pursuant to section 40.1. These "other" sources shall be approved by the Administrator. In addition, section 40.406 is being amended to prohibit pilots from "taking-a-look" only when the latest United States Weather Bureau report or a report from a source approved by the Weather Bureau indicates the ceiling or visibility to be less than the prescribed minimum. This will enable pilots flying on routes outside the continental United States pursuant to section 40.1 to exercise the same "take-a-look" privileges as are available to pilots flying in accordance with Part 41.

Interested persons have been afforded an opportunity to participate in the making of this amendment (20 F.R. 8579), and due consideration has been given to all relevant matter presented.

Amendment revised sections 40.35 and 40.206.

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ous emergency procedures which cannot satisfactorily be accomplished in flight, and permit special emphasis on the coordination of crew duties; they offer a laboratory for experimentation in techniques and procedures which might be time-consuming or hazardous in flight; they will permit training to be conducted with more safety as a result of the reduction of frequency of aircraft operations under simulated emergency conditions; their use will result in the reduction of traffic congestion and noise in large terminal areas; and they will reduce substantially the total cost of pilot training programs.

The Board also indicated that, in determining the most appropriate method to realize the full possibilities of aircraft simulators, it could not lose cognizance of its responsibility to assure the highest degree of safety in air transportation even while taking this opportunity to encourage sound technical and economic development of air carrier operations. It is the Board's opinion, therefore, that the broadened use of aircraft simulators in air carrier training programs should be permitted in accordance with these basic principles:

A. The use of simulators shall be permissive with the air carriers.

B. The air carrier shall be required to show that the aircraft simulator meets prescribed standards and shall establish within its training program an approved course of training in such an aircraft simulator. It is anticipated that the training shall consist of at least several hours covering all items currently contained in the flight proficiency checks.

C. When a pilot in command satisfactorily completes each 12 months an approved course of training in an aircraft simulator which the air carrier shows meets the prescribed standards, each such pilot need accomplish only one proficiency check in flight each 12 months.

D. The Board shall review the experience gained under these regulations to determine the effectiveness of the procedures permitted thereby.

In response to Draft Release No. 56-16, the Board received from interested persons comment favorable to the Board's basic objective of permitting broadened use of aircraft simulators by air carriers. There was, however, some diversity of opinion with respect to the specific proposals to amend the operating parts. In the Board's proposal the major change from current practice was to substitute an approved simulator course for one of the two proficiency checks required to be accomplished in flight annually. Certain air carrier spokesmen indicated that they considered this an improper mixing of the training and checking functions, and stated that the regulation should simply permit the accomplishment of one of the required checks in a simulator. Furthermore, these persons also considered that it was not necessary for the Administrator to approve a particular portion of an air carrier's training program (i.e., simulator curriculum). On the other hand, pilot spokesmen expressed concern that successful utilization of aircraft simulators would be realized only through very close supervision by the Administrator, with review by the pilots, of procedures and qualifications of instructors and check personnel.

In Draft Release No. 56-16, the Board also asked for separate comment with respect to the desirability of including in the Civil Air Regulations certain specific standards for aircraft simulator equipment (Draft Release No. 56-16, Appendix A) which would be used as a basis for approval by the Administrator.

The Board has carefully studied the various views presented and is of the opinion that, at least in the initial stages of expanded simulator use by air carriers, the Administrator should approve the aircraft simulator training program of each air carrier. This procedure will be consistent with the present policy whereby the Administrator makes rules, compliance with which is mandatory, for the conduct of the proficiency checks required by the Civil Air Regulations. The Board will, however, review the experience gained under this regulation and propose any changes which, in the light of such experience, may be in the public interest.

The Board is also of the opinion, in view of the comment received, and other information, that the detailed description of the systems or conditions being simulated, and the degree of simulation, should not be prescribed in the Civil Air Regulations but should be controlled by the Administrator through the medium of the appropriate Civil Aeronautics Manual. The Board considers, however, that the broad, basic standards which describe the characteristics and function of an acceptable aircraft simulator should be included in the regulations.

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

Amendment added a new subparagraph (3) to section 40.302(b).

Amendment 40-3

Position and Anti-Collision Light Requirements

Adopted: Feb. 25, 1957
Effective: April 1, 1957
Published: March 1, 1957 (22 F.R. 1276)

The continuing increase in air traffic density and the advent of aircraft capable of appreciably higher speeds than heretofore attained demand further improvement in the exterior lighting of aircraft. Recent studies with respect to exterior aircraft lighting indicate a need for the establishment of new specifications in the certification parts of the Civil Air Regulations for anti-collision lights.

Since the anti-collision light is a flashing light and in addition has the added advantage of more concentrated intensities which offer conspicuity at a greater distance, the Board believes that flashing position lights will no longer contribute noticeably to the conspicuity of aircraft. It is believed, however, that with the use of the anti-collision lights now required on all air carrier aircraft it becomes important for the position lights to retain their direction and attitude indicating features and this can best be accomplished by maintaining the position lights steady rather than flashing.

Interested persons have been afforded an opportunity to participate in the making of this amendment (21 F.R. 3388), and due consideration has been given to all relevant matter presented.

Amendment revised section 40.200(a) and deleted the words "After May 31, 1956" from section 40.200(b).

Amendment 40-4

Extension of Compliance Date for Installation of Emergency Exit Lighting and Means for Emergency Evacuation

Adopted: May 31, 1957
Effective: May 31, 1957
Published: June 5, 1957 (22 F.R. 3917)

Provisions of Part 40 of the Civil Air Regulations, adopted November 28, 1955 (20 F.R. 8848), require that after May 31, 1957, for night operations, aircraft emergency exit markings shall be illuminated by a special source of light, independent of the main aircraft lighting system. This regulation also requires that after May 31, 1957, certain means for emergency evacuation shall be installed on all passenger-carrying airplanes, as for example ropes and chutes.

By letter dated March 29, 1957, the Air Transport Association of America (ATA) requested, on behalf of certain member air carriers, an extension from May 31, 1957, to July 31, 1958, of the compliance date for installation of emergency exit lights in a large number of presently operated air carrier aircraft. In support of their request the ATA described in considerable detail the problems with which the air carriers had been confronted in the design, procurement, installation, and approval of emergency exit lighting systems appropriate for many types of aircraft. Also by letter dated May 3, 1957, ATA requested, on behalf of several air carriers, an extension of the May 31, 1957, compliance date for installation of the means for emergency evacuation in certain air carrier airplanes. Extensions were requested for various periods, the maximum of which was for a period of 14 months.

The Board is greatly disturbed that progress with the installation of this emergency equipment has not met with its expectations as expressed in the amendments to Part 40 requiring such equipment and the Board does not consider the substantiating data submitted by the ATA to be sufficient to warrant extension for the period of time requested by the carriers. The Board recognizes, however, that difficulties may have been encountered by the air carriers in accomplishing an orderly procurement and installation program without serious disruption of scheduled service and that a brief period of relief may be granted without affecting adversely safety in air carrier operations.

In view of the foregoing, the Board is extending the date for compliance with the emergency exit lighting and evacuation requirements of Part 40 for a period of 90 days. The Board hereby invites each air carrier which believes that it cannot comply with such requirements within 90 days to submit to the Bureau of Safety in writing not later than July 1, 1957, a request for further extension, together with complete substantiating data as to why it cannot comply and believes it should be granted such extension. Each such request for further relief will be evaluated and the Board, prior to August 31, 1957, will take such action as it deems justified.

Since this amendment grants relief by temporarily extending the date for compliance with a requirement of the Civil Air Regulations, and delay in extending such relief would impose an undue hardship, the Board for good cause finds that notice and public procedure hereon would be contrary to the public interest and may be omitted and that this amendment may be made effective immediately.

Amendment changed the date "May 31, 1957" to "August 31, 1957" in section 40.173(e) and (f)(2).

Amendment 40–5

Admission to Flight Deck

Adopted: July 11, 1957
Effective: Aug. 15, 1957
Published: July 16, 1957
(22 F.R. 5571)

Section 40.356 of Part 40 of the Civil Air Regulations specifies the persons who may be admitted to the flight deck of an air carrier airplane. Although it was the intention of the Board to limit admission to such flight deck to the persons specified in this section, it has come to the attention of the Board that there is ambiguity as to whether other persons not expressly authorized to be admitted to the flight deck are prohibited from admission thereto. This amendment eliminates this ambiguity.

A growing need for in-flight observation of equipment and procedures has been verified by the Board in the granting of many recent waivers, and the experience gained in operations subject to such waivers has been excellent. Accordingly, section 40.356 is being amended to include in the list of persons authorized to be admitted to the flight deck, without having a seat available in the passenger compartment, certain operations personnel of the air carrier and technical representatives of the manufacturer of the airplane or components thereof. It is contemplated that authorization for such operations personnel and technical representatives will be granted by the air carrier only when the presence of such persons in the pilot compartment is required in the furtherance of their functions of observing and monitoring the in-flight operations of the air carrier or its equipment. It should be clearly understood that it is not intended by this amendment to compromise in any way the authority of the pilot in command to refuse such persons admission to the flight deck.

This amendment was published in the Federal Register (21 F.R. 6573) as a notice of proposed rule making and circulated to the industry as Civil Air Regulations Draft Release No. 56–24, dated August 22, 1956. Certain comments received in response to Draft Release No. 56–24 recommended that the provisions governing admission to the flight deck be amended to give the pilot in command complete discretion with respect to admitting persons to the flight deck. The Board has given careful consideration to this recommendation, but it is of the opinion that it would not be in the interest of safety to grant to the pilot in command any greater discretion than that provided for in this amendment.

In order to achieve uniformity in the Civil Air Regulations, similar amendments are being made to the corresponding sections in Parts 41 and 42 of the Civil Air Regulations which pertain to admission to the flight deck.

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

Amendment revised section 40.356.

Amendment 40–6

Flight Recorders

Adopted: Aug. 5, 1957
Effective: Sept. 9, 1957
Published: Aug. 9, 1957
(22 F.R. 6378)

On two occasions within the past several years, the Board has amended the Civil Air Regulations to require the use of a recording device on aircraft used in air transportation. In the first instance the Board found it necessary to rescind the rule because of the difficulty operators were having in providing proper maintenance due to procurement and transportation difficulties brought on by World War II. In the second instance the Board found that, contrary to earlier indications, there was no device readily available of proven reliability and fully adequate for the purpose intended. The Board gave notice, however, that a requirement for a recording device would be reconsidered at such time as a suitable instrument became available.

On November 10, 1955, the Board, having received information that a suitable instrument was available, circulated Civil Air Regulations Draft Release No. 55–26 which proposed in the alternative that flight recorders be required equipment on all large 4-engine and 2-engine airplanes originally type certificated under Part 4a or Part 4b of the Civil Air Regulations or that they be installed only on large transport category airplanes designed to operate above 25,000 feet altitude.

Although much comment, both written and oral, was received by the Board on this draft release, there was no significant opinion expressed by those in favor of requiring a flight recorder on the desirability of one or the other of the alternative proposals. It was clear that interested persons either favored the general use of flight recorders or they didn't favor use of them at all.

Those favoring use of the recorders were of the opinion that recorders might have been of some value in approximately 25 percent of the accidents studied by the Board's Analysis Division; that they would do much to eliminate the conjecture, supposition, and personal opinion from analysis of both accidents and daily routine operations; that there is a recorder in being which is rugged, dependable, and will operate months on end without need for calibration; that the record can be quickly removed and read at any time without processing; and that, aside from its value in accident investigation, its use may result in improved operational procedures and airworthiness standards.

On the other hand, those opposing use of flight recorders were of the opinion that the advantage to be derived from their use in accident investigation was highly exaggerated and that at best they would be of some assistance in only a very small percentage of accidents. This, they argued, was not sufficient justification to require use of these recorders on all large transport category airplanes when it is considered that, for the scheduled airlines alone, in a five-year period it is estimated that it would cost about 9 million dollars to purchase, maintain, and stock necessary spare parts for the recorder. Furthermore, it was argued that the reliability of the one recorder in being is subject to considerable question, the inference being that since there had been two previous abortive attempts to require use of these recorders because of their unreliability it would not be justified to require their use now until more positive evidence appeared as to their reliability.

The Board, having considered the comment received in response to the proposals contained in Civil Air Regulations Draft Release No. 55–26 and other information submitted during the oral argument held April 17, 1957, concludes that a flight recorder of sufficient reliability to fulfill the objectives for such a device is in being and should be used on all large airplanes certificated for use in air transportation above 25,000 feet altitude.

The Board agrees that the costs involved in comparison to the value of the recorder for the purposes intended do not justify a requirement for the installation of flight recorders on the entire transport fleet. The cost of the equipment and its installation and maintenance appears to be prohibitive when related to the total cost of some of the smaller airplanes of the current air carrier fleet. This consideration is magnified by the relatively low income generating capacity of many current airplane types. Furthermore, flight recorders in these airplane types would be furnishing information concerning design and operations for which there already exists a very substantial body of operational experience. Accordingly, no airplane certificated for flight below 25,000 feet altitude will be required to install and use flight recorders.

The Board is of the opinion, however, that in the case of large airplanes certificated for use in air transportation above 25,000 feet altitude, a flight recorder should be required for accident investigation purposes and for use in analyzing various incidents, such as extreme vertical accelerations due to turbulence, which occur from time to time in flight but which do not result in accidents, in order to take appropriate precautionary or remedial action. Such airplanes will be operating under conditions with respect to which little operational experience directly applicable to civil transportation exists and the recorded intelligence involving these higher altitudes, pressure differentials, and speeds will help materially in making a more accurate determination of the cause of accidents of such aircraft. Furthermore, in assessing the economic impact this requirement might have on the air carriers affected, it is clear that it will be substantially less than for currently operated airplanes because of the higher initial cost of the airplanes for which flight recorders will be required and their greater seating capacity.

Interested persons have been afforded an opportunity to participate in the making of this amendment (20 F.R. 8500), and due consideration has been given to all relevant matter presented.

Amendment added new section 40.208.

Amendment 40–7

Interior Emergency Exit Marking Lights	Adopted: Aug. 9, 1957 Effective: Aug. 9, 1957 Published: Aug. 15, 1957 (22 F.R. 6568)

Currently effective section 40.173(f)(2) of Part 40 of the Civil Air Regulations requires that, on all airplanes used for scheduled interstate air transportation at night, a source or sources of light with an emergency energy supply independent of the main lighting system be installed to illuminate all emergency exit markings. This particular requirement was was adopted by the Board in November of 1955 in an amendment concerning emergency and evacuation equipment and procedures. The Board adopted this rule to increase safety in the evacuation of airplanes. It was the Board's intention that through this amendment all passenger-carrying airplanes would be equipped with lights installed so as to illuminate all emergency exits in such a manner as to attract the attention of the occupants at night and thus expedite evacuation. The Board intended that this requirement should apply specifically to passenger-carrying airplanes as is borne out by the history of the amendment and the preamble thereto. However, this provision is so worded as to be applicable to all airplanes whether engaged in passenger or cargo operations under Part 40.

The Board has been requested to clarify its intent with respect to this provision insofar as its applicability to airplanes used in night cargo operations is concerned. A careful review of the development of the emergency and evacuation equipment and procedure amendment reveals very clearly that the concern of all interested parties was directed almost exclusively to passenger-carrying airplanes. This is particularly apparent with respect to the emergency exit marking lighting requirements, the object of which is to insure, in the case of a crash landing or of a ditching at night, that the passengers and crew may be able to identify and operate emergency exits thus expediting evacuation of the airplane. In airplanes used solely for the carrying of cargo, the problem of locating and operating emergency exits during a ditching or crash landing at night is not comparable to that encountered in passenger operations. Properly qualified crews are so familiar with every feature of the airplane, and the emergency exits which they would normally use are so close at hand, that special lighting for these exits is unnecessary. Furthermore, airline crews typically carry flashlights. All existing large airplane types used in this type of operation have an exit or loading door located immediately aft of the flight deck and the cockpit windows in most cases provide an additional means of crew evacuation. Furthermore, a survey of accidents involving night cargo operations indicates that there have been no difficulties in crew evacuation that would indicate a need for emergency illumination facilities for the emergency exits.

In view of the foregoing, section 40.173(f)(2) is being amended to reflect the intent of the Board that the emergency lighting requirements apply only to passenger-carrying airplanes.

Since this amendment is minor in nature and imposes no additional burden on any person, notice and public procedure hereon are unnecessary, and it may be made effective without prior notice.

Amendment added the words "in all passenger-carrying airplanes" after the words "August 31, 1957," in section 40.173(f)(2).

Amendment 40-8

Elimination of the Requirement in Recurring Proficiency Check for Actual or Simulated Maximum Certificated Weight for Take-off with One Engine Inoperative

Adopted: Oct. 17, 1957
Effective: Nov. 21, 1957
Published: Oct. 23, 1957 (22 F.R. 8304)

By virtue of presently effective Civil Air Regulations, a pilot who is to serve as a pilot in command must pass, periodically, a proficiency check in airplanes that he flies. This check flight includes a demonstration of the ability to complete a take-off at maximum take-off weight with the critical engine inoperative, a requirement which the Board has found to be no longer practical for the periodic checks.

In the large modern transport airplane a great difference exists between maximum certificated take-off weight and maximum certificated landing weight. If such an airplane is flown at maximum weight for a check flight, it must be loaded with large quantities of fuel or ballast. Then, if the flight is to be terminated within a reasonable time, fuel, ballast, or both must be dumped so as to reduce the weight to that permitted for landing.

To avoid the obvious disadvantages of the above, the Board by regulation has permitted maximum take-off weight to be simulated. This has been done by reducing take-off power, or by limiting take-off distance to the minimum required for the weight at which the airplane is being operated. Neither procedure has been fully satisfactory. Time-consuming calculations and special runway markings are required, and even with these devices the maximum take-off weight condition to be simulated cannot be fully represented. Furthermore, use of reduced power settings for take-offs has been opposed by engine manufacturers who contend that the practice is injurious to the powerplants, and by supervisory training personnel who state that the practice encourages nonstandard and improper use of the powerplant controls and induces an additional hazard to flight. It appears, therefore, that the requirement for an actual or simulated take-off at maximum certificated weight with one engine inoperative should not be continued as a regulatory requirement in the periodic proficiency check. It should be understood, however, that this amendment will not affect the present requirements in initial pilot flight training for simulation of engine failure at actual or simulated maximum weights in take-off, landing, and approach configurations.

Interested persons have been afforded an opportunity to participate in the making of this amendment (22 F.R. 522), and due consideration has been given to all relevant matter presented.

Amendment added the phrase "nor at actual or simulated maximum authorized weight" at the end of section 40.302(b)(2)(i).

Amendment 40-9

High-Altitude Operations

Adopted: Dec. 20, 1957
Effective: Jan. 25, 1958
Published: Dec. 27, 1957
(22 F.R. 10728)

Part 40 of the Civil Air Regulations presently permits scheduled air carriers to operate off-airways under both IFR and VFR within the continental limits of the United States at altitudes above 12,500 feet east of longitude 100° W. and 14,500 feet west of longitude 100° W. Approval by the Administrator of such high-altitude routes is not required.

In recent years, however, there has been a marked increase in air carrier and other flight operations conducted above 12,500 feet, and it has become apparent that positive traffic separation at these altitudes is increasingly important. Accordingly, a notice of proposed rule making was published in the Federal Register (22 F.R. 3418) and circulated to the industry as Civil Air Regulations Draft Release No. 57-8 to afford interested parties opportunity to comment on a proposed rule which would prohibit high-altitude operations by air carriers operating under Part 40 of the Civil Air Regulations in uncontrolled airspace within the continental limits of the United States in weather conditions less than those prescribed for VFR flight.

The comments received by the Board in response to the notice of proposed rule making were generally favorable. However, there was comment to the effect that the proposed rule is unnecessary inasmuch as the airlines have voluntarily imposed certain restrictions on their high-altitude operations. In view of the importance of traffic separation at these high altitudes, the Board deems it necessary in the interest of safety to provide for such separation through regulation.

This regulation is limited in its application to air carrier operations conducted under Part 40 of the Civil Air Regulations. However, this does not mean that air carriers subject to this part are necessarily to be governed by a different standard for these operations than are air carriers operating under Parts 41 and 42 of the Civil Air Regulations. Attention is directed to the fact that air carriers operating within the continental limits of the United States under Parts 41 and 42 who desire to conduct flights over off-airways routes must secure the approval of the Administrator of Civil Aeronautics for such routes. The Board has been advised by the Administrator that he intends to exercise this authority consistent with the restrictions imposed on Part 40 operators by this regulation.

Interested persons have been afforded an opportunity to participate in the making of this amendment (22 F.R. 3418), and due consideration has been given to all relevant matter presented.

Amendment revised the provisos in sections 40.30, 40.31, and 40.32.

Amendment 40-10

Landing Flare Requirements

Adopted: Jan. 9, 1958
Effective: Feb. 13, 1958
Published: Jan. 16, 1958
(23 F.R. 292)

Part 40 of the Civil Air Regulations currently requires that civil aircraft carrying passengers for hire at night shall be equipped with specified types and numbers of landing flares.

The value of landing flares as required equipment was discussed at the Board's 1955 Annual Airworthiness Review. Recommendations were made at that time to amend the regulations to require the carriage of flares only in large aircraft in extended overwater operations. As a result of this discussion and further study by the Board, Civil Air Regulations Draft Release No. 56-31, "Landing Flare Requirements of Parts 40, 41, 42, and 43 of the Civil Air Regulations," was circulated to the public (21 F.R. 10255). This notice, which proposed the deletion of the flare requirement, was issued for the purpose of obtaining the views of all interested persons to assist the Board in making a complete re-evaluation of existing flare requirements.

Comment received from interested persons concerning the proposals to delete all flare requirements (as contained in Draft Release 56–31) was varied. The consensus was that landing flare requirements for all non-commercial operations and for operations which employ small aircraft for the carriage of passengers for compensation or hire should be deleted. In this connection, it should be noted that Civil Air Regulations Draft Release No. 55–24, "Air Taxi Certification and Operation Rules" (small aircraft of 12,500 pounds or less maximum certificated take-off weight), did not propose flares as required equipment and no adverse comment was received on this proposal. With respect to air carrier operations, the Air Line Pilots Association, on behalf of the pilots, recommended the retention and improvement of flares. This position was also advanced by a manufacturer of flare equipment. The Aircraft Industries Association, on behalf of the aircraft manufacturers, and the Air Transport Association, on behalf of the scheduled air carriers, recommended deletion of the flare requirements. The Civil Aeronautics Administration did not object to the deletion of flare requirements for overland operations but did recommend their retention for overwater operations.

In support of the recommendations to retain flares, the following opinions were expressed. One was that flares insure the highest possible level of safety during emergency landings at night (including emergency landings made necessary by severe vibration or buffeting, failure of aircraft components, uncontrollable fires, or the evaluation of sea conditions preparatory to ditching). It was also the view of some persons that flares might become necessary to assist in night emergency landings resulting from possible fuel exhaustion, the cause of which could be mechanical difficulties, traffic delays, communications and navigational equipment and facilities failures, and unexpected adverse weather conditions. It was also recommended that flares should be improved to provide better ground illumination and longer burning capacity to make them more effective for use in the emergency situations described above. Other comment in support of retention of flares stressed the view that safety of air carrier operations would be jeopardized if flares are not carried in overwater operations.

The Board has carefully studied this entire matter and finds that available records concerning the use of landing flares in scheduled air carrier operations show only five instances from January 1938 to the present time in which flares have been used for emergency purposes. Four of these instances involved twin-engine aircraft and one involved a four-engine aircraft. From 1947 to the present time, no multiengine air carrier aircraft has been involved in the dropping of landing flares for emergency purposes. There is no available evidence or data showing the effective use of landing flares in the operation of small passenger-carrying airplanes. Furthermore, the records reveal that in 55 reported instances landing flares were discharged inadvertently while the airplane was on the ground or in the air with resultant damage in many cases to the aircraft, other aircraft, ramps, and hangars. There have been instances where flares contributed to the intensity of a fire following a crash. It is also significant that the military services discontinued the carriage of flares in their passenger transport operations several years ago for reasons involving cost, maintenance, the hazard of carrying flares and their questionable value under emergency conditions. Furthermore, the flare requirements, which have been in effect for many years, were promulgated at a time when most airplanes had a single engine with only a short operating range, when most airports or landing areas were unlighted, and the general reliability of aircraft was considerably less than that of aircraft which are presently utilized. In recent years, improved airplane performance, reliability, and operating range, more efficient airplane landing lights, a considerable increase in the number of lighted landing areas, and the development of more accurate and dependable communications and navigational aids have clearly minimized the need for landing flare installations in aircraft operations. The Board finds, however, that these developments which have greatly improved operations in the United States do not apply to the same degree in extended overwater operations.

The Board has carefully considered all of the comment received and other relevant information and has concluded that flares for passenger-carrying aircraft should not be required as mandatory safety equipment for operations conducted within the United States. It does find, however, that there is a continued need for their use in extended overwater operations.

Interested persons have been afforded an opportunity to participate in the making of this amendment (21 F.R. 10255), and due consideration has been given to all relevant matter presented.

Amendment added the words "for extended overwater operations" after the word "flares" in section 40.200(d).

Amendment 40-11

Amendments Resulting from the 1957 Annual Airworthiness Review.	Adopted: April 15, 1958 Effective: May 17, 1958 Published: April 19, 1958 (23 F.R. 2594)

The Board has been advised that the descent flight provision of the two-engine-inoperative en route requirement of Part 40 is in need of clarification. The language of this provision does not make clear the generally understood intent that the descent may be based on a net flight path. Section 40.75(b)(2) is therefore being amended to clarify the intent.

During this year's annual airworthiness meeting, the subjects of interior markings and emergency lighting for exits were discussed. As a result, changes are being made to the certification requirements to eliminate the need for the marking and lighting of crew compartment exits. Since it is considered that the operating parts should be consistent with the certification requirements, a similar amendment is being made to Part 40.

Interested persons have been afforded an opportunity to participate in the making of this amendment (22 F.R. 9116), and due consideration has been given to all relevant matter presented.

Amendment revised section 40.75(b)(2), and amended section 40.173(f)(1) and (2) by inserting in the first sentence of each subparagraph between the words "all" and "emergency" the word "passenger".

Amendment 40-12

Supplemental Oxygen Requirements for Sustenance and First-Aid	Adopted: Aug. 27, 1958 Effective: Sept. 1, 1958 Published: Aug. 30, 1958 (23 F.R. 6744)

Part 40 contains among other things oxygen requirements for aircraft operating under this part. Civil Air Regulations Draft Release No. 58-7, which was published on March 27, 1958, proposed changes to the requirements for supplemental oxygen and associated equipment both in the airworthiness requirements and operating rules. The changes simultaneously made in Part 4b requirements will be applicable only to applications for certification filed after their effective date, but the changes in the operating rules made herein will apply to all operations thereby governed on the effective date hereof, or as otherwise provided in the text of the regulation.

The particular characteristics of turbine-powered airplanes which dictate a need for somewhat different requirements relative to the use of supplemental oxygen than those applicable to piston-engine airplanes are the higher operating altitudes at the time of a possible decompression combined with excessive fuel consumption by these turbine-powered airplanes at low altitudes which may require continued cruise at an altitude demanding sustaining oxygen to enable the airplane to reach a suitable landing field.

The base cruising altitude at which oxygen must be provided is being raised from 8,000 to 10,000 feet. It has been generally agreed that this requirement, while reducing the quantity of oxygen required, will provide an acceptable level of safety.

A provision relating to crew oxygen masks is being added. The time required for the crew to institute the use of their oxygen masks when operating at these altitudes is so short that any location of crew masks that could involve any avoidable loss of time in donning them would not be in the interest of safety. To minimize the danger inherent in this situation, one pilot will be required to wear and to use his mask at all times when operations above 25,000 feet are conducted. The other members of the flight crew will be required to have the masks on their person at all times and in such a position as to be immediately placed on their faces for use. Since the object is to avoid any possible hazard to the passengers following decompression, it is considered necessary that the pilot wearing the mask be drawing oxygen from the system under normal conditions. Since all flight crew members would probably have specified duties following cabin depressurization, it is considered appropriate that masks should be immediately available for each flight crew member on flight deck duty.

On those flights wherein operations are conducted above 25,000 feet, the need for rapid action on the part of all occupants precludes waiting until an emergency occurs to instruct the passengers in the use of the oxygen equipment. A provision, therefore, is being included to require briefing of the passengers prior to such operations. This briefing should insure that the passengers know how to use the equipment provided. To the degree practicable, language problems should be avoided or overcome.

For all airplanes operating above 25,000 feet, oxygen and dispensing equipment must be provided for all passenger cabin occupants as well as the crew. Although a rapid descent of the airplane generally will be possible, it is felt that a 10-minute supply of oxygen would be the minimum amount that could be provided which would insure an adequate quantity for descent from higher altitudes in the event that circumstances prevent realization of the demonstrated descent rate. For purposes of computing a quantity of oxygen for descent, a uniform descent for the 10-minute period would be assumed.

For a particular operation to comply with the rules in this part the amount of sustaining and first-aid oxygen required shall be determined on the basis of cabin pressure altitudes and flight duration consistent with the operating procedures established for each such operation and route. The requirements for airplanes with pressurized cabins shall be determined on the basis of cabin pressure altitude and upon the assumption that a cabin pressurization failure will occur at that altitude or point of flight which is most critical from the standpoint of oxygen need, and that after such failure any descent to a flight altitude that will permit successful termination of the flight will not exceed the operating limitations of the airplane. Following such a failure, the cabin pressure altitude shall be considered to be the same as the flight altitude unless it can be shown that no probable failure of the cabin or pressurization equipment will result in a cabin pressure altitude equal to the flight altitude, under which circumstances the maximum cabin pressure altitude attained may be used as a basis for certification and/or determination of oxygen supply.

Interested persons have been afforded an opportunity to participate in the making of this amendment (23 F.R. 2229), and due consideration has been given to all relevant matter presented. In view of the imminence of operations to be conducted pursuant to this amendment, the Board finds that further notice and public procedure hereon would be contrary to the public interest and that this amendment may be made effective on less than 30 days' notice.

Amendment changed the titles of sections 40.202 and 40.203, added new sections 40.202–T and 40.203–T, and revised section 40.204.

Amendment 40–13

Pilot Route and Airport Qualification Requirements

Adopted: Sept. 16, 1958
Effective: Sept. 24, 1958
Published: Sept. 20, 1958 (23 F.R. 7339)

Section 40.303 of Part 40 of the Civil Air Regulations requires, in part, that each pilot in command in qualifying over a route shall make an entry into each regular, provisional, and refueling airport into which he is scheduled to fly. Section 40.304 governs the maintenance and re-establishment of route qualifications and requires compliance under certain circumstances with the provisions of section 40.303 by the pilot in command.

On January 20, 1955, the Bureau of Safety circulated Civil Air Regulations Draft Release No. 55–3 (20 F.R. 550) which dealt with the over-all problem of pilot airport and route qualification. Attention was drawn to the development of motion picture panoramic views of airports and their environs which showed excellent promise of providing an effective means for attaining pilot airport qualification in lieu of actual entry. An objective in this proposal was to amend the regulations in a manner that would encourage further research and development of the visual training aids programs by various commercial sources and at the same time provide more acceptable airport qualification rules for use in the meantime. Furthermore, it seemed appropriate to permit methods of airport qualification other than physical entry, provided that such alternative methods had the approval of the Administrator.

Following circulation of Draft Release 55–3 for comment, the Board promulgated a series of Special Civil Air Regulations (SR–413, SR–414, SR–418, and SR–418A) to permit the controlled introduction of new techniques in airport and route qualification. These techniques included the use of pictorial means within the training program which would enable pilots to qualify at specified airports by using color motion pictures or slides showing clear daylight views of the complete physical layouts of the airports, surrounding terrain, obstructions, approaches to all runways, restricted areas, and conspicuous reference points that are of value to pilots. Under these special regulations air carriers were also authorized to conduct operations at an airport in close proximity to an airport into which pilots were qualified when the Administrator found that such pilots were adequately qualified at the new airport. In making such findings, the Administrator took into consideration such things as the familiarity of the pilots with the layout, surrounding terrain, location of obstacles, and instrument approach and traffic control procedures at the new airport. In addition, under SR–418 and SR–418A, a pilot was expressly permitted to accomplish initial qualification into an airport without being accompanied by a pilot qualified at that airport if such initial entry were made under VFR weather conditions at the particular airport involved.

One of the principal purposes of these special regulations has been to provide sufficient opportunity for evaluation of pictorial means of airport and route qualification by industry and Government alike in order to guide the Board in its final action in amending the Civil Air Regulations. Experience gained under these special regulations up to the time of the adoption of SR–418A indicated that the various procedures provided therein for airport and route qualification, including pictorial means, had been successful. Therefore, the Board stated in the preamble to SR–418A that prior to the termination of that regulation, a proposal to incorporate its substance into Part 40 would be circulated for comment. Accordingly, the Board circulated Draft Release 58–13 to obtain comments as to the continued effectiveness and extent of use of the privileges of SR–418A and any other recommendations with respect to incorporation of the provisions of that regulation in Part 40 of the Civil Air Regulations.

It was proposed to incorporate the provisions of SR–418A into Part 40 with a slight revision of the requirement concerning route qualification on those routes on which navigation must be accomplished by pilotage and on which the flight is to be conducted at or below the level of adjacent terrain. These changes were made in the interest of clarity.

In view of the wide acceptance of this means of qualification and in the absence of any contrary view, the Board believes it desirable to include the substance of the special regulations in Part 40 of the Civil Air Regulations as proposed.

Interested persons have been afforded an opportunity to participate in the making of this amendment (23 F.R. 5356), and due consideration has been given to all relevant matter presented. Since this amendment imposes no additional burden on any person, it may be made effective on less than 30 days' notice.

Amendment revised section 40.303, and changed the reference "section 40.303(d)" to "section 40.303(e)" in section 40.304(a).

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Amendment 40–14

Required Records

Adopted: Oct. 1, 1958
Effective: Nov. 5, 1958
Published: Oct. 7, 1958
(23 F.R. 7722)

A notice of proposed rule making was published in the Federal Register March 13, 1958 (23 F.R. 1737), and circulated to the industry as Economic Regulations Draft Release No. 92 dated March 7, 1958, which proposed to bring up to date the record requirements of Part 40 of the Civil Air Regulations and make them consistent with corresponding record retention provisions in Part 249 of the Economic Regulations.

Accordingly, concurrently with the amendment of Part 249, the record provisions of Part 40 are being amended. Since the record retention requirements in Part 40 will be consistent with corresponding requirements in Part 249 and sections 40.501 through 40.511 each contain language requiring compliance therewith, there is no longer any necessity for section 40.500 and it is being deleted.

The retention period for manifests required by section 40.505 is being increased from "60 days" to "3 months" to accord with the retention requirement for manifests prescribed in Part 249.

Although it was proposed to change the retention period for maintenance releases required by section 40.511 from "60 days" to "3 months," it has been determined that the present period of retention will be adequate. However, the words "2 months" are being substituted for "60 days" to bring the language into accord with that used in Part 249.

Finally, a new section 40.512 is being added to require records of radio contacts by or with pilots en route to be maintained. Consistent with the retention period prescribed in Part 249 for such records, section 40.512 provides that they shall be retained for a period of 30 days.

The foregoing record requirements are considered necessary to enable the Board and the Administrator to discharge fully their respective accident investigation and safety regulatory responsibilities.

Interested persons have been afforded an opportunity to participate in the making of this regulation (23 F.R. 1737), and due consideration has been given to all relevant matter presented.

Amendment deleted section 40.500, changed "60 days" to "3 months" in section 40.505, changed "60 days" to "2 months" in section 40.511, and added a new section 40.512.

Amendment 40–15

Use of Average, Assumed, and Estimated Weights

Adopted: Dec. 30, 1958
Effective: Dec. 30, 1958
Published: Jan. 3, 1959
(24 F.R. 50)

Air carriers have for many years utilized approved weight and balance control procedures involving average, assumed, and estimated weights in determining compliance with the various weight limitations of this part. Such procedures have been formally endorsed by the Civil Aeronautics Administration and the Board since December 8, 1947, the date of issuance of Safety Regulation Release No. 270. Subsequently, these procedures and the methods by which they may be carried out have been continued in Civil Aeronautics Manual 40. These procedures and the recommended methods of implementation described in Civil Aeronautics Manual 40 are a practical approach to compliance with the regulations pertaining to operating limitations without adversely affecting the safety of air carrier operations. This approach recognizes that it is not possible to require literal compliance with the weight and balance requirements of Part 40 of the Civil Air Regulations through a determination of actual weights in every instance, considering the extent of present-day air carrier operations, without drastically curtailing such operations.

To obviate the actual weighing of the airplane and its contents prior to each flight, certain approved methods and procedures have become an essential part of day-to-day air carrier operations and insure reasonable compliance with the appropriate operating limitations. For a fleet or group of airplanes of the same model and configuration, an average operating fleet weight is utilized when the operating weights and positions of the center of gravity are within the limitations established by the Administrator in Civil Aeronautics Manual 40. For example, an operator of a fleet of more than 9 airplanes of the same model and configuration must weigh periodically at least 6 of these airplanes, plus at least 10 percent of the number over 9. Furthermore, to insure that a safe average weight will be maintained, certain safeguards are incorporated in the approved weight procedures. If the basic operating weight of any airplane weighed or the calculated basic operating weight of any one of the remaining airplanes in the fleet varies by an amount more than plus or minus one-half of one percent of the maximum landing weight from the established basic operating fleet weight, that airplane will be eliminated from the group and operated on its actual or calculated weight. Carriers also may elect to use either the actual passenger weight or the average passenger weight to compute passenger loads over any route except in unusual cases as, for example, a passenger load consisting of an athletic team. The average weights which may be used are set forth in Civil Aeronautics Manual 40. In determining compliance with certain operating limitations such as landing distance limitations, the carrier may assume that the take-off weight of the airplane is reduced by the weight of the fuel and oil expected to be consumed in flight to the field of intended destination and the weight of such fluids may be established on the basis of actual weight, a standard volume comparison, or a volume comparison utilizing appropriate temperature correction factors to actually determine the weight by computation of the quantity of fluid on board.

There are many other instances in which average, assumed, or estimated weights are used in the conduct of air carrier operations.

It has recently been brought to the Board's attention that the absence of explicit authority in Part 40 for the use of average, assumed, or estimated weights in accordance with procedures approved by the Administrator has given rise to concern that an air carrier might be considered in technical violation of the Civil Air Regulations if the weight of a particular airplane actually exceeded any of the various weight limitations of this part, even though the calculations had been made in accordance with approved procedures.

In order to remove any doubt as to the legality of using such approved procedures and to bring the regulations into accord with a well-established and safe administrative practice, Part 40 is being amended to provide specific authority for the use of an approved weight and balance control system in which average, assumed, or estimated weights may be utilized if such system gives assurance of results substantially equalling direct weighing.

Since this amendment merely confirms an established administrative practice essential to the maintenance of safe, optimum air carrier operations and imposes no additional burden on any person, the Board finds that notice and public procedure hereon are unnecessary and that good cause exists for making this amendment effective without prior notice

Amendment added a new sentence at the end of section 40.60.

Amendment 40-16

Absence of Flight Crew Members from Their Duty Stations

Adopted: April 17, 1959
Effective: April 22, 1959
Published: April 23, 1959
(24 F.R. 3153)

Section 40.354 of the Civil Air Regulations requires all flight crew members to remain at their respective stations with seat belts fastened during take-off or landing, and while en route except when the absence of one such flight crew member is necessary in connection with his "regular duties." As used in this regulation the term "regular duties" was intended to mean those duties involving the operation of the airplane. It was not intended to encompass activities related to furthering public relations or other activities not related to operational safety of the airplane. The absence of a flight crew member from his duty station for the performance of such activities reduces unnecessarily the degree of vigilance,

attention to duty, and availability for emergency action required for the operation of modern aircraft under conditions of high density traffic.

Accordingly, section 40.354 is being amended to clarify its intention and application. Similar amendments are being made simultaneously to Parts 41, 42, 46, and 60 of the Civil Air Regulations to provide identical rules for the types of operations covered by those parts.

Inasmuch as this amendment is a clarification of the present requirements and imposes no additional burden on any person, compliance with the notice, procedures and effective date provisions of section 4 of the Administrative Procedure Act is unnecessary and not required.

Amendment revised section 40.354.

Amendment 40–17

Extension of Compliance Date for Oxygen System Requirements for Turbine-Powered Airplanes	Adopted: July 29, 1959 Effective: July 29, 1959 Published: Aug. 4, 1959 (24 F.R. 6240)

Currently effective sections 40.202–T(a), 40.203–T(a), and 40.204(b) provide that on and after July 31, 1959, turbine-powered airplanes shall comply with requirements therein with respect to supplemental oxygen for sustenance, supplemental oxygen for emergency descent and first aid, and oxygen equipment standards.

These regulations, which were adopted on August 27, 1958, were not made mandatory until July 31, 1959, in recognition of the fact that currently operating turbine-powered airplanes were not type certificated in accordance with these provisions and operators would need reasonable time to arrange for appropriate design changes and procurement and installation of the required equipment.

The Administrator has been advised that, despite diligent efforts by air carrier operators and the manufacturer involved, compliance by July 31, 1959, is not possible, due primarily to the time required for system evaluation and late delivery of necessary parts. It now appears that an additional four months will be required to show full compliance with the requirements.

The selection of the July 31, 1959, date for compliance was predicated on the belief that this afforded sufficient time to make the necessary changes. It is recognized, however, that difficulties have been encountered by the air carriers in accomplishing an orderly procurement and installation program without serious disruption of scheduled service and that a period of relief may be granted without affecting safety adversely in air carrier operations by extending the compliance date to November 30, 1959. As before, the currently effective oxygen system requirements will apply, with the additional requirement that, when operating at flight altitudes above 25,000 feet, all flight crew members on flight deck duty shall be provided with oxygen masks, connected to appropriate supply terminals, which shall be immediately available for use.

Since this amendment grants relief by extending the date for compliance with a requirement of the Civil Air Regulations, and delay in extending such relief would impose an undue hardship, the Administrator for good cause finds that notice and public procedure hereon would be contrary to the public interest and may be omitted and that this amendment may be made effective immediately.

Amendment changed "July 31, 1959" to "November 30, 1959" wherever it appeared in sections 40.202–T(a) and 40.204(b), and revised section 40.203–T(a).

Amendment 40-18

Deletion of Certain Definitions

Adopted: Aug. 7, 1959
Effective: Aug. 13, 1959
Published: Aug. 13, 1959 (24 F.R. 6580)
Correction: Sept. 9, 1959 (24 F.R. 7253)

Part 40 of the Civil Air Regulations contains definitions of four terms which are also defined in Part 60, and which pertain primarily to the air traffic rules. The Part 40 definitions of these terms are written differently from those in Part 60, even though the terms are intended to have the same meaning in both parts.

Inasmuch as section 40.2 states that the provisions of Part 60 shall be applicable to all air carrier operations conducted under the provisions of Part 40, unless otherwise specified, the repetition of the definitions in Part 40 is unnecessarily duplicative. To avoid this, and the obvious disadvantage of revising Part 40 each time that the definitions in Part 60 may be modified, those terms which have the same meaning in both parts but which pertain primarily to Part 60 and are defined therein should not be defined in Part 40 also. This amendment therefore eliminates the four definitions in Part 40.

Since this amendment is technical in nature, makes no substantive change, and imposes no additional burden on any person, notice and public procedure hereon are unnecessary, and it may be made effective without prior notice.

Amendment deleted the definitions of "air traffic clearance," "air traffic control," "control area," and "control zone" from section 40.5.

Amendment 40-19

Frequency of Pilot Proficiency Checks

Adopted: Sept. 24, 1959
Effective: Oct. 29, 1959
Published: Sept. 30, 1959 (24 F.R. 7865)

Part 40 of the Civil Air Regulations presently requires each pilot in command to successfully pass pilot proficiency checks at least twice in each 12-month period. Section 40.302(b) requires such checks to be given at intervals of not less than 4 months nor more than 8 months. Section 40.305 specifies similar requirements for pilots other than pilots in command.

Parts 40, 41, 42, and 46 specify the time interval between pilot proficiency checks differently which has resulted in varying interpretations as to requirements and administrative practices. Since no difference is intended between air carrier operations in this respect, all of the air carrier parts are being amended to make the frequency requirement of pilot proficiency checks the same.

Since this regulatory action imposes no additional burden upon any person, notice and public procedure hereon are unnecessary.

Amendment revised section 40.302(b) (1) and (3) and section 40.305.

Amendment 40-20

Retention of Flight Recorder Tapes and Clarification of Period the Flight Recorder Shall Be in Operation	Adopted: Sept. 30, 1959 Effective: Nov. 6, 1959 Published: Oct. 7, 1959 (24 F.R. 8089)

Section 40.208 of the Civil Air Regulations requires the installation of flight recorders on all airplanes of more than 12,500 pounds maximum certificated takeoff weight which are certificated for operations above 25,000 feet altitude. The regulations further require that the flight recorders shall be operating continuously during flight time.

In promulgating this regulation, the period of time for retention of the recorder tapes was not included in the rule as it was assumed that air carriers would retain these records for a sufficient length of time for the investigation of accidents and incidents which may have occurred during the time of flight. The tapes also can furnish information to the operator concerning performance and operation of these airplane types for which there does not exist a substantial amount of operational experience.

In view of the importance of the information obtained from flight recorders, and since there may be some question as to the length of time that such tape recordings should be maintained by the air carriers, the Federal Aviation Agency believes that a clarification of the rule is needed.

As stated above, section 40.208 requires that the flight recorders "shall be operating continuously during flight time." It was the intent of this regulation to require the operation of the recorder only during flight and not during taxi operation to and from the runway. Therefore, in order to clarify this point, the word "time" is being deleted from this phrase since flight time has been defined as block-to-block time. In deleting the word "time," it is intended that the flight recorder must be in full operating condition at the instant the aircraft starts its takeoff roll and be in continuous operation during the flight and until the aircraft has completed its landing at an airport.

Accordingly, section 40.208 is being amended to clarify these matters. Similar amendments are being made concurrently to Parts 41 and 42 of the Civil Air Regulations to provide identical rules for the types of air carrier operations covered by those parts.

Inasmuch as this amendment is a clarification of the present requirements and imposes no, or very little additional burden on any person, compliance with the notice and public procedure provisions of section 4 of the Administrative Procedure Act is unnecessary.

Amendment revised section 40.208.

Amendment 40-21

Approval of Air Carrier Training Programs; Qualification of Pilots Other Than Pilots in Command; Proficiency Checks for Pilots Other Than Pilots in Command	Adopted: Dec. 1, 1959 Effective: Jan. 1, 1961, except as provided in section 40.290 Published: Dec. 5, 1959 (24 F.R. 9765)

Because of the effective date, this amendment is reproduced in its entirety as appendix C to this manual.

Amendment 40–22

Maximum Age Limitations for Pilots

Adopted: Dec. 1, 1959
Effective: March 15, 1960
Published: Dec. 5, 1959
(24 F.R. 9767)

Notice was given in Draft Releases 59–6 (24 F.R. 5247) that a proposal was under consideration to amend Parts 40, 41 and 42 of the Civil Air Regulations to provide, in part, maximum age limits for utilizations of pilots in air carrier operations by an air carrier.

It was pointed out in the draft release that the number of active air carrier pilots age 60 or over has been increasing significantly in recent years, that pilots in this age group are being employed in the carriage of a substantial number of passengers, both in piston and jet powered aircraft, and that this number will increase substantially within the next few years. Absent some limitation in the regulations, this condition could continue until a number of active pilots have, within the next 5 years, reached ages 65 to 70, and together with the then larger group over age 60 become increasingly responsible for a growing percentage of air carrier operations.

The draft release points out the reasons indicating that a hazard to safety is presented by utilization of pilots of these ages in air carrier operations. These include the fact that there is a progressive deterioration of certain important physiological and psychological functions with age, that significant medical defects attributable to this degenerative process occur at an increasing rate as age increases, and that sudden incapacity due to such medical defects becomes significantly more frequent in any group reaching age 60.

Such incapacity, due primarily to heart attacks and strokes, cannot be predicted accurately as to any specific individual on the basis of presently available scientific tests and criteria. On the contrary, the evidences of the aging process are so varied in different individuals that it is not possible to determine accurately with respect to any individual whether the presence or absence of any specific defect in itself either led to or precluded a sudden incapacitating attack. Any attempt to be selective in predicting which individuals are likely to suffer an incapacitating attack would be futile under the circumstances and would not be medically sound. Such a procedure, in light of the knowledge that a substantial percentage of any group of persons will suffer from such attacks after reaching age 60, would therefore be ineffective in eliminating the hazard to safety involved.

This conclusion is emphasized by the fact that, in the case of one large group under medical supervision over an extended period, some 85% of the persons who had a heart attack for the first time had the attack within six months to a year after a thorough medical examination had found the individual in a condition normal to his age and without any evidence to suggest the imminence of such an attack. In addition, the general good health of an individual, or the appearance of good health, are not determinative as to whether he will suffer a heart attack from the conditions that are normal as a result of age.

Other factors, even less susceptible to precise measurement as to their effect but which must be considered in connection with safety in flight, result simply from aging alone and are, with some variations, applicable to all individuals. These relate to loss of ability to perform highly skilled tasks rapidly, to resist fatigue, to maintain physical stamina, to perform effectively in a complex and stressful environment, to apply experience, judgment, and reasoning rapidly in new, changing and emergency situations, and to learn new techniques, skills and procedures. The progressive loss of these abilities generally starts well prior to age 60; and, even though they may be significant in themselves prior to age 60, they assume greater significance at the older ages when coupled with the medical defects leading to increased risk of sudden incapacitation.

The older pilots as a group fly the largest, highest-performance aircraft, carrying the greatest number of passengers over the longest non-stop distances, operating into and out of the most congested airports near the largest cities, and traveling in flight in and through traffic lanes with the highest density of air traffic. A great many of these flights involve the newest, largest, fastest and most highly powered jet aircraft. The possible hazards inherent in the older pilot's medical condition are entirely too serious to determine the question of safety by an attempt to balance the increased chances of an incapacitating attack against the possibility that the pilot might not be engaged in the carriage of a large number of passengers at the time of such an attack.

In exploring all the ramifications of the problems involved, the nature of air traffic and air carrier operations in the future has been considered. Present indications are that the very large increases that have taken place in recent years are small in relation to the increases yet to occur. Projection of the number of pilots who will be in the 60 to 70 year age group, in an era of extreme density and frequency of jet and piston air carrier operations involving many millions of passenger miles, indicates a probability of sudden incapacitation of some of these pilots in the course of flight. While medical science may at some future time develop accurate, validly selective tests which would safely allow selected pilots to fly in air carrier operations after age 60, safety cannot be compromised in the meantime for lack of such tests. This is particularly so in light of the statutory directives contained in section 601(b) of the Federal Aviation Act of 1958 that, "In prescribing standards, rules, and regulations * * * the Administrator shall give full consideration to the duty resting upon air carriers to perform their services with the highest possible degree of safety in the public interest * * *", and that, "The Administrator shall exercise and perform his powers and duties under this Act in such a manner as will best tend to reduce or eliminate the possibility of, or recurrence of, accidents in air transportation * * *."

To the extent that a progressive loss of certain abilities generally starts well prior to age 60, further consideration is required of those aspects of safety in flight concerned with factors other than incapacitation. Especially with the development and increasing use of larger and higher performance aircraft and more complicated traffic conditions, growing importance attaches to the ability of pilots to learn new techniques, skills, and procedures, and to unlearn and discard previously learned and well-established patterns of behavior.

For this reason, the draft proposal included a provision to establish age 55 as the age prior to which an individual must obtain a type-rating for turbo-jet powered aircraft in order to act as pilot-in-command for such aircraft in air carrier service. Age 55 was selected on the basis that it marks the point at which the detrimental effects of age on physiological and psychological functions have become significant.

All interested persons have been given an opportunity to comment and all comments received have been given careful consideration. Many strong arguments were made, both in favor of and against the draft proposal. Some of the comments in favor of the proposal recommended more stringent action than that now being taken in this amendment, and referred to opinions and conclusions more far-reaching than those expressed above. Some of these were received from active airline pilots, although a majority of those identifying themselves as airline pilots from whom comments were received were adverse to the proposal.

The Air Transport Association, representing the major air carriers, was in favor of the proposal as to age 60. The Air Line Pilots Association, from which most complete and voluminous comments were received, was opposed to all proposals, but offered no practicable substitute to achieve the safety aims of this amendment. The position taken was that qualification of a pilot should be determined on an individual selection basis without any limitation as to chronological age. This is rejected as an inadequate safety standard in light of the present inability of medical science to provide a reliable and valid basis for selection.

Some requests for a public hearing were received. In the rule-making process, a public hearing has basically the same purpose as written comments, namely, to inform the Agency of the facts and opinions of the public concerning the proposed rule. It serves a useful purpose, however, when it provides something more than usually is obtained from written comments. Normally, this would involve situations where facts and views cannot be expressed adequately by written comments, where written comments cannot properly be evaluated without further development in a public hearing, or where written comments which have been received raise new issues which require further public consideration and this can be accomplished most satisfactorily and expeditiously in a hearing.

Comments were received covering all the issues involved in the proposed rule. They have been most carefully evaluated with respect to their bearing on some of the requests that were received for a public hearing. In respect to the provision to establish age 55 as the age prior to which an individual must obtain a type-rating for turbojet powered aircraft, it is possible that a hearing may produce further information or data not already encompassed in the scope of the comments received. The comments and other data available appear to be sufficiently precise and determinative in connection with the provisions applicable to utilization of a pilot after attainment of age 60. In this connection, the requests for a public hearing did not indicate any area that the comments have not covered ade-

quately nor was any showing made that they could not be evaluated properly without a public hearing. They did not point out any issue that was not previously considered. On this point a public hearing is likely to repeat opinions and evidence already submitted in the form of written comments. With respect to this provision of the proposed rule, therefore, it does not appear that a public hearing would serve a useful purpose; and it is not deemed necessary in the public interest.

After considering all of the comments received, I find that a public hearing is necessary and appropriate with respect to the proposal concerning eligibility to obtain a type-rating for turbojet powered aircraft after the attainment of age 55 and a notice for such a hearing on January 7, 1960, is being issued. I find further that establishment of a maximum age of 60 for pilots utilized by air carriers in air carrier operations is necessary for safety in air commerce and is in the public interest.

Amendment designated the present text as paragraph (a) and added a new paragraph (b) to section 40.260.

Amendment 40–23

Extension of Compliance Date for Oxygen System Requirements for Turbine-Powered Airplanes	Adopted: Nov. 30, 1959 Effective: Nov. 30, 1959 Published: Dec. 8, 1959 (24 F.R. 9839)

Currently effective section 40.203–T(a) provides that on and after November 30, 1959, turbine-powered airplanes with pressurized cabins shall comply with the provisions of section 40.203–T. Section 40.203–T(c) requires that when operating at flight altitudes above 25,000 feet, one pilot at the controls of the airplane shall wear an oxygen mask at all times and all other flight crew members on flight deck duty shall be provided with oxygen masks, connected to appropriate supply terminals, which shall be worn in a manner that will permit immediate placing of the masks on their faces for use, properly secured and sealed.

The Administrator has received information to the effect that this requirement is not necessary to achieve the highest degree of safety in air transportation and it is claimed that compliance with this regulation may detract from the required crew coordination and adversely affect safety. The FAA intends to make further studies of this matter during the next 60 days. Under these circumstances, the effective date of this requirement will be delayed until February 1, 1960, to obtain additional information. If a change in this requirement is indicated, it will be accomplished prior to that date. If no change is required, the original rule will then become effective.

Since this amendment grants relief by extending the date for compliance with a requirement of the Civil Air Regulations, the Administrator finds that notice and public procedure hereon are not necessary, and that this amendment will be made effective immediately.

Amendment revised paragraph (c) of section 40.203–T.

Amendment 40–24

Drinking and Serving of Alcoholic Beverages	Adopted: Jan. 6, 1960 Effective: March 10, 1960 Published: Jan. 9, 1960 (25 F.R. 168)

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 section 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 abroad 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 abroad 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 accommodate 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.

Amendment added new section 40.371.

Amendment 40–25

Requirements for Use of Oxygen Masks by Flight Crew Members of Turbine-Powered Airplanes

Adopted: Jan. 28, 1960
Effective: Feb. 1, 1960
Published: Jan. 30, 1960 (25 F.R. 797)

Currently effective section 40.203–T(c) provides that on and after February 1, 1960, when operating at flight altitudes above 25,000 feet, one pilot at the controls of the airplane shall wear and use an oxygen mask at all times and all other flight crew members on flight deck duty shall be provided with oxygen masks, connected to appropriate supply terminals, which shall be worn in a manner that will permit immediate placing of the masks on their faces for use, properly secured and sealed.

The date for compliance with this regulation was to have been November 30, 1959, but was deferred for 60 days in order to make further studies of this matter upon representation that this requirement is not necessary to achieve the highest degree of safety in air transportation and that compliance with this regulation may detract from the required crew coordination and adversely affect safety. These studies have been made during the intervening period.

No evidence has been presented during this time which validates the contention that the regulation is not necessary to achieve the highest practicable degree of safety; neither has the claim been substantiated that the regulation would adversely affect safety. It is concluded, therefore, that the original basis for the regulation remains valid and that it should remain in effect.

During the course of the study it was noted that the various types of masks intended to be used in compliance with this regulation differ in the facility with which they can be donned. For example, some masks can be placed on the face with one hand so that they are properly secured and sealed. This is accomplished by having retaining means already in place on the head. This feature permits the mask to be placed on the face with minimum delay and without disturbing headphones, glasses, or hats. Thus, the crew member can proceed with emergency procedures quickly and without distraction. Therefore, it is believed that if all crew members are provided with masks having these characteristics, safety would not be adversely affected by permitting the aircraft to be operated at flight altitudes up to 30,000 feet without requiring one pilot at the controls to wear and use an oxygen mask. Therefore, the regulation is being relaxed to the extent that a pilot need not wear a mask at or below 30,000 feet if all flight crew members are equipped with masks having these characteristics. In order for any air carrier to take advantage of this relaxation, it will be necessary for existing masks to be reevaluated by a satisfactory demonstration of these characteristics to a representative of the Administrator.

It should be emphasized, however, that the Federal Aviation Agency will continue to study the need for and use of oxygen masks by flight crew members. If shown necessary by service experience, additional rule making action will be undertaken.

Since this amendment grants relief by extending the altitude above which masks shall be worn in compliance with a requirement of the Civil Air Regulations, the Administrator finds that notice and public procedure hereon are not necessary, and that this amendment may be made effective immediately.

Amendment revised paragraph (c) of section 40.203–T.

Amendment 40–26

Frequency of Pilot Line Checks

Adopted: April 27, 1960
Effective: June 1, 1960
Published: June 4, 1960
(25 F.R. 3850)

Section 40.302(a) of the Civil Air Regulations presently requires in part that a pilot shall satisfactorily accomplish a line check prior to serving as pilot in command and at least once each 12 months thereafter. This has normally been termed within the industry as the annual or yearly line check for the pilot in command.

By letter dated February 9, 1960, the Air Transport Association of America, on behalf of its member air carriers, recommended that the time interval between line checks be specified in the same manner as Civil Air Regulations Amendments 40–19 and 41–26, which clarified the time intervals between proficiency checks. The ATA advises that such a clarification will simplify recordkeeping and administration of the line check in the same way that the proficiency check requirements have been simplified.

The FAA has considered the foregoing recommendation and believes that the requirements with respect to the frequency of pilot line checks should be amended to provide the clarification requested and to make such requirements consistent with the frequency requirements for pilot proficiency checks.

Since this regulatory action imposes no additional burden upon any person, notice and public procedure hereon are unnecessary, and it may be made effective on less than 30 days' notice.

Amendment revised section 40.302(a) by adding two new sentences after the first sentence.

Amendment 40–27

Installation of Flight Recorders on Turbine-Powered Airplanes

Adopted: July 12, 1960
Effective: Aug. 18, 1960
Published: July 19, 1960
(25 F.R. 6826)

The Federal Aviation Agency published a notice of proposed rule making in the Federal Register (25 F.R. 2734) stating that it had under consideration certain amendments to Parts 40, 41, and 42 of the Civil Air Regulations to require the installation and use of flight recorders on all large (more than 12,500 pounds maximum certificated takeoff weight) turbine-powered airplanes after September 1, 1960. The proposal was circulated to the aviation industry as Draft Release 60–6, dated March 28, 1960, and comments were requested on or before May 3, 1960.

The Air Transport Association, on behalf of the scheduled air carriers, raised specific objections to the proposed effective date of September 1, 1960. The airlines stated that the date prescribed could only be met by removing airplanes from service to complete the required installations. This, they affirmed, would impose unreasonable interruptions of schedules and add undue burdens of additional expense. Further, it was stated that some air carriers may desire to equip their airplanes with a more sophisticated type of recorder capable of recording additional parameters of information which would be of value to their operations and maintenance, as well as for incident and accident investigation purposes.

The currently required parameters are time, heading, airspeed, altitude and vertical acceleration.

The FAA recognizes that flight recorders capable of recording additional operations and maintenance parameters would make available information which would be most useful for incident and accident investigation and for accident prevention purposes. Furthermore, it appears that such recorded information would be used by the air carriers in developing more efficient maintenance and operations procedures and in developing new methods of establishing maintenance schedules for engine, accessory, and component overhauls.

Comments received from certain of the manufacturers of flight recorders indicated that the September 1, 1960 date would not provide them with a sufficient period of time to manufacture and deliver equipment ordered for installation on those turbine-powered airplanes now in operation which previously have not been required to be so equipped. In addition, certain manufacturers stated that more recently developed recorders capable of recording additional parameters can be supplied by late 1960, and early 1961, and confirmed that some air carriers had indicated a very definite interest in these newer types of recorders.

After consideration of all the comments received and upon further investigation thereof, the Agency has concluded that a longer period of time should be authorized for compliance with this regulation as it applies to turbine-propeller powered airplanes. Turbojet airplanes, since they are certificated for operation above 25,000 feet, are currently required to be equipped with flight recorders. The FAA recognizes that difficulties may be encountered by the air carriers in accomplishing an orderly procurement and installation program and that a brief period of relief may be granted with respect to turbine-propeller powered airplanes without adversely affecting safety in air carrier operations. Accordingly, a compliance date of November 1, 1960, has been adopted in this final rule. Also, provision has been made in the regulation for the Director, Bureau of Flight Standards, to further extend the November 1, 1960, date for any air carrier who, prior to September 1, 1960, submits to the FAA, in writing, a request for such an extension, together with substantiating data, which shows to the satisfaction of the Director:

1. That the air carrier will be unable to comply with the November 1, 1960, date due to flight recorder procurement or installation problems and;

2. The action the air carrier has undertaken to insure that a progressive installation of the required flight recorder equipment will be completed at the earliest practicable date following November 1, 1960. In no event will the November 1, 1960, date be extended beyond May 1, 1961. This relaxation of the original proposal will provide the air carriers further opportunities to investigate the various types of recorders available and to proceed with the orderly procurement and installation of the required equipment at the earliest practicable time following the effective date of this rule.

It will be noted that neither the November 1, 1960, compliance date nor the provision for extension thereof applies to the large turbojet-powered airplanes or large nonturbine-powered airplanes certificated for operations above 25,000 feet altitude, since they are required by currently effective regulations to be equipped with flight recorders.

Certain air carriers requested that the Fairchild F–27 airplanes be specifically exempted from the requirements of this rule in view of the geographic areas in which they are operated or in consideration of the varied local service or low altitude types of operations in which they are engaged. The FAA, in its notice of proposed rule making, explained that it was proposing this regulation specifically to encompass all of the newer types of high-speed turbine-powered airplanes, whether certificated to operate above or below 25,000 feet, since they are frequently subjected to similar atmospheric forces. The F–27 is a modern turbine-powered transport type airplane and is capable of operating at high speeds. For these reasons, the Agency is convinced that all large turbine-powered airplanes should be equipped with flight recorders. Accordingly, the rules adopted herein make no exception for the F–27 airplane.

This amendment also clarifies the Agency's intent to require continuous operation of the flight recorder from the instant the aircraft starts its takeoff roll until it has completed its landing roll at an airport. Operation of the recorder is not required during taxi operations to or from the runway.

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.

Amendment revised section 40.208.
