

[4910-13]

DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

[14 CFR Parts 1, 21, 23, and 135]

[Docket No. 18315; Notice 78-14]

AIRWORTHINESS STANDARDS: RECIPROCATING AND TURBOPROPELLER POWERED MULTIENGINE AIRPLANES

Increase in Approved Takeoff Weights and Passenger Seating Capacities

AGENCY: Federal Aviation Administration (FAA), DOT.

ACTION: Notice of proposed rulemaking.

SUMMARY: This notice proposes to adopt a new Special Federal Aviation Regulation (SFAR) and to amend the operating rules applicable to air taxi and commercial operators of small airplanes. This proposal would—(1) Prescribe additional airworthiness standards applicable to propeller driven multiengine small airplanes; and (2) depending on the standards those airplanes meet, allow their certification and operation at weights in excess of the current limitation of 12,500 pounds or with an increase in the number of passenger seats, or both. Adoption of these proposals would allow the design capabilities of these small airplanes to be more fully utilized.

DATES: Comments must be received on or before December 11, 1978.

ADDRESSES: Send comments on the proposal in duplicate to: Federal Aviation Administration, Office of the Chief Counsel, Attn: Rules Docket (AGC-24) Docket No. 18315, 800 Independence Avenue SW., Washington, D.C. 20591.

FOR FURTHER INFORMATION CONTACT:

Adolfo O. Astorga, Airworthiness Review Branch (AFS-910), Flight Standards Service, Federal Aviation Administration, 800 Independence Avenue SW., Washington, D.C. 20591; telephone 202-755-8714.

SUPPLEMENTARY INFORMATION:**COMMENTS INVITED**

Interested persons are invited to participate in the making of the proposed rule by submitting such written data, views, or arguments as they may desire. In addition, commentators are encouraged to address the environmental, energy, economic, or social impact that might result from adoption of the proposals contained in this notice. Communications should identify the regulatory docket or notice number and be submitted in duplicate to the address specified above. All

communications received on or before the closing date for comments will be considered by the Administrator before taking action on the proposed rule. The proposals contained in this notice may be changed in the light of comments received. All comments submitted will be available, both before and after the closing date for comments, in the Rules Docket for examination by interested persons. A report summarizing each substantive public contact with FAA personnel concerned with this rulemaking will be filed in the docket.

The FAA requests that interested persons, when submitting comments, fully identify the proposal to which the comment relates.

AVAILABILITY OF THIS NOTICE

Any person may obtain a copy of this notice of proposed rulemaking (NPRM) by submitting a request to the Federal Aviation Administration, Office of Public Affairs, Attention: Public Information Center, APA-430, 800 Independence Avenue SW., Washington, D.C. 20591, or by calling 202-426-8058. Communications must identify the notice number of this NPRM. Persons interested in being placed of a mailing list for future NPRM's should also request a copy of Advisory Circular No. 11-2 which describes the application procedures.

BACKGROUND

In notice No. 77-25, an advance notice of proposed rulemaking (42 FR 56702; October 27, 1977), the FAA requested recommendations concerning possible changes in certification requirements for certain small airplanes used by air taxi and commercial operators. Based on comments received in response to that advance notice, and upon further consideration, the FAA is proposing in this notice certification requirements and operating rules which will allow existing propeller driven airplanes to be better utilized under the Federal Aviation Regulations (FAE's).

In general, under the current FAR's relating to certification, airplanes are treated as either small or large. Numerous pilot, operating, and maintenance requirements of the FAR's utilize the same small and large distinction. In addition, the International Civil Aviation Organization (ICAO) uses this weight distinction. The distinction is based on the maximum certificated takeoff weight (MCTW) of the airplane. For airplanes with an MCTW of 12,500 pounds or less, the airplane is defined in §1.1 of the FAR's as small. Airplanes with an MCTW of more than 12,500 pounds are defined as large.

The 12,500 pound weight distinction was adopted on April 9, 1953 (18 FR

2213; April 18, 1953). The weight distinction was based in part upon certain airplane and powerplant design considerations which were considered significant in 1953. Over the past 25 years, numerous additional operational factors have developed and must be considered in airplane design. Certain manufacturers have asserted that the 12,500 pound weight distinction is arbitrary and no longer provides an appropriate demarcation between small and large airplanes.

It should be noted that part 23 of the FAR's contains airworthiness standards for small airplanes. However, for those airplanes that meet the requirements of part 23 including amendment 23-10 (36 FR 2863; February 11, 1971), which is included in current part 23, the maximum passenger seating configuration is limited to 9 seats.

Many potential commentators to this notice, whose views the FAA invites, may not be familiar with the regulatory procedure for type and airworthiness certification of aircraft and for their subsequent operation; therefore, a general overall perspective to this somewhat specialized area is provided below.

The certification process begins when the manufacturer of an aircraft of new design submits an application (along with certain aircraft drawings) to the FAA. Aircraft of new design must meet the airworthiness standards which were effective on the date that the application was filed and any additional standards found to be necessary because of novel or unusual design features. After an application is filed and the applicable standards are established, the aircraft design is tested by the manufacturer to show that it meets these standards. Once the airworthiness standards are met, a type certificate is issued to the manufacturer. The airworthiness standards which were compiled with are incorporated as part of the type certificate and become the regulatory basis for the certificate. These standards normally continue to be applicable to individual aircraft built in accordance with the design. Individual aircraft are certified by the aircraft manufacturer to conform to the type design for which the type certificate was issued and are issued airworthiness certificates.

Section 610 of the Federal Aviation Act of 1958 (49 U.S.C. 1430) states that it is unlawful to operate a civil aircraft for which there is not currently in effect an airworthiness certificate or which is in violation of the terms of any such certificate. This statutory provision together with related provisions of the FAR's require that aircraft must be properly maintained. Proper maintenance includes recur-

rent inspections to insure continued conformity to the applicable type design. These provisions also require that the aircraft may not be operated in violation of its established limitations. One of these limitations is the maximum takeoff weight at which the aircraft design was certificated. Another is the maximum passenger seating configuration. Therefore, to change the MCTW or the maximum passenger seating configuration, the aircraft design must be recertificated in accordance with the applicable airworthiness standards.

An applicant for an airplane type certificate would be required, under current rules, to comply with the transport category requirements of part 25 of the FAR's if the maximum takeoff weight of its airplane exceeds 12,500 pounds or if the maximum passenger seating configuration exceeds 9 seats and the applicable airworthiness standards for the airplane includes amendment 23-10. Many commentators to the advance notice and petitioners for rulemaking and exemption have asserted that compliance with the transport category requirements of part 25 is too costly for small airplanes with a maximum takeoff weight very near 12,500 pounds. The commentators have asserted that many of the requirements of part 25 are intended for the very large air carrier airplanes such as the "wide-body" airplanes.

Recent requests for exemptions, or for a rule change, concerning this weight distinction have been made by operators that utilize airplanes with a MCTW of exactly or very near 12,500 pounds. These operators assert that these airplanes are capable of operating safely at maximum takeoff weights in excess of 12,500 pounds. In addition, these operators indicate that this weight limit has the effect of reducing safety margins by preventing the installation of additional navigational equipment and by preventing the carriage of increased fuel reserves. In this connection, the Acting Chairman of the National Transportation Safety Board (NTSB) recently informed the FAA that " * * the Safety Board believes that a new airworthiness certification part designed specifically for this class of airplane which would be more stringent than the current FAR 23 supplemented by SFAR 23 (additional airworthiness requirements met by certain airplanes in the past), but less costly than FAR 25, would be in the base interest of the safety of the flying public." Based upon these comments and requests and the claimed overall safety benefit, the FAA has determined that public comment should be invited upon a specific proposal to allow certification and operation at MCTW's in excess of

12,500 pounds which, if adopted, would be a step in the direction advocated.

In the light of the proposal to permit certification and operation of propeller driven multiengine airplanes at MCTW's in excess of 12,500 pounds, the FAA has reevaluated the current need for the 9 seat passenger capacity limit in part 23. Based on this evaluation, the FAA believes that on an interim basis, type certificates and changes to those certificates should be issued for propeller driven small airplanes in the normal category that have a passenger seating configuration, excluding pilot seats, of 10 seats or more (but not more than 19 seats), if compliance is shown with the airworthiness standards in part 23 together with the additional airworthiness requirements of appendix A of part 135 of the FAR's. The FAA's belief that only interim type certification rules are appropriate at this time is based on the FAA's continuing consideration of the need for, and substance and scope of, the new airworthiness certification part of the FAR's, recommended by comments received in response to notice No. 77-25 including that of the NTSB, for airplanes intended for use by commuter air carriers.

DISCUSSION OF PROPOSALS

This proposal, consisting of a proposed new Special Federal Aviation Regulation (SFAR) and proposed changes to part 135, would allow either or both of the following:

(1) The certification of propeller driven multiengine small airplanes with a passenger seating configuration, excluding pilot seats, of 10 seats or more (but not more than 19 seats) that were originally type certificated in accordance with part 23 of the FAR's in effect on March 31, 1971 (the effective date of amendment 23-10) or later.

(2) The certification and operation, with appropriate restrictions and limitations, of propeller driven multiengine airplanes at maximum takeoff weights in excess of 12,500 pounds.

It should be noted that an application for certification under the proposed SFAR, would need to be filed with the FAA within 2 years after the effective date of the SFAR. Production of airplanes certificated, under the SFAR, with maximum takeoff weights in excess of 12,500 pounds, would be limited to 10 years after the effective date of the SFAR. This would be done by limiting to a 10 year period the privilege of obtaining original airworthiness certificates for airplanes type certificated under the SFAR. This 10 year period is intended to provide the time needed for the FAA to develop a new airworthiness

certification part of the FAR's for airplanes intended for use by commuter air carriers and for airplane manufacturers to demonstrate compliance with the new part.

The restrictions and limitations which are included in the proposal are intended to ensure that each airplane meets the necessary airworthiness and operating standards and that international agreements are not violated. In this connection, the United States of America as a contracting State of ICAO, is under agreement to comply with the Convention on International Civil Aviation. Annex 8 to the convention contains international standards of airworthiness applicable to the certification of airplanes having a MCTW in excess of 5,700 kg (approximately 12,500 pounds). If an airplane does not comply with annex 8, under the convention, the airworthiness certificate must be endorsed with respect to the noncompliance and international navigation of the airplane is prohibited unless the countries entered agree. In part, the airworthiness standards in the proposed SFAR would establish a minimum level of safety for propeller driven multiengine airplanes with MCTW's in excess of 12,500 pounds and maximum weights without fuel of 12,500 pounds. It should be noted that the proposed airworthiness standards are not intended to and do not meet the annex 8 provisions. Therefore, airplanes certificated in accordance with the proposed SFAR, that operate at weights in excess of 5,700 kg, would be prohibited from international navigation unless specifically allowed by the countries of overflight. These airplane's airworthiness certificates would be appropriately endorsed. In addition, the international airman licensing and aircraft operating provisions in annexes 1 and 6 to the convention on International Civil Aviation must be met to operate these airplanes on international flights.

With respect to those airplanes certificated under amendment 23-10 that are to be certificated with a maximum passenger seating capacity in excess of 9 seats but with an MCTW not in excess of 12,500 pounds, compliance with appendix A of part 135 would be required under the proposed SFAR. For airplanes that are to be certificated with an MCTW in excess of 12,500 pounds, the airworthiness requirements of the proposed SFAR include appendix A of part 135, and additional structural fatigue, crashworthiness, and fire protection requirements. In developing these additional standards, the FAA has drawn upon the experience gained during the many years of operation of small airplanes.

The table below references the sources of the proposed additional structural fatigue, crashworthiness,

and fire protection requirements applicable to the certification of airplanes with MCTW's in excess of 12,500 pounds under the proposed SFAR. It should be noted that the various refer-

ences in the chart to sections and parts of the Federal Aviation Regulations (14 CFR Chapter I) are those in effect on the date this NPRM was issued.

Subject	Section number in the SFAR	Source of the proposed airworthiness requirements
Fatigue evaluation of flight structure	5(b)	Based on sec. 23 of app. A of pt. 135 (see note below).
Door and exits	5(c)	Based on sec. 32 of app. A of pt. 135 and on § 25.783.
Fuel system lightning protection	5(d)	Same as § 25.954.
Cowlings	5(e)	Based on sec. 55 of app. A of pt. 135.
Flammable fluid fire protection	5(f)	Same as § 25.833.
Compartment interiors	7	Based on § 25.853 and on Airworthiness Review Proposal Nos. 2-55 (40 FR 10810; Mar. 7, 1975) and 8-42 (40 FR 29419; July 11, 1975).
Landing gear	8	Same as § 25.721, for passenger seating configurations, excluding pilot seats, of 10 seats or more.
Fuel system components crashworthiness	9	Same as §§ 25.963(d), and 25.994.
Shutoff means	10	Same as § 25.1189.
Fire extinguishing systems	11	Based on § 25.1195.
Fire extinguishing agents	12	Same as § 25.1197.
Extinguishing agent containers	13	Same as § 25.1199.
Fire extinguishing system materials	14	Same as § 25.1201.
Acceptable test for showing compliance with secs. 7 (a)(1) thru (a)(5) of the SFAR.	Appendix	Based on app. F of pt. 25.

NOTE.—The requirements in sec. 5(b) of the proposed SFAR would apply to the vertical fin, horizontal stabilizer, and attaching structure, in addition to the wing, wing carrythrough, and attaching structure.

Appendix A of part 135 contains airworthiness requirements which when complied with in conjunction with part 23 provide a set of airworthiness standards that prescribe a level of safety exceeding that of part 23 alone. The additional standards proposed for airplanes to be certificated with an MTCW in excess of 12,500 pounds would provide for a level of safety improved over that provided by part 23 and appendix A. While the FAA is unaware of any propeller driven multiengine small airplane that currently meets appendix A of part 135 or the additional standards contained in the proposed SFAR, the FAA believes that the technology exists to perform modifications on a number of existing airplane types in order to meet the upgraded standards if so desired by the manufacturers or operators. Propeller driven multiengine small airplanes meeting these standards would provide a higher level of safety than similar airplanes currently in service.

Turbojet powered multiengine airplanes are not covered in the proposed SFAR because these high performance airplanes require more stringent airworthiness provisions than those applicable to propeller driven multiengine small airplanes. Therefore, at the present time, the FAA believes part 25 of the FAR's where applicable, continues to be an appropriate standard for these airplanes.

It should also be noted that the intent of the proposed SFAR is to allow airplanes certificated in accord-

ance with the SFAR to operate under parts 91 and 135. Additional revisions to part 135, as revised in this issue of the FEDERAL REGISTER, are proposed below to allow operation under that part.

The FAA believes that the proposal, if adopted, would allow air taxi, commercial, and general aviation operators to more fully utilize the design capabilities of propeller driven multiengine small airplanes that are amenable to an expansion of their capabilities with no adverse effect on safety. In this connection, as indicated, the proposed SFAR provides additional airworthiness requirements and operating limitations. In addition, the FAA believes that the proposed SFAR in providing for an increase in MCTW will allow the operators to—(1) install additional navigation equipment; (2) carry increased fuel reserves; and (3) install additional public conveniences, such as lavatories and food galleys. Furthermore, the proposal has the potential of reducing costs to the traveling public by allowing more efficient operation of these airplanes.

REQUEST FOR ECONOMIC DATA

A number of comments were received in response to advance notice No. 77-25 concerning the economic impact of imposing different categories of type certification requirements on commuter airplanes. However, because of the general nature of the questions presented in that advance

notice, the FAA is convinced that additional data is required to determine the economic impact of the proposal covered in this notice.

While the FAA does not believe that this proposal will have any detrimental economic impact, it is aware that detailed economic impact information is exclusively in the possession of airplane manufacturers and commuter operators. Accordingly, comments concerning the economic impact of the proposal are strongly encouraged.

In submitting their comments, each operator and manufacturer should specify the proposal's anticipated economic effect on its operations or production. If an organization desires to submit economic data on behalf of groups of operators or manufacturers, an adequate breakdown of the anticipated effect on each member of the group is requested. Additionally, with respect to potential positive economic benefits operators and manufacturers should provide realistic comparisons of current airplane operating and airplane purchase costs with those that could result from the proposal. Also, airplane modification costs related to the proposal should be presented, and examples of potential positive monetary benefits to commuter passengers are also urged.

For those commentators that desire changes in the airworthiness standards included in the proposal, their comments should contain detailed cost-benefit analysis data. The analysis should specify the steps taken and the assumptions made in its preparation. In this connection, it should be emphasized that unsupported assertions as to the anticipated economic impact of this proposal will be given limited weight.

THE PROPOSED AMENDMENTS

Accordingly, the Federal Aviation Administration proposes to amend the Federal Aviation Regulations (14 CFR Chapter I) as follows: 1. By adding the following Special Federal Aviation Regulation:

SPECIAL FEDERAL AVIATION REGULATION No.---

1. APPLICABILITY

(a) Contrary provisions of parts 21 and 23 of the Federal Aviation Regulations notwithstanding, an applicant is entitled to an amended or supplemental type certificate in the normal category for a reciprocating or turbopropeller powered multiengine small airplane originally type certificated in accordance with part 23 of the Federal Aviation Regulations in effect on March 31, 1971, or later, that is to be

certificated with a passenger seating configuration, excluding pilot seats, of 10 seats or more (but not more than 19 seats.) If the applicant complies with—

(1) The regulations incorporated in the type certificate; and

(2) The requirements of appendix A of part 135 of the Federal Aviation Regulations in effect on (the date this proposed SFAR was issued).

(b) Contrary provisions of parts 1, 21, 23, 91, 121, and 135 of the Federal Aviation Regulations notwithstanding, an applicant is entitled to an amended or supplemental type certificate in the normal category for a reciprocating or turbopropeller powered multiengine airplane that is to be certificated with a maximum takeoff weight in excess of 12,500 pounds and a maximum zero fuel weight not in excess of 12,500 pounds if the applicant complies with—

(1) The regulations incorporated in the type certificate;

(2) The requirements of appendix A of part 135 of the Federal Aviation Regulations in effect on (the date this proposed SFAR was issued) with the exceptions specified in section 5 of this Special Federal Aviation Regulation; and

(3) The additional requirements specified in sections 7 through 14 of this Special Federal Aviation Regulation.

(c) Contrary provisions of part 1 of the Federal Aviation Regulations notwithstanding, an airplane certificated under paragraph (b) of this section is defined as a small airplane for purposes of parts 21, 23, 36, 121, and 135 of the Federal Aviation Regulations and a large airplane for purposes of parts 61 and 91. Compliance with the small airplane provisions of part 36 of the Federal Aviation Regulations must be shown at the maximum certificated takeoff weight approved under this Special Federal Aviation Regulation.

2. ELIGIBILITY

Any person may apply for a supplemental type certificate (or an amended type certificate in the case of a type certificate holder) under this Special Federal Aviation Regulation.

3. PRODUCTION LIMITATION

An amended or supplemental type certificate issued pursuant to section 1(b) of this Special Federal Aviation Regulation is effective for the purpose of obtaining an original airworthiness certificate, until (a date 10 years after the effective date of this SFAR) unless the type certificate is sooner surrendered, suspended, revoked, or terminated.

4. RESTRICTIONS

For airplanes certificated under section 1(b) of this Special Federal Aviation Regulation—

(a) The maximum zero fuel weight of the airplane must be established as an operating limitation and may not exceed 12,500 pounds.

(b) The airworthiness certificate shall be endorsed "This airplane at weights in excess of 5,700 kg does not meet the airworthiness requirements of ICAO, as prescribed by annex 8 of the convention on International Civil Aviation."

5. EXCEPTIONS

For purposes of obtaining an amended or supplemental type certificate under section 1(b) of this Special Federal Aviation Regulation the following exceptions apply. All references in this section to specific sections of parts 23 and 25 of this chapter are to those in effect on (the date this proposed SFAR was issued):

(a) Compliance with section 1 of appendix A of part 135 of the Federal Aviation Regulations is not required.

(b) In lieu of compliance with section 28 of appendix A of part 135 of the Federal Aviation Regulations, comply with the following:

Fatigue evaluation of flight structure. Unless it is shown that the structure, operating stress levels, materials, and expected use are comparable from a fatigue standpoint to a similar design which has had substantial satisfactory service experience, the strength, detail design, and the fabrication of those parts of the wing, wing carrythrough, vertical fin, horizontal stabilizer, and attaching structure whose failure would be catastrophic must be evaluated under either—

(a) A fatigue strength investigation in which the structure is shown by analysis, tests, or both, to be able to withstand the repeated loads of variable magnitude expected in service; or

(b) A fall-safe strength investigation in which it is shown by analysis, tests, or both, that catastrophic failure of the structure is not probable after fatigue, or obvious partial failure, of a principal structural element, and that the remaining structure is able to withstand a static ultimate load factor of 75 percent of the critical limit load factor at V_c . These loads must be multiplied by a factor of 1.15 unless the dynamic effects of failure under static load are otherwise considered.

(c) In lieu of compliance with section 32 of Appendix A of Part 135 of the Federal Aviation Regulations, comply with the following:

Doors and exits. The airplane must meet the requirements of §§ 23.783 and 23.807(a), (3), (b), and (c) of this chapter, and in addition the following requirements:

(a) Each cabin must have at least one easily accessible external door.

(b) There must be a means to lock and safeguard each external door against opening in flight (either inadvertently by persons or as a result of mechanical failure or

failure of a single structural element). Each external door must be operable from both the inside and the outside, even though persons may be crowded against the door on the inside of the airplane. Inward opening doors may be used if there are means to prevent occupants from crowding against the door to an extent that would interfere with the opening of the door. The means of opening must be simple and obvious and must be arranged and marked so that it can be readily located and operated, even in darkness. Auxiliary locking devices may be used.

(c) Each external door must be reasonably free from jamming as a result of fuselage deformation in a minor crash.

(d) Each external door must be located where persons using them will not be endangered by the propellers when appropriate operating procedures are used.

(e) There must be a provision for direct visual inspection of the locking mechanism by crewmembers to determine whether external doors, for which the initial opening movement is outward (including passenger, crew, service, and cargo doors), are fully locked. In addition, there must be a visual means to signal to appropriate crewmembers when normally used external doors are closed and fully locked.

(f) Cargo and service doors not suitable for use as an exit in an emergency need only meet paragraph (e) of section 5(c) of this regulation and be safeguarded against opening in flight as a result of mechanical failure or failure of a single structural element.

(g) The passenger entrance door must qualify as a floor level emergency exit. If an integral stair is installed at such a passenger entry door, the stair must be designed so that when subjected to the inertia forces specified in § 23.581 of this chapter, and following the collapse of one or more legs of the landing gear, it will not interfere to an extent that will reduce the effectiveness of emergency egress through the passenger entry door. Each additional required emergency exit except floor level exits must be located over the wing or must be provided with acceptable means to assist the occupants in descending to the ground. In addition to the passenger entrance door—

(1) For a total seating capacity of 15 or less, an emergency exit, as defined in § 23.807(b) of this chapter, is required on each side of the cabin;

(2) For a total seating capacity of 16 through 23, three emergency exits, as defined in § 23.807(b) of this chapter, are required with one on the same side as the door and two on the side opposite the door; and

(3) For a total seating capacity in excess of 23, the number of emergency exits and their kind and distribution must be approved by the Administrator.

(h) An evacuation demonstration must be conducted utilizing the maximum number of occupants for which certification is desired. It must be conducted under simulated night conditions utilizing only the emergency exits on the most critical side of the aircraft. The participants must be representative of average airline passengers with no prior practice or rehearsal for the demonstration. Evacuation must be completed within 90 seconds.

(i) Each emergency exit must be marked with the word "Exit" by a sign which has white letters 1 inch high on a red background 2 inches high, be self-illuminated or

independently internally electrically illuminated, and have a minimum luminescence (brightness) of at least 160 microlamberts. The colors may be reversed if the passenger compartment illumination is essentially the same.

(j) Access to window type emergency exits must not be obstructed by seats or seat backs.

(k) The width of the main passenger aisle at any point between seats must equal or exceed the values in the following table:

Total seating capacity	Minimum main passenger aisle width	
	Less than 25 inches from floor	25 inches and more from floor
10 through 23	9 inches	15 inches.
Over 23	15 inches	20 inches.

(d) In lieu of compliance with section 45 of appendix A 135 of part of the Federal Aviation regulations, comply with § 23.954 of this chapter.

(e) In lieu of compliance with section 56 of appendix A of part 135 of the Federal Aviation regulations, comply with the following:

Cowlings. The airplane must be designed and constructed so that no fire originating in any engine compartment can enter, either through openings or by burning through external skin, any other region where it would create additional hazards."

(f) In lieu of compliance with section 57 of appendix A of part 135 of the Federal Aviation regulation, comply with § 25.863 of this chapter.

6. ADDITIONAL REQUIREMENTS— GENERAL

The additional requirements specified in sections 7 through 14 apply to the certification of airplanes pursuant to section 1(b) of this special Federal Aviation regulation.

7. COMPARTMENT INTERIORS

(a) Materials (including finishes or decorative surfaces applied to the materials) used in each compartment occupied by the crew or passengers must meet the following test criteria as applicable:

(1) Interior ceiling panels, interior wall panels, partitions, galley structure, large cabinet walls, structural flooring, and materials used in the construction of stowage compartments (other than underseat stowage compartments and compartments for stowing small items such as magazines and maps) must be self-extinguishing when tested vertically in accordance with the applicable portions of the appendix to this regulation, or other approved equivalent methods. The average burn length may not exceed 6 inches and the average flame time after removal of the flame source may not exceed 15 seconds. Drippings from the test specimen may not continue to

flame for more than an average of 3 seconds after falling.

(2) Floor covering, textiles (including draperies and upholstery), seat cushions, padding, decorative and non-decorative coated fabrics, leather, trays and galley furnishings, electrical conduit, thermal and acoustical insulation and insulation covering, air ducting, joint and edge covering, cargo compartment liners, insulation blankets, cargo covers, transparencies, molded and thermoformed parts, air ducting joints, and trim strips (decorative and chafing), that are constructed of materials not covered in paragraph (a)(4) of this section, must be self-extinguishing when tested vertically in accordance with the applicable portions of the appendix to this regulation, or other approved equivalent methods. The average burn length may not exceed 8 inches and the average flame time after removal of the flame source may not exceed 15 seconds. Drippings from the test specimen may not continue to flame for more than an average of 5 seconds after falling.

(3) Motion picture film must be safety film meeting the standard specification for safety photographic film ph 1.25 (available from the United States of America Standards Institute, 10 East 40th Street, New York, N.Y. 10018), or an FAA-approved equivalent. If the film travels through ducts, the ducts must meet the requirements of paragraph (a)(2) of this section.

(4) Acrylic windows and signs, parts constructed in whole or in part of elastomeric materials, edge lighted instrument assemblies consisting of two or more instruments in a common housing, seat belts, shoulder harnesses, and cargo and baggage tiedown equipment, including containers, bins, pallets, etc., used in passenger or crew compartments, may not have an average burn rate greater than 2.5 inches per minute when tested horizontally in accordance with the applicable portions of the appendix of this regulations, or other approved equivalent methods.

(5) Except for electrical wire and cable insulation, and for small parts (such as knobs, handles, rollers, fasteners, clips, grommets, rub strips, pulleys, and small electrical parts) that the Administrator finds would not contribute significantly to the propagation of a fire, materials in items not specified in paragraphs (a)(1) through (a)(4) of this section may not have a burn rate greater than 4 inches per minute when tested horizontally in accordance with the applicable portions of the appendix of this regulation, or other approved equivalent methods.

(b) If smoking is to be prohibited, there must be a placard so stating, and if smoking is to be allowed—

(1) There must be an adequate number of self-contained, removable ashtrays, and

(2) Where the crew compartment is separated from the passenger compartment, there must be at least one sign (using either letters or symbols) notifying all passengers when smoking is prohibited. Signs which notify when smoking is prohibited must—

(i) Be legible to each passenger seated in the passenger cabin under all probable lighting conditions, and

(ii) When illuminated, be so constructed that the crew can turn them on and off.

(c) Each disposal receptacle for towels, paper, or waste must be fully enclosed and constructed of at least fire resistant materials, and must contain fires likely to occur in it under normal use. The ability of the disposal receptacle to contain those fires under all probable conditions of wear, misalignment, and ventilation expected in service must be demonstrated by test. A placard containing the legible words "No Cigarette Disposal" must be located on or near each disposal receptable door.

(d) Lavatories must have "No Smoking" or "No Smoking in Lavatory" placards located conspicuously on each side of the entry door, and self-contained removable ashtrays located conspicuously on or near the entry side of each lavatory door, except that one ashtray may serve more than one lavatory door if it can be seen from the cabin side of each lavatory door served. The placards must have red letters at least one-half inch high on a white background at least one inch high. (A "No Smoking" symbol may be included on the placard).

(e) There must be at least one hand fire extinguisher conveniently located in the pilot compartment.

(f) There must be at least one hand fire extinguisher conveniently located in the passenger compartment.

8. LANDING GEAR

Comply with §§ 25.721(a)(2), (b), and (c) of this chapter in effect on (the date this proposed SFAR was issued).

9. FUEL SYSTEM COMPONENTS CRASHWORTHINESS

Comply with §§ 25.963(d) and 25.994 of this chapter in effect on (the date this proposed SFAR was issued).

10. SHUTOFF MEANS

Comply with § 23.1189 of this chapter in effect on (the date this proposed SAFR was issued).

11. FIRE EXTINGUISHING SYSTEMS

(a) Except for combustor, turbine, and tail pipe sections of turbine engine installations that contain lines or com-

ponents carrying flammable fluids or gases for which it is shown that a fire originating in these sections can be controlled, there must be a fire extinguisher system serving each engine compartment.

(b) The fire extinguishing system, the quantity of the extinguished agent, the rate of discharge, and the discharge distribution must be adequate to extinguish fires. An individual "one shot" system may be used for auxiliary power units, fuel burning heaters, and other combustion equipment. For other engine compartments two discharges must be provided each of which produce adequate agent concentrations. It must be possible to direct each of these discharges to any main engine installation.

(c) The fire-extinguishing system for a nacelle must be able to simultaneously protect each compartment of the nacelle for which protection is provided.

12. FIRE EXTINGUISHING AGENTS

Comply with § 25.1197 of this chapter in effect on (the date this proposed SAFR was issued).

13. EXTINGUISHING AGENT CONTAINERS

Comply with § 25.1189 of this chapter in effect on (the date this proposed SAFR was issued).

14. FIRE EXTINGUISHING SYSTEM MATERIALS

Comply with § 25.1201 of this chapter in effect on (the date this proposed SAFR was issued).

15. EXPIRATION

This special Federal Aviation regulation terminates on (a date two years after the effective date of this SFAR), unless sooner rescinded or superseded.

APPENDIX

ACCEPTABLE TEST PROCEDURES FOR SHOWING COMPLIANCE WITH SECTIONS 7(A)(1) THRU (A)(5) OF THIS REGULATION

(a) *Conditioning.* Specimens must be conditioned to 70 degrees F (plus or minus 5 degrees) and at 50 percent relative humidity (plus or minus 5 percent) until moisture equilibrium is reached, or for 24 hours. Only one specimen at a time may be removed from the conditioning environment before subjecting it to the flame.

(b) *Specimen configuration.* Materials must be tested either as a section cut from a fabricated part as installed in the airplane or as a specimen simulating a cut section, such as a specimen cut from a flat sheet of the material or a model of the fabricated part. The specimen may be cut from any location in a fabricated part; however, fabricated units, such as sandwich panels may not be separated for test. The specimen may not be thicker than the minimum thickness to be qualified for use in the airplane, except that: (1) Thick foam parts, such as seat cushions, must be tested in 1/2-inch thickness; and (2) When showing compli-

ance with section 7(a)(4) of this regulation for materials used in small parts that must be tested, the materials must be tested in no more than 1/8-inch thickness. In the case of fabrics, both the warp and fill direction of the weave must be tested to determine the most critical flammability conditions. When performing the tests prescribed in paragraphs (d) and (e) of this appendix, the specimen must be mounted in a metal frame so that: (1) in the vertical tests of paragraph (d), the two long edges and the upper edge are held securely; (2) in the horizontal test of paragraph (e), the two long edges and the edge away from the flame are held securely; (3) the exposed area of the specimen is at least 2 inches wide and 12 inches long, unless the actual size used in the airplane is smaller; and (4) the edge to which the burner flame is applied may not consist of the finished or protected edge of the specimen but must be representative of the actual cross-section of the material or part installed in the airplane.

(c) *Apparatus.* Tests must be conducted in a draft-free cabinet in accordance with Federal Test Method Standard 191 method 5903 (revised method 5902) for the vertical test, or method 5906 for the horizontal test (available from the General Services Administration, Business Service Center, Region 3, Seventh and D Streets SW., Washington, D.C. 20407) or other approved equivalent methods. Specimens which are too large for the cabinet must be tested in similar draft-free conditions.

(d) *Vertical test, in compliance with sections 7(a)(1) and (a)(2) of this regulation.* A minimum of three specimens must be tested and the results averaged. For fabrics, the direction of weave corresponding to the most critical flammability conditions must be parallel to the longest dimension. Each specimen must be supported vertically, the specimen must be exposed to a Bunsen or Tirrill burner with a nominal 3/8-inch i.d. tube adjusted to give a flame of 1 1/2 inches in height. The minimum flame temperature measured by a calibrated thermocouple pyrometer in the center of the flame must be 1,550 degrees F. The lower edge of the specimen must be 3/4-inch above the top edge of the burner. The flame must be applied to the center line of the lower edge of the specimen. For materials covered by section 7(a)(1) of this regulation, the flame must be applied for 60 seconds and then removed. For materials covered by section 7(a)(2) of this regulation, the flame must be applied for 12 seconds and then removed. Flame time, burn length, and flaming time of dripping, if any, must be recorded.

(e) *Horizontal test, in compliance with sections 7(a)(3) and (a)(4) of this regulation.* A minimum of three specimens must be tested and the results averaged. Each specimen must be supported horizontally. The exposed surface when installed in the airplane must be face down for the test. The specimen must be exposed to a Bunsen or Tirrill burner with a nominal 3/8-inch i.d. tube adjusted to give a flame of 1 1/2 inches in height. The minimum flame temperature measured by a calibrated thermocouple pyrometer in the center of the flame must be 1,550 degrees. The specimen must be positioned so that the edge being tested is 3/4-inch above the top of, and on the center line of, the burner. The flame must be applied for 15 seconds and then removed. A minimum of 10 inches of the specimen must be used for timing purposes, approximately 1 1/2

inches must burn before the burning front reaches the timing zone, and the average burn rate must be recorded.

(f) *Burn length.* Burn length is the distance from original edge to the farthest evidence of damage to the test specimen due to flame impingement, including areas of partial or complete consumption, charring, or embrittlement, but not including areas sooted, stained, warped, or discolored, nor areas where material has shrunk or melted away from the heat source.

2. By revising § 135.169 by deleting the word "or" at the end of § 135.169(b)(3); by deleting the period at the end of § 135.169(b)(4) and inserting a semicolon and the word "or" in its place; by adding a new § 135.169(b)(5) and by revising § 135.169(c)(2) to read as follows:

§ 135.169 Additional airworthiness requirements.

• • • • •

(b) * * *
(5) In the normal category and complies with (the SFAR proposed in this notice).

(c) * * *
(2) An airplane that complies with—
(i) Appendix A of this part provided that its passenger seating configuration, excluding pilot seats, does not exceed 19 seats; or
(ii) (The SFAR proposed in this notice).

3. By redesignating § 135.399 as § 135.399(a) and by adding a new § 135.399(b) to read as follows:

§ 135.399 Small nontransport category airplanes performance operating limitations.

• • • • •

(b) No person may operate an airplane that is certificated under § 135.169(b)(5) unless that person complies with the landing limitations prescribed in §§ 135.385 and 135.387 of this part.

(Secs. 313(a), 601, 603, and 604, Federal Aviation Act of 1958 (49 U.S.C. 1354(a), 1421, 1423, and 1424); Sec. 6(c), Department of Transportation Act (49 U.S.C. 1655(c)); and 14 CFR 11.45.)

NOTE.—The FAA has determined that this document involves a proposed regulation which is not considered to be significant under the procedures and criteria prescribed by Executive Order 12044 and as implemented by interim Department of Transportation guidelines (43 FR 9582; March 8, 1978).

Issued in Washington, D.C. on September 26, 1978.

T. A. FERRARESE,
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