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Federal Register

Part II

**Department of
Transportation**

Federal Aviation Administration

**14 CFR Parts 108 and 129
Use of X-Ray Systems; Final Rule**

DEPARTMENT OF TRANSPORTATION**Federal Aviation Administration****14 CFR Parts 103 and 129**

[Docket No. 24115; Amdt. Nos. 108-1 and 129-13]

Use of X-Ray Systems

AGENCY: Federal Aviation Administration (FAA), DOT.

ACTION: Final rule.

SUMMARY: This amendment revises the language of signs required to be posted in a conspicuous place that notify passengers that an X-ray system is being used to inspect carry-on baggage in accordance with required security programs. It also adopts a new standard for testing the effectiveness of these X-ray systems. A more realistic standard will result with the adoption of the revisions, one that will enhance overall security by requiring the X-ray systems to comply with a more realistic imaging standard and at the same time protect film and photographic materials.

DATES: Effective July 22, 1985.

The incorporation by reference of American Society of Testing and Materials Standard F792-82 listed in the regulations is approved by the Director of the Federal Register as of July 22, 1985.

FOR FURTHER INFORMATION CONTACT: Mr. Theofolus P. Tsacoumis, Aviation Security Division (ACS-160), Office of Civil Aviation Security, Federal Aviation Administration, 800 Independence Avenue SW., Washington, D.C. 20591, telephone (202) 426-4817.

SUPPLEMENTARY INFORMATION:**Background**

On May 22, 1984, the Federal Aviation Administration (FAA) issued notice of proposed rulemaking (NPRM) No. 84-8 (49 FR 24974; June 18, 1984) pertaining to the use of X-ray systems by domestic, flag, and foreign air carriers and by commercial operators of large aircraft engaging in common carriage. This notice proposed the revision of the language of signs that notify passengers that an X-ray system is being used to inspect carry-on baggage in accordance with required security programs. The NPRM recommended that the signs be changed to read "Remove x-ray, scientific, and high-speed film." The notice also proposed the adoption of a new standard for testing the effectiveness of X-ray systems. The new standard uses a step wedge specified in American Society of Testing and Materials (ASTM) Standard F792-82. In

addition, the notice proposed to extend the rule to cover X-ray systems that are used to process checked baggage. Also proposed was a correction to an editorial error in § 108.17(a)(4) in that the dosimeter provided to each operator is a "personnel" dosimeter, not a "personal" dosimeter. Noticed 84-8 solicited comments with respect to these proposals. Comments were also requested concerning any increase in the number of searches by hand that might occur and any other burden that might be caused by this proposal.

Discussion of Comments

In response to Notice 84-8, 12 written and one telephonic comment were received. One manufacturer comments that a sign should be posted advising passengers to remove all X-ray, scientific, and high-speed film from either their carry-on or checked baggage before inspection only if the X-ray system exposes any such item to more than .01 milliroentgen (mR) per inspection. Another manufacturer states that since a majority of X-ray systems used at domestic air terminals at present are scanning-type systems, the rule, as adopted, should state that any X-ray system that can demonstrate that a maximum of not more than 0.15 mR is required per inspection, while meeting all other requirements of the proposed rule, will be permitted to display signs suggesting the removal of X-ray and scientific film only, and that the high-speed film removal language will be deleted. This manufacturer also recommends that the proposed rule be modified so that any scanning-type X-ray system currently in use but unable to meet the imaging requirements of the step wedge specified in ASTM Standard F792-82 will be modified so as to meet the imaging requirements or be removed from service.

Another manufacturer expresses concern that requiring advice on signs to "remove X-ray, scientific, and high-speed film" would cause the certificate holders undue hardship. In addition, this manufacturer states that the FAA should distribute or sell the required step wedge to the certificate holders since they believed that a competitor would have an unfair advantage.

One film manufacturer, while expressing gratitude for the positive steps and concern demonstrated by the FAA relative to high-speed film, recommends development of a new sign that is larger and contains bigger and bolder lettering for prominent placement in the entranceways to airport X-ray screening checkpoints. The commenter also recommends development of a special warning decal which would be

placed on all X-ray systems in bold, 2-inch-high lettering to state "Remove all X-ray, scientific, and high-speed film (ISO 1000 or higher) from baggage." In addition, the commenter requests that all airport X-ray inspectors verbally ask travelers to remove high-speed film from their baggage. A committee of photographers endorses the comments of this film manufacturer. In addition, the commenter submitted the following recommendations: (1) Checkpoint operator training: Have inspectors ask if travelers are carrying high-speed film and have them advise travelers that they should remove any film from hand luggage before passing through X-ray checkpoints if they are going through more than one airport; (2) Public education program: Inform travelers that X-ray screening can damage high-speed film and have airlines provide a ticket stuffer telling passengers about X-ray damage to film or disseminate information through travel agencies; and (3) FAA develop a better sign with large, bold lettering.

The FAA has determined that the proposed requirement to advise passengers to remove all X-ray, scientific, and high-speed film from carry-on and checked articles prior to X-ray inspection (without regard to radiation levels) and to remove all film from carry-on and checked articles in the event radiation exposure exceeds 1 mR is adequate to protect photographic film from being adversely affected by radiation. No problems have been encountered with this requirement since the original X-ray rule became effective. Experience since "paste-on" stickers were put into use during May 1983, advising persons to remove "high-speed" film, has not revealed any substantiated incidents of damage to film as a result of its being exposed to an X-ray system utilized under §108.17 and 129.26 of the FAR. Experience has also shown that, since the "paste-on stickers" have been utilized, the additional number of hand searches caused by these signs has not created a significant burden.

In addition, signs advising passengers about X-ray inspections should be as uniform as possible. Under the current rules, all certificate holders may use an identical sign unless a carrier utilizes a system emitting more than 1 mR of radiation. In such case, passengers must be advised to remove *all* film prior to inspection rather than just X-ray, scientific, and high-speed film. Since to our knowledge all systems currently in use in the United States emit less than 1 mR and many are in the 0.15 to 0.30 mR range, virtually all certificate holders

use a standard sign supplied to them by the FAA. Even though, as indicated by one commenter, some machines may subject film to as little as .01 mR, industry concerns over damage to X-ray, scientific, and high-speed film warrant a uniform requirement for these signs.

With regard to signs, the FAA intends to study how the sign may be improved so as to properly highlight and prominently display the required information at screening stations that utilize X-ray baggage inspection systems. The FAA will consider the views of such organizations as the Air Transport Association, the American Association of Airport Executives, and the Airport Operators Council International. It is intended that a new sign will be developed that would enhance the notice now being given to the traveling public concerning their photographic equipment and film.

One individual is concerned that the requirement to inspect physically photographic equipment and film packages upon request be continued. Another individual suggests that the FAA be more specific with the term "high-speed film," while a third individual agreed with the proposal but suggested a change in language to read "Remove X-ray, scientific, and all camera film." A fourth individual commented telephonically that the FAA should not allow the use of any X-ray systems to screen baggage at airports. A municipality suggests that scientific and high-speed film with an ASA/ISO speed of more than 400 should be removed prior to X-ray inspection.

The FAA has determined that film speeds with an ASA/ISO reading of 400 or below are safe for X-ray inspection and need not be subjected to hand search or inspection. Therefore, it would not be appropriate to specify high-speed film as being ASA/ISO 400 and above. In addition, the FAA intends to retain the requirement that photographic equipment and film packages be physically inspected upon request. Thus, each person will determine the proper actions to be taken to safeguard his or her film.

X-ray baggage inspection systems to process carry-on baggage and items have been in use since 1973. The FAA is not aware of any specific instance of any damage to ordinary film caused by X-ray systems used in the United States that is substantiated by factual evidence. Therefore, it is not necessary to remove all camera film before X-ray examination. In addition, the FAA requires that these X-ray systems meet the Food and Drug Administration requirements specified in 21 CFR 1020.40. To our knowledge, there have

been no instances where these systems had excessive leakage or the operators received an excessive dose as measured by the dosimeters each operator is required to wear. Therefore, there is no need to remove X-ray systems from all airports.

A trade association representing many of the major film manufacturers suggests that the sign posting requirements be modified so that the signs must be posted not only in a conspicuous place, but also at or near the X-ray systems and at the checked baggage stations as well. The commenter favors adoption of ASTM Standard F792-82. Another association recommends that the term "checked articles" be used in lieu of "checked baggage" and that the FAA should allow the use of X-ray systems at any location as long as they meet the current imaging requirements. An objection was raised concerning the FAA's intention of requiring a step wedge at each station utilizing X-ray baggage inspection systems. This association concurs with the language proposed, namely "Remove X-ray, scientific, and high-speed film," and indicates that the additional number of hand searches caused by this advice had not created a significant burden. A third association suggests removing ambiguous wording such as "ordinary undeveloped film" and "high-speed film" and substituting the phrase "inspection may affect film" to properly inform the traveling public.

The FAA believes the regulation should continue to require only that the sign be "posted in a conspicuous place." It will continue to consider what locations are appropriate and so advise the air carrier. The FAA is adopting the suggestion that "checked baggage" be changed to "checked articles."

One commenter expressed concern that a step wedge would be required at each screening station. However, this is not required by the regulation. Nevertheless, since X-ray systems must meet the specified imaging requirements, it is not unreasonable to expect that carriers will want to have a step wedge at each screening station, so that FAA inspectors and airline representatives can quickly determine if the X-ray system meets these imaging requirements. It is not necessary to substitute the phrase "inspection may affect film" since, as previously stated, the FAA is not aware of any substantiated damage caused by X-ray systems.

Discussion of the Amendments

As proposed in Notice 84-8, §§ 108.17 and 129.26 are being amended to extend their application to checked baggage as

well as carry-on items since certificate holders from time to time utilize X-ray imaging systems to inspect checked baggage; to adopt the language of previously produced and distributed paste-on stickers stating "Remove X-ray, scientific, and high-speed film;" to adopt a new imaging standard; and to correct an editorial error in § 108.17(a)(4) involving the misuse of the term "personal" dosimeter. Another editorial change is being made by replacing the word "will" in § 108.17(a)(4) with "shall." This will clarify the mandatory nature of the provision and conform to language used throughout the Federal Aviation Regulations.

The FAA proposed in Notice 84-8 to establish a new imaging standard for inclusion in the airline standard security program and included such a standard as part of the proposed rule. Specificity regarding the imaging standard has been eliminated from the rule as adopted to prevent access by persons attempting to frustrate the system. The standard is being placed in the air carrier standard security program of domestic and flag air carriers. The same standard will be separately specified in a letter to foreign air carriers.

To reduce any possibility of confusion and to preclude a recurrence of past incidents, the FAA is adopting a suggestion from one of the commenters by inserting the word "individual" in front of "personnel dosimeter" in § 108.17(a)(4). This should make it clear to everyone concerned that the dosimeter must be assigned to one person and should not be given to others.

In response to several comments and to clarify the intent of the FAA, a certificate holder or a foreign air carrier will be permitted to relocate an X-ray system that does not meet the new standard, and has therefore been replaced, to a lower category airport (i.e., an airport with lower screening activity as defined in FAA Order 1650.14, Aviation Security Handbook) or as approved by the Director of Civil Aviation Security and still meet the requirements in effect prior to July 22, 1985.

Economic Impact

The amendment relating to the language content of signs at X-ray system locations has no cost impact and will save passengers the cost of damaged film; therefore, the benefits, although not easily quantifiable, exceed the costs.

The amendment relating to improved testing of X-ray systems will impose an additional cost of about \$100 per new X-

ray system for the step wedge device. In addition, the amendment will effectively prohibit the sale of used equipment that does not meet the new performance standards. About 15 percent of the 830 installed X-ray systems might not meet the new test standards, and of those about 25 percent might have been made available for sale as used equipment for up to \$10,000 per system. Therefore, the potential sales loss is estimated to be \$300,000 over a period of 5 to 10 years.

The benefits in terms of improved detection of forbidden items and the resultant reductions in hijackings and attendant casualty loss are difficult to quantify because they require estimating the number of forbidden items that would be detected by the new, but not the old, X-ray machines and the probabilities of such items being used in successful hijackings. Clearly, only one hijacking resulting in an accident need be prevented or, for that matter, only one life saved for the benefits to exceed the costs; therefore, it is the FAA's judgment that, on balance, the rule is beneficial.

There were not comments relating to the costs and benefits of these amendments.

Trade Impact

Since these amendments are applicable only to U.S. airports and both foreign and domestic manufacturers of X-ray systems will have to meet the same requirement, there is no trade impact. There were not comments relating to trade impact.

Recordkeeping/Reporting Requirements

The recordkeeping requirements contained in § 108.17 have previously been approved by the Office of Management and Budget under OMB Control Number 2120-0098.

Conclusion

This amendment does not impose requirements that would result in any significant burden on the aviation community. Airport signs already contain the proposed language. The improved X-ray systems would impose a small additional cost of about \$100 per new X-ray system, and, in some cases, replaced equipment could not be resold for aircraft baggage inspection. The additional costs are far outweighed by saving passengers the cost of damaged film, improved detection of forbidden items, and the resultant reductions in hijackings and related costs. Further, the cost of an improved X-ray system would not be incurred until a new system is installed or the old system is replaced. For these reasons, and because there are no related cost savings to small entities,

I certify that under the criteria of the Regulatory Flexibility Act, this amendment will not have a significant economic impact on a substantial number of small entities. In addition, for the same reasons, it has been determined that the amendment does not involve a major regulation under Executive Order 12291 and is not significant under DOT Regulatory Policies and Procedures (44 FR 11034; February 26, 1979). A copy of the regulatory evaluation for this action is contained in the regulatory docket. A copy of it may be obtained by contacting the person identified under the caption "FOR FURTHER INFORMATION CONTACT."

List of Subjects

14 CFR Part 108

Ammunition, Guns, Baggage, Transportation, Security measures, Aviation safety, Air transportation, Air carriers, Airports, Airplanes, Airlines, Arms and munitions, Firearms, Weapons, Law enforcement officers, Incorporation by reference.

14 CFR Part 129

Aircraft, Air carriers, Airports, Weapons, Incorporation by reference.

The Amendments

In consideration of the foregoing, §§ 108.17 and 129.26 of the Federal Aviation Regulations (14 CFR 108.17 and 129.26) are amended as follows, effective July 22, 1985.

PART 108—AIRLINE OPERATOR SECURITY

1. The authority citation for Part 108 is revised to read as follows:

Authority: Secs. 313, 315, 316, 317, 601, and 604, Federal Aviation Act of 1958, as amended (49 U.S.C. 1354, 1356, 1357, 1358, 1421, and 1424); 49 U.S.C. 106(g) (Revised, Pub. L. 97-449, January 12, 1983).

2. By amending § 108.17 by revising the introductory language of paragraph (a) and paragraphs (a)(4), (a)(5), and (e) and adding a new paragraph (g) to read as follows:

§ 108.17 Use of X-ray systems.

(a) No certificate holder may use an X-ray system within the United States to inspect carry-on or checked articles unless specifically authorized under a security program required by § 108.5 of this part or use such a system contrary to its approved security program. The Administrator authorizes certificate holders to use X-ray systems for inspecting carry-on or checked articles under an approved security program if the certificate holder shows that—

* * * * *

(4) Procedures are established to ensure that each operator of the system is provided with an individual personnel dosimeter (such as a film badge or thermoluminescent dosimeter). Each dosimeter used shall be evaluated at the end of each calendar month, and records of operator duty time and the results of dosimeter evaluations shall be maintained by the certificate holder; and

(5) The system has a capability of meeting the imaging requirements set forth in an approved Air Carrier Security Program using the step wedge specified in American Society for Testing and Materials Standard F792-82, except that a system in use prior to July 22, 1985 may meet the requirements of this paragraph in effect on July 21, 1985, in lieu of this requirement until the system is replaced. A system may be relocated to a lower category airport or as approved by the Director of Civil Aviation Security. A relocated system may meet the requirements of this paragraph in effect on July 21, 1985, in lieu of this requirement until the relocated system is replaced.

* * * * *

(e) No certificate holder may use an X-ray system to inspect carry-on or checked articles unless a sign is posted in a conspicuous place at the screening station and on the X-ray system which notifies passengers that such items are being inspected by an X-ray and advises them to remove all X-ray, scientific, and high-speed film from carry-on and checked articles before inspection. This sign shall also advise passengers that they may request that an inspection be made of their photographic equipment and film packages without exposure to an X-ray system. If the X-ray system exposes any carry-on or checked articles to more than 1 milliroentgen during the inspection, the certificate holder shall post a sign which advises passengers to remove film of all kinds from their articles before inspection. If requested by passengers, their photographic equipment and film packages shall be inspected without exposure to an X-ray system.

* * * * *

(g) The American Society for Testing and Materials Standard F792-82, "Design and Use of Ionizing Radiation Equipment for the Detection of Items Prohibited in Controlled Access Areas," described in this section is incorporated by reference herein and made a part hereof pursuant to 5 U.S.C. 552(a)(1). All persons affected by these amendments may obtain copies of the standard from the American Society for Testing and Materials, 1916 Race Street,

Philadelphia, PA 19103. In addition, a copy of the standard may be examined at the FAA Rules Docket, Docket No. 24115, 800 Independence Avenue, SW., Washington, DC, weekdays, except Federal holidays, between 8:30 a.m. and 5 p.m.

PART 129—OPERATIONS OF FOREIGN AIR CARRIERS

3. The authority citation for Part 129 is revised to read as follows:

Authority: Secs. 313(a) and 601, Federal Aviation Act of 1958, as amended (49 U.S.C. 1354(a) and 1421); 49 U.S.C. 106(g) (Revised, Pub. L. 97-449, January 12, 1983).

4. By amending § 129.26 by revising the introductory language of paragraph (a) and paragraphs (a)(4), (a)(5), and (b)(4) and adding a new paragraph (d) to read as follows:

§ 129.26 Use of X-ray systems.

(a) No foreign air carrier may use an X-ray system in the United States to inspect carry-on and checked articles unless:

* * * * *

(4) Procedures have been established to ensure that such operator of the system will be provided with an individual personnel dosimeter (such as a film badge or thermoluminescent dosimeter). Each dosimeter used will be evaluated at the end of each calendar month, and records of operator duty

time and the results of dosimeter evaluations will be maintained by the foreign air carrier; and

(5) The system has a capability of meeting the imaging requirements specified by the Administrator using the step wedge specified in American Society for Testing and Materials Standard F792-82, except that a system in use prior to July 22, 1985, may meet the requirements of this paragraph in effect on July 21, 1985, in lieu of this requirement until the system is replaced. A system may be relocated to a lower category airport or as approved by the Director of Civil Aviation Security. A relocated system may meet the requirements of this paragraph in effect on July 21, 1985, in lieu of this requirement until the relocated system is replaced.

* * * * *

(b) * * *

(4) Unless a sign is posted in a conspicuous place at the screening station and on the X-ray system which notifies passengers that carry-on and checked articles are being inspected by an X-ray system and advises them to remove all X-ray, scientific, and high-speed film from their carry-on and checked articles before inspection. This sign shall also advise passengers that they may request an inspection to be made of their photographic equipment and film packages without exposure to an X-ray system. If the X-ray system

exposes any carry-on or checked articles to more than 1 milliroentgen during the inspection, the foreign air carrier shall post a sign which advises passengers to remove film of all kinds from their articles before inspection. If requested by passengers, their photographic equipment and film packages shall be inspected without exposure to an X-ray system.

* * * * *

(d) The American Society for Testing and Materials Standard F792-82, "Design and Use of Ionizing Radiation Equipment for the Detection of Items Prohibited in Controlled Access Areas," described in this section is incorporated by reference herein and made a part hereof pursuant to 5 U.S.C. 552(a)(1). All persons affected by these amendments may obtain copies of the standard from the American Society for Testing and Materials, 1916 Race Street, Philadelphia, PA 19103. In addition, a copy of the standard may be examined at the FAA Rules Docket, Docket No. 24115, 800 Independence Avenue SW., Washington, DC, weekdays, except Federal holidays, between 8:30 a.m. and 5 p.m.

Issued in Washington, D.C., on May 28, 1985.

Donald D. Engen,
Administrator.

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