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

DEPARTMENT OF TRANSPORTATION**Federal Aviation Administration****14 CFR Parts 108 and 129**

[Docket No. 26268; Amendments 108-11, 129-23]

RIN 2120-AD13

Use of X-ray Systems**AGENCY:** Federal Aviation Administration (FAA), DOT.**ACTION:** Final rule.

SUMMARY: The FAA is amending the airplane operator security regulations by removing the exception to meeting the current X-ray imaging standard for X-ray screening systems in use prior to July 22, 1985. Each United States air carrier conducting screening under a mandatory security program will be required to use only X-ray systems that meet the current X-ray imaging standard required under its approved security program to screen carry-on and checked articles. Likewise, each foreign air carrier that lands or takes off in the United States will be required to use only X-ray screening systems that meet the current X-ray imaging standard under its accepted security program to screen carry-on and checked articles in the United States. This action is needed due to the increased sophistication of terrorist acts. The intended effect is to increase the safety of passengers and crewmembers aboard aircraft by providing an upgraded aid at airport screening points to prevent the carriage of explosives, incendiaries, or deadly or dangerous weapons.

EFFECTIVE DATE: October 24, 1991.

FOR FURTHER INFORMATION CONTACT: Max D. Payne, Civil Aviation Security Policy and Standards Division (ACP-110), Office of Civil Aviation Security, Federal Aviation Administration, 800 Independence Avenue, SW., Washington, DC 20591; telephone (202) 267-7839.

SUPPLEMENTARY INFORMATION:**Background***Statement of the Problem*

Attacks against civil aviation have increased in sophistication over the past decade. As a result, security has become an even greater concern of the aviation community. In recent years, sophisticated explosive devices have been used to damage or destroy civilian airliners resulting in the loss of many lives. The bombing of Pan American World Airways (Pan Am) Flight 103 demonstrates the continuing need to protect the safety and security of

passengers and crewmembers aboard air carriers. Eliminating any exceptions to meeting the most current X-ray imaging standard is one way to address this need, and is consistent with recommendations made by the President's Commission on Aviation Security and Terrorism. The commission's report, issued on May 15, 1990, repeatedly recommended "use of the most modern X-ray equipment." (See, for example, pages 58, 61, and 122 of the report.)

History

The FAA's present Civil Aviation Security Program, initiated in 1973, requires certain U.S. air carriers to conduct security screening to prevent or deter the carriage aboard aircraft of any explosive, incendiary, or deadly or dangerous weapon on or about any individual's person or accessible property. Part 108 of the Federal Aviation Regulations (FAR) (14 CFR part 108), which pertains to U.S. air carrier security, was promulgated in 1981 (46 FR 3782, January 15, 1981). The pertinent provisions in part 129, which govern the operations of foreign air carriers that hold a permit issued by the Civil Aeronautics Board or the Department of Transportation under section 402 of the Federal Aviation Act or that hold another appropriate economic or exemption authority issued by those entities, were promulgated in 1976 (41 FR 30106, July 22, 1976).

On November 29, 1976, the FAA promulgated new 14 CFR part 191 (41 FR 53777, December 9, 1976) establishing the requirements for withholding security information from disclosure under the Air Transportation Security Act of 1974. Air carrier security programs are documents detailing how U.S. and foreign air carriers will comply with the security requirements contained in the FAR. They contain sensitive security requirements, including specific performance criteria and operational information for X-ray systems, and are not available to the public.

On May 28, 1985, the FAA issued Amendments Nos. 108-1 and 129-13 (50 FR 25654, June 20, 1985), which established a new standard for testing the effectiveness of X-ray systems (14 CFR 108.17 and 129.26). This new standard was effective on July 22, 1985; however, it did not apply to X-ray systems in use prior to that date. In a parallel action, the FAA amended each air carrier's approved security program to include a "grandfather" provision for X-ray systems in use prior to July 22, 1985.

Related Activities

For many years, the passenger screening system has been effective in countering the threat to domestic and international civil aviation, which primarily came from hijackers. In recent years, this threat has expanded to include aircraft bombings. The bombing of Pan Am Flight 103 is a reminder that civil aviation is still vulnerable to criminal and terrorist acts.

A comprehensive review of security procedures has been conducted to determine where existing procedures may be improved and where new procedures may be warranted. On April 3, 1989, Secretary of Transportation Samuel K. Skinner announced a number of aviation security initiatives to enhance protection of travelers at airports in the United States and other countries. Significant among these initiatives was the commitment to propose the removal of grandfather provisions for older X-ray systems. To accomplish this, a Notice of Proposed Rulemaking (NPRM) was published in the *Federal Register* (55 FR 25806) on June 22, 1990. This final rule makes the changes proposed in the NPRM.

Other recent FAA security initiatives include requiring the use of explosives detection systems (EDS) and the establishment of a mandatory security directives system, both the subject of separate rulemakings that resulted in the issuance of final rules. The final rule requiring EDS was issued on August 30, 1989 (54 FR 36938, September 5, 1989). See 14 CFR 108.20. The final rule establishing the Security Directives and Information Circulars system was issued on July 6, 1989 (54 FR 28982, July 10, 1989). See 14 CFR 108.18.

Current Requirements

Currently, part 108 requires each holder of an FAA air carrier operating certificate required to conduct screening to use the procedures, facilities, and equipment described in its approved security program to prevent or deter the carriage aboard airplanes of any explosives, incendiaries, or deadly or dangerous weapons on or about each individual's person or accessible property. Part 129 requires each foreign air carrier landing or taking off in the United States to adopt and use a security program acceptable to the Administrator and designed to prevent or deter the carriage aboard airplanes of any explosive, incendiary device, or deadly or dangerous weapon on or about each individual's person or accessible property, through screening by weapon-detecting procedures or

facilities. Both parts 108 and 129 require X-ray systems used to inspect carry-on and checked articles in the United States to meet the imaging standard set by the Administrator, except that an X-ray system in use prior to July 22, 1985 may meet the requirements in effect on July 21, 1985. See 14 CFR 108.17(a)(5) and 129.26(a)(5).

Future Actions

The U.S. Government has actively supported research and development efforts in X-ray systems and the FAA has been evaluating X-ray systems on a continuing basis. The FAA recognizes that there have been significant technological advancements made in X-ray systems. Consequently, the FAA is considering a separate action proposing to amend approved air carrier security programs and accepted foreign air carrier security programs to establish a more stringent imaging standard than the current standard established in 1985.

The NPRM for this action anticipated a final determination regarding a new imaging standard prior to publication of this rule. However, the FAA is still gathering data to evaluate the technical aspects and impact of a new standard. The FAA is proceeding with this rule to address the need to protect the safety and security of passengers and crewmembers, and to implement the recommendations of the President's Commission on Aviation Security and Terrorism. Given the benefits expected to result from this rule, and the minimal costs involved, the FAA has determined that it is cost-beneficial to proceed with this rule to bring all X-ray systems up to current standards. Air carriers and foreign air carriers will be given the opportunity to comment on any proposed amendment to their security programs that would establish a new imaging standard.

As previously stated, security programs are exempt from disclosure under 14 CFR part 191. In accordance with 14 CFR 191.5, the FAA will not provide the current or any future performance criteria or detailed operational information in any document generally available to the public. The FAA has determined that disclosure of this information would be detrimental to the safety of persons traveling in air transportation or intrastate air transportation.

General Discussion

The FAA is amending part 108 to ensure that all certificate holders use only X-ray systems that meet the current imaging requirements of their approved security programs to screen carry-on and checked articles. The FAA is also

amending part 129 to require foreign air carriers who land or take off in the United States and who conduct screening under an accepted security program to use only X-ray systems that meet the current imaging requirements in their accepted security programs to screen carry-on and checked articles in the United States.

Section 108.17

Paragraph (a)(5) of this section is revised to eliminate a grandfather clause allowing for the exception of certain X-ray systems from the requirement to meet 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.

Section 129.26

Paragraph (a)(5) of this section is revised to eliminate a grandfather clause allowing for the exception of certain X-ray systems from the requirement to meet the imaging requirements set forth in an accepted air carrier security program using the step wedge specified in American Society for Testing and Materials Standard F792-82.

Discussion of Comments

The FAA received comments from three air carriers, one foreign air carrier, five crewmember organizations, and the National Transportation Safety Board. Eight commenters supported the proposed rule and two opposed it.

One commenter expressed support with the understanding that X-ray systems installed prior to July 22, 1985 could continue to be used for screening if they meet the current imaging standard. This understanding is correct. The FAA did not propose to require air carriers to replace all X-ray systems installed prior to July 22, 1985. Any X-ray system, regardless of age, may continue to be used for screening when it meets the imaging standard specified in the air carrier's approved security program.

Another supporting commenter noted that many of the older X-ray systems that do not meet the current imaging standard are located at smaller airports. A requirement to replace all of these X-ray systems at once was said to be an economic burden at stations with marginal passenger volume. A two year implementation period was suggested to gradually phase in replacement X-ray systems at larger airports before proceeding to smaller airports.

The actual schedule for replacement of X-ray systems that do not meet the current imaging standard will be

contained in amendments to each air carrier's approved security program. The FAA has notified air carriers of a proposed amendment that would require them to implement this rule. The FAA believes a six-month implementation period will provide sufficient time to order, deliver, and install replacement X-ray units at any airport in the United States. To permit a longer implementation period would significantly detract from the FAA's goal of achieving a uniform imaging standard as soon as possible. The amendment to the carriers' approved security programs will provide an implementation period that ends six months after the effective date of this final rule.

The regulatory evaluation included in this rule has identified the net cost of this rule as only \$1,380 per replacement X-ray system. Therefore, the FAA does not believe that this rule will impose undue economic hardship on carriers operating out of smaller airports. Further, this rule does not require the use of an X-ray system to inspect carry-on and checked articles. Air carriers may physically inspect all such articles to comply with their approved security programs.

The application of the rule to X-ray systems used by foreign air carriers for flights to the United States was opposed by one commenter. The comment expressed the view that if a State wishes to implement enhancements to security measures for flights to that State from another State the appropriate procedure is to request the foreign State to establish the desired standard. Sections 108.17(a) and 129.26(a) both apply only to "an X-ray system within the United States". This rule does not change that application to include X-ray systems at foreign airports.

One commenter opposed the proposed rule as unnecessary and unjustified at smaller airports, arguing that X-ray systems that do not meet the current imaging standard should continue to be used with more physical searches to clear items that cannot be identified by the X-ray operator. The commenter said it might be appropriate to require a higher imaging standard at larger airports.

The FAA does not agree that a clearly outdated imaging standard is acceptable even at smaller airports. If physical searches are not used exclusively, the decision to conduct a physical search is made by the X-ray system operator viewing the X-ray image. The ability of the operator to recognize a potential explosive, incendiary, or deadly or dangerous weapon is dependent upon the imaging capability of the X-ray

system. The intent of this rule is to increase the safety of passengers and crewmembers by providing a better image to the operator and increasing the probability that weapons, explosives, and incendiaries will be detected.

Paperwork Reduction Act

In accordance with the Paperwork Reduction Act of 1980 (Pub. L. 96-511), there are no collection of information requirements associated with this rule.

Regulatory Evaluation Summary

Introduction

This section summarizes a full regulatory evaluation prepared by the FAA that provides detailed estimates of the economic consequences of this regulatory action. The full evaluation quantifies, to the extent practicable, estimated costs to the private sector, consumers, Federal, State and local governments, as well as anticipated benefits and impacts.

Executive Order 12291 dated February 17, 1981, directs Federal agencies to promulgate new regulations or modify existing regulations only if potential benefits to society for each regulatory change outweigh potential costs. The order also requires the preparation of a Regulatory Impact Analysis of all "major" rules except those responding to emergency situations or other narrowly defined exigencies. A "major" rule is one that is likely to result in an annual effect on the economy of \$100 million or more, a major increase in consumer costs, or a significant adverse effect on competition.

The FAA has determined that this rule is not "major" as defined in the Executive Order; therefore a regulatory analysis, which includes the identification and evaluation of cost-reducing alternatives to the rule, has not been performed. Instead, the FAA has prepared a regulatory evaluation of just this rule without identifying alternatives. In addition to a summary of the regulatory evaluation, this section also contains a regulatory flexibility determination required by the 1980 Regulatory Flexibility Act (Pub.L. 96-354) and an international trade impact assessment. If more detailed economic information is desired than is contained in this summary, the reader is referred to the full regulatory evaluation contained in the docket.

Costs

The FAA estimates there are 114 U.S. air carrier and two foreign air carrier X-ray systems currently in service in the United States that are incapable of meeting current imaging requirements

using the step wedge as specified in American Society for Testing and Materials Standard F792-82. These requirements have been in effect since July 1985. (In the NPRM published in 1990, the FAA estimated there were approximately 170 U.S. carrier and 2 foreign carrier X-ray systems in use in 1989 that did not meet this standard. Because some time has elapsed since this survey was completed, the FAA estimates that 56 of the U.S. systems have been retired since then.) Such systems will no longer be acceptable for airport security purposes under this amended regulation and the parallel amendment of the carriers' approved security programs. Thus, air carriers must phase in acquisition of new systems within six months after the regulation's effective date, as will be provided in the security program amendment.

Even in the absence of this rule, the 116 systems will have to be replaced once they reach the end of their useful lives. According to one manufacturer of X-ray systems, these units have a life expectancy of approximately eight to ten years. Because carriers have been prohibited since July 1985 from purchasing additional X-ray systems that do not meet the current imaging standard, all existing systems that fail to meet the standard must be at least 5 years old now. Therefore, by assuming a 9-year average life for X-ray systems, the cost of this rule is the difference between purchasing 116 new standard X-ray systems immediately (net of salvage value for replaced systems) versus purchasing new systems over a 4-year period as the existing systems wear out.

For the purposes of this analysis, replacement system costs reflect the price of a standard black and white X-ray system used for hand-carried articles because this system is a basic model that meets the current standard. Industry sources state such systems retail for about \$32,000 each, including installation. Prices will vary, however, based on location and number of systems ordered. At \$32,000 each, 116 new systems would cost about \$3.71 million. The replaced system, which has somewhere between zero and 4 years of useful life remaining, will have some resale value for non-aviation purposes such as industrial security. The FAA estimates the current average resale value per system at \$4,000, or about \$0.46 million for the estimated 116 systems still in use. Therefore, the total immediate outlay for new X-ray systems will be \$3.71 million less \$0.46 million = \$3.25 million.

The net cost of this rule will be \$3.25 million less the discounted cost of replacing systems when they wear out. Thus, the net cost of the rule is the difference between the current replacement cost of the systems and the discounted cost of the systems if purchased at a later date. No information is readily available concerning the exact age of each existing system that will need to be replaced, or the current replacement rate of such systems. It has been assumed for this analysis that one-fourth (25) of these systems will be replaced in each of the next 4 years. The discounted cost (a 10 percent discount rate is used) of replacing these 116 systems over a 4-year period is \$3.09 million. Therefore, the net cost of this rule is \$3.25 million less \$3.09 million = \$0.16 million, or about \$1,380 per replacement X-ray system.

These costs (\$0.16 million) were calculated as of year-end 1990. The costs of this rule will decrease over time, as more X-ray systems that do not meet the current imaging standard reach the end of their useful lives and are replaced with new systems. Taking into account the time that has elapsed since these costs were calculated, plus a six-month implementation period following the rule's effective date, the actual costs of this rule will be substantially lower than stated here by the time carriers actually implement the changes mandated by the rule.

Another cost factor concerns anticipated differences in maintenance costs between the replaced systems and the replacement systems. The FAA expects their maintenance costs to be very similar, and will, therefore, not alter the above cost calculations. However, one industry representative indicated that many of the systems that will be replaced are equipped with image intensifiers that are relatively expensive, and might need replacing once a year. In comparison, technological improvements in the replacement systems have eliminated the need for image intensifiers. Therefore, it is possible that the overall costs of this rule are somewhat overstated.

Benefits

The amended regulation will make it more difficult to carry an explosive device onto domestic and international flights. Therefore, it is expected to provide an additional margin of safety and security for passengers and crew members aboard air carriers. The FAA cannot predict the number or severity of future incidents nor the number of

incidents that would be perpetrated if this rule did not go into effect. The frequency of terrorist incidents would depend on several factors such as the world-wide political climate, the skill and technical sophistication of terrorist organizations, and the success of efforts to avert these incidents.

The historical record reveals that 19 separate criminal acts and incidents of terrorism using explosives were perpetrated against U.S. air carriers between 1979 and 1988. Because the FAA expects the threat of sabotage to increase in the future, and because the X-ray systems in question have been identified as a weak link in the overall U.S. civil aviation security system, the FAA expects that substantial benefits will result from the rule.

One way to assess the benefits of this rule is to put expected costs into perspective. The total estimated cost of this rule, discounted over 4 years (the estimated remaining life of the systems to be replaced), is \$160,000. Therefore, if one life is saved sometime in the 4-year period after the rule is in effect, the cost of saving that life would be approximately \$160,000. Similarly, if one aircraft with 200 passengers is saved from destruction as a result of this rule, the cost per life saved would be only \$800.

In order to provide the public and government officials with a benchmark comparison of the expected safety benefits of rulemaking actions over an extended period of time with estimated costs in dollars, the FAA currently uses a value of \$1.5 million to represent statistically a human fatality avoided (in accordance with guidelines issued by the Office of the Secretary of Transportation dated June 22, 1990). Using a statistical value of a human life of \$1.5 million, or about \$1.25 million when discounted over 4 years, the benefits associated with saving a single life during the next 4 years would be about 7.8 times the estimated \$160,000 cost to accomplish it. Given the large difference between potential benefits and known costs, the FAA believes this rule to be cost-beneficial.

International Trade Impact

The rule will have little or no impact on trade for U.S. firms doing business overseas or for foreign firms doing business in the United States. The rule affects all carriers of U.S. registry and foreign air carriers operating scheduled passenger service or public charter passenger operations in the United States that are required to screen passengers under a security program. The expected additional annual costs should not create an economic

disadvantage to either domestic operators or foreign carriers operating in the United States.

Regulatory Flexibility Determination

The Regulatory Flexibility Act of 1980 (RFA) was enacted by Congress to ensure that small entities are not unnecessarily burdened by government regulations. The RFA requires agencies to review rules to determine whether they may have a "significant economic impact on a substantial number of small entities." The FAA's criterion for a "substantial number" is a number that is not less than 11 and that is more than one third of the small entities subject to the rule. For air carrier operators, a small entity has been defined as one who owns, but does not necessarily operate, nine aircraft or less. The FAA's criteria for "a significant impact" are at least \$4,200 per year for an unscheduled carrier, \$60,300 per year for a scheduled carrier having an airplane or airplanes with only 60 or fewer seats, and \$107,900 per year for a scheduled carrier having an airplane or airplanes with 61 or more seats.

The FAA believes that it is very unlikely that the rule will have a significant economic impact on a substantial number of small entities. This amendment has relatively low costs because the estimated cost per replacement X-ray system is only \$1,380. At least 11 of the small unscheduled carriers would have to own three or more of the X-ray systems in need of replacement for this rule to have a significant economic impact on a substantial number of small entities. The FAA believes that less than 33 of these X-ray systems are currently owned and operated by small entities. Therefore, the FAA finds that this final rule will not have a significant impact on a substantial number of small entities.

Federalism Implications

The regulations herein will not have substantial direct effects on the states, on the relationship between the national government and the states, or on the distribution of power and responsibilities among the various levels of government. Thus, in accordance with Executive Order 12612, it is determined that such a regulation does not have federalism implications warranting the preparation of a Federalism Assessment.

Conclusion

For the reasons discussed in the preamble, and based on the findings in the Regulatory Flexibility Determination and the International Trade Impact Analysis, the FAA has determined that

this final rule is not major under Executive Order 12291. In addition, the FAA certifies that this rule will not have a significant economic impact, positive or negative, on a substantial number of small entities under the criteria of the Regulatory Flexibility Act. This rule is considered significant under DOT Regulatory Policies and Procedures (44 FR 11034, February 28, 1979). A regulatory evaluation of this rule, including a Regulatory Flexibility Determination and International Trade Impact Analysis, has been placed in the docket. A copy may be obtained by contacting the person identified under "FOR FURTHER INFORMATION CONTACT."

List of Subjects

14 CFR Part 108

Air carriers, Airports, Air safety, Air transportation, Aviation safety, Baggage, Safety, Security measures, Transportation.

14 CFR Part 129

Air carriers, Airports, Weapons.

The Amendments

In consideration of the foregoing, the Federal Aviation Administration is amending parts 108 and 129 of the Federal Aviation Regulations (14 CFR parts 108 and 129) as follows:

PART 108—AIRPLANE OPERATOR SECURITY

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

Authority: 49 U.S.C. App. 1354, 1356, 1357, 1421, 1424, and 1511; 49 U.S.C. 106(g); Sec. 101 *et seq.*, Pub. L. 101-604, 104 Stat. 3066.

2. Section 108.17(a)(5) is revised to read as follows:

§ 108.17 Use of X-ray systems.

(a) * * *

(5) The system meets 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.

PART 129—OPERATIONS: FOREIGN AIR CARRIERS AND FOREIGN OPERATORS OF U.S.-REGISTERED AIRCRAFT ENGAGED IN COMMON CARRIAGE

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

Authority: 49 U.S.C. App. 1346, 1354(a), 1356, 1357, 1421, 1502, and 1511; 49 U.S.C. 106(g); Sec. 101 *et seq.*, Pub. L. 101-604, 104 Stat. 3066.

4. Section 129.26(a)(5) is revised to read as follows:

§ 129.26 Use of X-ray systems.

(a) * * *

(5) The system meets the imaging requirements set forth in an accepted Foreign Air Carrier Security Program using the step wedge specified in American Society for Testing and Materials Standard F792-82.

* * * * *

Issued in Washington, DC, on September 16, 1991.

James B. Busey,

Administrator.

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