

Federal Aviation Administration – [Regulations and Policies](#)
Aviation Rulemaking Advisory Committee

Occupant Safety Issue Area
Cabin Safety Harmonization Working Group
Task 7 – Emergency Egress Markings

Task Assignment

[Federal Register: November 26, 1999 (Volume 64, Number 227)]
[Notices]
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DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

Aviation Rulemaking Advisory Committee; Transport Airplane and
Engine Issues--New and Revised Tasks

AGENCY: Federal Aviation Administration (**FAA**), DOT.

ACTION: Notice of new and revised task assignments for the Aviation
Rulemaking Advisory Committee (ARAC).

SUMMARY: Notice is given of new tasks assigned to and accepted by the
Aviation Rulemaking Advisory Committee (ARAC) and of revisions to a
number of existing tasks. This notice informs the public of the
activities of ARAC.

FOR FURTHER INFORMATION CONTACT: Dorenda Baker, Transport Airplane
Directorate, Aircraft Certification Service (ANM-110), 1601 Lind
Avenue, SW., Renton, WA 98055; phone (425) 227-2109; fax (425) 227-
1320.

SUPPLEMENTARY INFORMATION:

Background

The **FAA** has established an Aviation Rulemaking Advisory Committee
to provide advice and recommendations to the **FAA** Administrator, through
the Associate Administrator for Regulation and Certification, on the
full range of the **FAA**'s rulemaking activities with respect to aviation-
related issues. This includes obtaining advice and recommendations on
the **FAA**'s commitment to harmonize its Federal Aviation Regulations
(FAR) and practices with its trading partners in Europe and Canada.

One area ARAC deals with is transport airplane and engine issues.
These issues involve the airworthiness standards for transport category

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airplanes and engines in 14 CFR parts 25, 33, and 35 and parallel
provisions in 14 CFR parts 121 and 135. The corresponding Canadian
standards are contained in Parts V, VI, and VII of the Canadian
Aviation Regulations. The corresponding European standards are
contained in Joint Aviation Requirements (JAR) 25, JAR-E, JAR-P, JAR-
OPS-Part 1, and JAR-26.

As proposed by the U.S. and European aviation industry, and as

agreed between the Federal Aviation Administration (**FAA**) and the European Joint Aviation Authorities (JAA), an accelerated process to reach harmonization has been adopted. This process is based on two procedures:

(1) Accepting the more stringent of the regulations in Title 14 of the Code of Federal Regulations (FAR), Part 25, and the Joint Airworthiness Requirements (JAR); and

(2) Assigning approximately 41 already-tasked significant regulatory differences (SRD), and certain additional part 25 regulatory differences, to one of three categories:

<bullet> Category 1--Envelope

<bullet> Category 2--Completed or near complete

<bullet> Category 3--Harmonize

The Revised Tasks

ARAC will review the rules identified in the ``FAR/JAR 25 Differences List,' ' dated June 30, 1999, and identify changes to the regulations necessary to harmonize part 25 and JAR 25. ARAC will submit a technical report on each rule. Each report will include the cost information that has been requested by the **FAA**. The tasks currently underway in ARAC to harmonize the listed rules are superseded by this tasking.

New Tasks

The **FAA** has submitted a number of new tasks for the Aviation Rulemaking Advisory Committee (ARAC), Transport Airplane and Engine Issues. As agreed by ARAC, these tasks will be accomplished by existing harmonization working groups. The tasks are regulatory differences identified in the above-referenced differences list as Rule type = P-SRD.

New Working Group

In addition to the above new tasks, a newly established Cabin Safety Harmonization Working Group will review several FAR/JAR paragraphs as follows:

ARAC will review the following rules and identify changes to the regulations necessary to harmonize part 25 and JAR:

- (1) Section 25.787;
- (2) Section 25.791(a) to (d);
- (3) Section 25.810;
- (4) Section 25.811;
- (5) Section 25.819; and
- (6) Section 25.813(c).

ARAC will submit a technical report on each rule. Each report will include the cost information that has been requested by the **FAA**.

The Cabin Safety Harmonization Working Group would be expected to complete its work for the first five items (identified as Category 1 or 2) before completing item 6 (identified as Category 3).

Schedule

Within 120 days of tasking/retasking:

<bullet> For Category 1 tasks, ARAC submits the Working Groups' technical reports to the **FAA** to initiate drafting of proposed rulemaking documents.

<bullet> For Category 2 tasks, ARAC submits technical reports, including already developed draft rules and/or advisory materials, to the **FAA** to complete legal review, economic analysis, coordination, and issuance.

June 2000: For Category 3 tasks, ARAC submits technical reports including draft rules and/or advisory materials to the **FAA** to complete legal review, economic analysis, coordination, and issuance.

ARAC Acceptance of Tasks

ARAC has accepted the new tasks and has chosen to assign all but one of them to existing harmonization working groups. A new Cabin Safety Harmonization Working Group will be formed to complete the remaining tasks. The working groups serve as staff to ARAC to assist ARAC in the analysis of the assigned tasks. Working group recommendations must be reviewed and approved by ARAC. If ARAC accepts a working group's recommendations, it forwards them to the **FAA** and ARAC recommendations.

Working Group Activity

All working groups are expected to comply with the procedures adopted by ARAC. As part of the procedures, the working groups are expected to accomplish the following:

1. Document their decisions and discuss areas of disagreement, including options, in a report. A report can be used both for the enveloping and for the harmonization processes.
2. If requested by the **FAA**, provide support for disposition of the comments received in response to the NPRM or review the **FAA**'s prepared disposition of comments. If support is requested, the Working Group will review comments/disposition and prepare a report documenting their recommendations, agreement, or disagreement. This report will be submitted by ARAC back to the **FAA**.
3. Provide a status report at each meeting of ARAC held to consider Transport Airplane and Engine Issues.

Participation in the Working Groups

Membership on existing working groups will remain the same, with the formation of subtask groups, if appropriate. The Cabin Safety Harmonization Working Group will be composed of technical experts having an interest in the assigned task. A working group member need not be a representative of a member of the full committee.

An individual who has expertise in the subject matter and wishes to become a member of the Cabin Safety Harmonization Working Group should write to the person listed under the caption FOR FURTHER INFORMATION CONTACT expressing that desire, describing his or her interest in the tasks, and stating the expertise he or she would bring to the working group. All requests to participate must be received no later than December 30, 1999. The requests will be reviewed by the assistant chair, the assistant executive director, and the working group chair, and the individuals will be advised whether or not the request can be accommodated.

Individuals chosen for membership on the Cabin Safety Harmonization Working Group will be expected to represent their aviation community segment and participate actively in the working group (e.g., attend all meetings, provide written comments when requested to do so, etc.). They also will be expected to devote the resources necessary to ensure the ability of the working group to meet any assigned deadline(s). Members are expected to keep their management chain advised of working group activities and decisions to ensure that the agreed technical solutions do not conflict with their sponsoring organization's position when the subject being negotiated is presented to ARAC for a vote.

Once the working group has begun deliberations, members will not be added or substituted without the approval of the assistant chair, the assistant executive director, and the working group chair.

The Secretary of Transportation has determined that the formation and use of ARAC are necessary and in the public interest in connection with the performance of duties imposed on the **FAA** by law.

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Meetings of ARAC will be open to the public. Meetings of the working groups will not be open to the public, except to the extent that individuals with an interest and expertise are selected to participate. No public announcement of working group meetings will be made.

Issued in Washington, DC, on November 19, 1999.
Anthony F. Fazio,
Executive Director, Aviation Rulemaking Advisory Committee.
[FR Doc. 99-30774 Filed 11-24-99; 8:45 am]
BILLING CODE 4910-13-M

Recommendation

ARAC CSHWG Report
FAR/JAR 25.811 (Category 1 Item)

1 - What is underlying safety issue addressed by the FAR/JAR? [Explain the underlying safety rationale for the requirement. Why does the requirement exist?]

- The ability of aircraft occupants to locate and expediently/correctly operate emergency exits, by the application of design criteria regarding exit locating signs in the cabin, and both interior and exterior exit markings, including the means of operation.

2 - What are the current FAR and JAR standards? [Reproduce the FAR and JAR rules text as indicated below.]

Current FAR text: § 25.811 Emergency exit markings

- (a) Each passenger emergency exit, its means of access, and its means of opening must be conspicuously marked.
- (b) The identity and location of each passenger emergency exit must be recognizable from a distance equal to the width of the cabin.
- (c) Means must be provided to assist the occupants in locating the exits in conditions of dense smoke.
- (d) The location of each passenger emergency exit must be indicated by a sign visible to occupants approaching along the main passenger aisle (or aisles). There must be:
 - (1) A passenger emergency exit locator sign above the aisle (or aisles) near each passenger emergency exit, or at another overhead location if it is more practical because of low headroom, except that one sign may serve more than one exit if each exit can be seen readily from the sign;
 - (2) A passenger emergency exit marking sign next to each passenger emergency exit, except that one sign may serve two such exits if they both can be seen readily from the sign; and
 - (3) A sign on each bulkhead or divider that prevents fore and aft vision along the passenger cabin to indicate emergency exits beyond and obscured by the bulkhead or divider, except that if this is not possible the sign may be placed at another appropriate location.
- (e) The location of the operating handle and instructions for opening exits from the inside of the airplane must be shown in the following manner:
 - (1) Each passenger emergency exit must have, on or near the exit, a marking that is readable from a distance of 30 inches.

(2) Each Type A, Type B, Type C or Type I passenger emergency exit operating handle must--

(i) Be self-illuminated with an initial brightness of at least 160 microlamberts; or

(ii) Be conspicuously located and well illuminated by the emergency lighting even in conditions of occupant crowding at the exit.

(3) Reserved

(4) Each Type A, Type B, Type C, Type I, and Type II passenger emergency exit with a locking mechanism released by rotary motion of the handle must be marked--

(i) With a red arrow, with a shaft at least three-fourths of an inch wide and a head twice the width of the shaft, extending along at least 70 degrees of arc at a radius approximately equal to three-fourths of the handle length.

(ii) So that the centerline of the exit handle is within 1 inch of the projected point of the arrow when the handle has reached full travel and has released the locking mechanism, and

(iii) With the word "open" in red letters 1 inch high, placed horizontally near the head of the arrow.

(f) Each emergency exit that is required to be openable from the outside, and its means of opening, must be marked on the outside of the airplane. In addition, the following apply:

(1) The outside marking for each passenger emergency exit in the side of the fuselage must include a 2-inch colored band outlining the exit.

(2) Each outside marking including the band, must have color contrast to be readily distinguishable from the surrounding fuselage surface. The contrast must be such that if the reflectance of the darker color is 15 percent or less, the reflectance of the lighter color must be at least 45 percent. "Reflectance" is the ratio of the luminous flux reflected by a body to the luminous flux it receives. When the reflectance of the darker color is greater than 15 percent, at least a 30-percent difference between its reflectance and the reflectance of the lighter color must be provided.

(3) In the case of exits other than those in the side of the fuselage, such as ventral or tailcone exits, the external means of opening, including instructions if applicable, must be conspicuously marked in red, or bright chrome yellow if the background color is such that red is inconspicuous. When the opening means is located on only one side of the fuselage, a conspicuous marking to that effect must be provided on the other side.

(g) Each sign required by paragraph (d) of this section may use the word "exit" in its legend in place of the term "emergency exit".

Current JAR text: **JAR 25.811 Emergency exit marking**

(a) Each passenger emergency exit, its means of access, and its means of opening must be conspicuously marked.

(b) The identity and location of each passenger emergency exit must be recognizable from a distance equal to the width of the cabin.

(c) Means must be provided to assist the occupants in locating the exits in conditions of dense smoke.

(d) The location of each passenger emergency exit must be indicated by a sign visible to occupants approaching along the main passenger aisle (or aisles). There must be-

(1) A passenger emergency exit locator sign above the aisle (or aisles) near each passenger emergency exit, or at another overhead location if it is more practical because of low headroom, except that one sign may serve more than one exit if each exit can be seen readily from the sign;

(2) A passenger emergency exit marking sign next to each passenger emergency exit, except that one sign may serve two such exits if they both can be seen readily from the sign; and

(3) A sign on each bulkhead or divider that prevents fore and aft vision along the passenger cabin to indicate emergency exits beyond and obscured by the bulkhead or divider, except that if this is not possible the sign may be placed at another appropriate location.

(e) The location of the operating handle and instructions for opening exits from the inside of the aeroplane must be shown in the following manner:

(1) Each passenger emergency exit must have, on or near the exit, a marking that is readable from a distance of 30 inches.

(2) Each passenger emergency exit operating handle and the cover removal instructions, if the operating handle is covered, must -

(i) Be self-illuminated with an initial brightness of at least 160 microlamberts; or

(ii) Be conspicuously located and well illuminated by the emergency lighting even in conditions of occupant crowding at the exit.

(3) Reserved

(4) All Type II and larger passenger emergency exits with a locking mechanism released by motion of a handle must be marked by a red arrow with a shaft at least three quarters of an inch (19 mm) wide, adjacent to the handle, that indicates the full extent and direction of the unlocking motion required. The word OPEN must be horizontally situated adjacent to the arrow head and must be red capital letters at least 1 inch (25 mm) high. The arrow and word OPEN must be located on a background which provides adequate contrast. (See ACJ 25.811(e)(4).)

(f) Each emergency exit that is required to be openable from the outside, and its means of opening, must be marked on the outside of the aeroplane. In addition, the following apply:

(1) The outside marking for each passenger emergency exit in the side of the fuselage must include a 2-inch coloured band outlining the exit.

(2) Each outside marking including the band, must have colour contrast to be readily distinguishable from the surrounding fuselage surface. The contrast must be such that if the reflectance of the darker color is 15 % or less, the reflectance of the lighter colour must be at least 45 %. "Reflectance" is the ratio of the luminous flux reflected by a body to the luminous flux it receives. When the reflectance of the darker colour is greater than 15 %, at least a 30% difference between its reflectance and the reflectance of the lighter colour must be provided.

(3) In the case of exits other than those in the side of the fuselage, such as ventral or tailcone exits, the external means of opening, including instructions if applicable, must be conspicuously marked in red, or bright chrome yellow if the background colour is such that red is inconspicuous. When the opening means is located on only one side of the fuselage, a conspicuous marking to that effect must be provided on the other side.

(g) Each sign required by sub-paragraph (d) of this paragraph may use the word "exit" in its legend in place of the term "emergency exit".

3 - What are the differences in the standards and what do these differences result in?: [Explain the differences in the standards, and what these differences result in relative to (as applicable) design features/capability, safety margins, cost, stringency, etc.]

The FAR limits the need to have the operating handle to be illuminated, to Type I and larger exits, whereas the JAR requires all exit operating handles regardless of type of exit, and any operating handle cover removal instruction (if cover is fitted), to be illuminated.

There are also several differences between the JAR and the FAR regarding the arrows that are used to indicate the rotary motion of the Type II and larger exits operating

handles; these include size of the arrow head, length of the arrow, location of the arrow, and the color/capitalization requirements for word “OPEN”.

4 - What, if any, are the differences in the means of compliance? [Provide a brief explanation of any differences in the compliance criteria or methodology, including any differences in either criteria, methodology, or application that result in a difference in stringency between the standards.]

- None.

5 – What is the proposed action? [Is the proposed action to harmonize on one of the two standards, a mixture of the two standards, propose a new standard, or to take some other action? Explain what action is being proposed (not the regulatory text, but the underlying rationale) and why that direction was chosen.]

- Modify the FAR and the JAR as follows:

FAR:

- 1) Require illumination of the operating handle and operating handle cover removal instructions for all exits regardless of type; this will improve the visibility of the operating cover removal instructions and the operating handle visibility for Type II , Type III and Type IV exits.
- 2) Require the arrow used to mark the motion of the operating handle on Type A, B, C, I and II exits to be located adjacent to the operating handle, and to extend through the full range of the travel of the handle, and require the word “OPEN” to be rendered in capital letters and on a background that provides adequate contrast for ease of reading.

JAR:

Require that the head of the arrow be twice the width of the shaft, to improve visibility of the arrow head.

6 - What should the harmonized standard be? [Insert the proposed text of the harmonized standard here]

- *FAR/JAR modified to reflect:*

FAR 25.811(e)(2): Each passenger emergency exit operating handle and the cover removal instructions, if the operating handle is covered, must –

FAR/JAR 25.811(e)(4): All Type A, B, C, I and II passenger emergency exits with a locking mechanism released by motion of a handle must be marked by a red arrow with a shaft at least three quarters of an inch (19 mm) wide and a head twice the width of the shaft, adjacent to the handle, that indicates the full extent and direction of the unlocking motion required. The word “OPEN” must be horizontally situated adjacent to the arrow head and must be red capital letters at least 1 inch (25 mm) high. The arrow and word “OPEN” must be located on a background which provides adequate contrast.

FAR 25.811(e)(4)(i), (ii) and (iii): *deleted*

7 - How does this proposed standard address the underlying safety issue (identified under #1)? [Explain how the proposed standard ensures that the underlying safety issue is taken care of.]

- By implementing a requirement regarding illumination, which will enhance the likelihood of expedient location/activation of the exit by improving the visibility of the exit operation handles and operation handle cover removal instructions.

- By implementing requirements regarding arrows and markings for the exits, which will increase the likelihood of proper and expedient operation.

8 - Relative to the current FAR, does the proposed standard increase, decrease, or maintain the same level of safety? Explain. [Explain how each element of the proposed change to the standards affects the level of safety relative to the current FAR. It is possible that some portions of the proposal may reduce the level of safety even though the proposal as a whole may increase the level of safety.]

- Increases the overall level of safety by:
 - a. expanding applicability to smaller than Type II exits
 - b. improving the visibility of the exit operation handles and operation handle cover removal instructions.
 - c. increasing the likelihood of proper and expedient operation of the exit.

9 - Relative to current industry practice, does the proposed standard increase, decrease, or maintain the same level of safety? Explain. [Since industry practice may be different than what is required by the FAR (e.g., general industry practice may be more restrictive), explain how each element of the proposed change to the standards affects the level of safety relative to current industry practice. Explain whether current industry practice is in compliance with the proposed standard.]

- Increases the level of safety for airplanes certificated to the FAR minimum requirements.
- See response to question number 8 above.

10 - What other options have been considered and why were they not selected?: [Explain what other options were considered, and why they were not selected (e.g., cost/benefit, unacceptable decrease in the level of safety, lack of consensus, etc.)]

- None

11 - Who would be affected by the proposed change? [Identify the parties that would be materially affected by the rule change – airplane manufacturers, airplane operators, etc.]

- Airplane manufacturers and modifiers.

12 - To ensure harmonization, what current advisory material (e.g., ACJ, AMJ, AC, policy letters) needs to be included in the rule text or preamble ? [Does the existing advisory material include

substantive requirements that should be contained in the regulation? This may occur because the regulation itself is vague, or if the advisory material is interpreted as providing the only acceptable means of compliance.]

- ACJ 25.811(e)(4) interpretive material (reference figures 1 and 2) needs to be included in the preamble or rule text of the FAR amendment.

13 - Is existing FAA advisory material adequate? If not, what advisory material should be adopted? [Indicate whether the existing advisory material (if any) is adequate. If the current advisory material is not adequate, indicate whether the existing material should be revised, or new material provided. Also, either insert the text of the proposed advisory material here, or summarize the information it will contain, and indicate what form it will be in (e.g., Advisory Circular, policy, Order, etc.)]

- Yes.

14 - How does the proposed standard compare to the current ICAO standard? [Indicate whether the proposed standard complies with or does not comply with the applicable ICAO standards (if any)]

- No specific ICAO standard exists relative to this regulation.

15 - Does the proposed standard affect other HWG's? [Indicate whether the proposed standard should be reviewed by other harmonization working groups and why.]

- Not to this WG's knowledge.

16 - What is the cost impact of complying with the proposed standard? [Please provide information that will assist in estimating the change in cost (either positive or negative) of the proposed rule. For example, if new tests or designs are required, what is known with respect to the testing or engineering costs? If new equipment is required, what can be reported relative to purchase, installation, and maintenance costs? In contrast, if the proposed rule relieves industry of testing or other costs, please provide any known estimate of costs.]

There are apparent administrative savings for the relevant Airworthiness Authorities and indirect for the general public which are associated with harmonization. The industry has an initial administrative burden associated with adaption to the relevant certification procedures, e.g. the need to review certification documents and standard publications and adapt necessary changes.

The industry would estimate the cost burden being at a neutral level for the harmonization of this paragraph.

17 - Does the HWG want to review the draft NPRM at "Phase 4" prior to publication in the Federal Register?

- Yes.

18 - In light of the information provided in this report, does the HWG consider that the "Fast Track" process is appropriate for this rulemaking project, or is the project too complex or

controversial for the Fast Track Process. Explain. [A negative answer to this question will prompt the FAA to pull the project out of the Fast Track process and forward the issues to the FAA's Rulemaking Management Council for consideration as a "significant" project.]

- Yes. Technical agreement has been achieved after two meetings.

EXAMPLE MARKING FOR INDICATION OF LINEAR OPENING MOTION

Where practical and unambiguous, arrow point and base of arrow shaft to be within ± 25 mm (1 inch) of fully unlocked and fully locked positions respectively

DIMENSIONS

- A = 19 mm (0.75") minimum
- B = 2 x A
- C = B (recommended)
- D = Indicative of the full extent of handle travel

(each installation to be individually assessed)

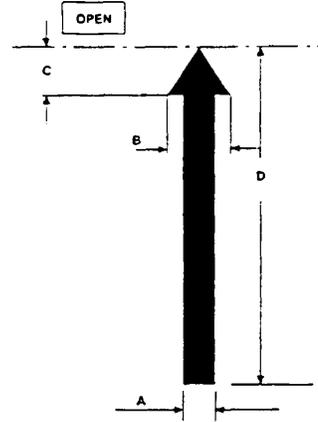


FIGURE 1

EXAMPLE MARKING FOR INDICATION OF ROTARY OPENING MOTION

Arrow point and base of arrow shaft to be within 25 mm (1 inch) of fully unlocked and fully locked positions respectively

DIMENSIONS

- A = 19 mm (0.75") minimum
- B = 2 x A
- C = B (recommended)
- D = Full extent of handle centerline travel
- E = Three quarters (3/4) of handle length (where practicable)

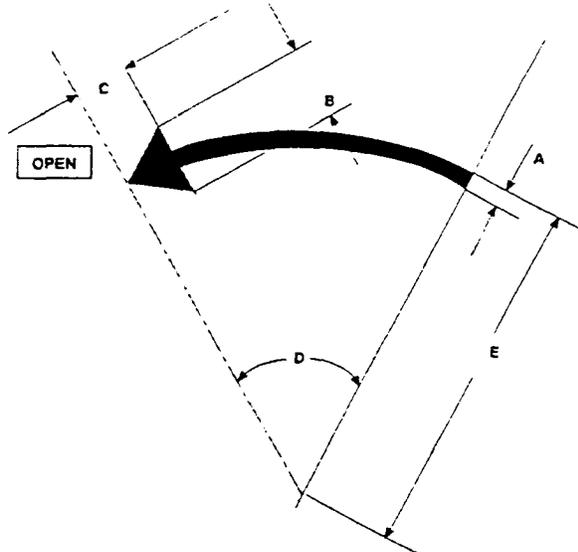


FIGURE 2

FAA Action – Not Available