

**DEPARTMENT OF TRANSPORTATION****Federal Aviation Administration****14 CFR Parts 23, 25, 121, and 129**

[Docket Nos. 2002–11032; 2002–12504, and 2003–15653]

RIN 2120–AI54 (Formerly 2120–AH56), –AH70, and –AH96

**Security Considerations on the Flightdeck of Transport Category Airplanes**

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

**ACTION:** Disposition of comments on final rule.

**SUMMARY:** Since the September 11, 2001 terrorist attacks, the agency has published six amendments and has held one public meeting on standards for reinforcing flightdeck doors. The FAA sought public comments for each amendment, but all six were effective immediately on publication. The agency disposed of some comments that related specifically to the reinforced door requirements in later amendments. This action disposes of the remaining comments.

**ADDRESSES:** You may review the public dockets (Docket Nos. 2002–11032, 2002–12504, and 2003–15653) in the Dockets Office between 9 a.m. and 5 p.m., Monday through Friday, except Federal holidays. The Dockets Office is on the plaza level of the Nassif Building at the Department of Transportation, Room Plaza 401, 400 Seventh Street, SW., Washington, DC 20590–0001. Also you may review the public docket on the Internet at <http://dms.dot.gov>.

**FOR FURTHER INFORMATION CONTACT:** For part 25 issues, contact Jeff Gardlin, Airframe and Cabin Safety Branch (ANM–115), Transport Airplane Directorate, Aircraft Certification Service, Federal Aviation Administration, 1601 Lind Avenue, SW., Renton, Washington 98055–4056; telephone (425) 227–2136, facsimile (425) 227–1149, e-mail: [jeff.gardlin@faa.gov](mailto:jeff.gardlin@faa.gov). For part 121, contact Joe Keenan, Air Carrier Operations Branch (AFS–220), Flight Standards Services, Federal Aviation Administration, 800 Independence Avenue, SW., Washington, DC 20591; telephone (202) 267–9579; facsimile (202) 267–5229; e-mail: [joe.keenan@faa.gov](mailto:joe.keenan@faa.gov). For part 129, contact Marlene Livack, International Programs & Policy Office (AFS–50) 800 Independence Avenue, SW., Washington, DC 20591, telephone (202)

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**SUPPLEMENTARY INFORMATION:**

**Background**

On September 11, 2001, the United States experienced terrorist attacks when aircraft were commandeered and used as weapons. These actions demonstrated a need to improve the design, operational, and procedural security of the flightdeck. On November 19, 2001, Congress enacted Public Law 107–71, the Aviation and Transportation Security Act (the Act), which specifies that improved flightdeck security must be applied to aircraft operating in passenger or intrastate air transportation. Section 104 of the Act directed the FAA to issue a final rule, without seeking public comment prior to adoption addressing the security requirement for aircraft that are currently required to have flightdeck doors.

As a result, the FAA issued a series of Special Federal Aviation Regulations (SFAR 92) and four final rules without notice, and held a public meeting.

- Special Federal Aviation Regulations (SFAR–92) (66 FR 51546, October 9, 2001; 66 FR 52835, October 17, 2001; 66 FR 58650, November 21, 2001; and 67 FR 12820, March 19, 2002; Docket No. FAA–2002–10770) first allowed, and then required, the installation of internal locking devices on the flightdeck doors.

- On January 15, 2002, we amended Title 14, Code of Federal Regulations (14 CFR) parts 25 and 121 to set new standards for flightdeck doors (Amendment Nos. 25–106 and 121–288; 67 FR 2118; Docket No. FAA–2002–11032). Section 25.795 was amended to set standards for reinforcing flightdeck doors. The new standards require them to resist forcible intrusion and ballistic penetration. Section 121.313(f) was amended to mandate installation of the reinforced doors on certain airplanes not later than April 9, 2003. The affected airplanes included transport category all-cargo airplanes operated under part 121 which had flightdeck doors installed on or after January 15, 2002.

- On June 21, 2002, the FAA amended 14 CFR part 129 to apply similar standards to foreign operators operating into the United States (Amendment No. 129–33; 67 FR 42450; Docket No. FAA–2002–12504). Section 129.28 requires installation of the reinforced door not later than April 9, 2003. The affected airplanes include transport category all-cargo airplanes operated under part 129 which had flightdeck doors installed on or after

June 21, 2002. A public meeting to address the amendment was held on July 30.

- On December 23, 2002, we amended part 129 as a result of input received from a public hearing held on July 30, 2002, and comments received as a result of the rulemaking (Amendment No. 129–36; 67FR9822; Docket No. FAA–2002–12504). The amendment clarifies the applicability of the part 129 regulations for foreign operators.

- On July 18, 2003, the FAA issued Amendment Nos. 121–299 and 129–38. These amendments provided an alternative means of compliance to operators of all-cargo airplanes that are required to have a reinforced security flightdeck door. The rule allows operators of large cargo airplanes to either install reinforced flightdeck doors or adopt enhanced security procedures approved by the Transportation Security Administration. We also changed the cargo portion of the rule to replace the April 9, 2003, compliance date with October 1, 2003, to correspond to section 355 of the Consolidated Appropriations Resolution, Public Law 108–7.

In Amendment Nos. 121–299 and 129–38, the FAA also disposed of some comments that had been received for the earlier amendments that related specifically to the reinforced door requirements. At that time, we indicated that we would respond later, in a separate document, to all other comments. This action represents that document.

**Discussion of Comments**

**Amendment Nos. 25–106/121–288 (Parts 25 and 121)**

Thirty-two commenters, representing airlines, aerospace manufacturers, a labor organization, and individuals, responded to the request for comments. Two of these commenters submitted comments directly to the FAA without entering them in the public docket because of their security-sensitive nature; their comments will not be discussed for that reason. Some comments that were submitted before the regulation and associated advisory were published (<http://www.faa.gov/regulations/>) were actually addressed in those documents. These comments address cargo operations, applying the rule more broadly, the performance standards test methods, inflight access to the flightdeck, and the availability of advisory material. Comments also address the FAA's assessment of the cost of the rule.

### Cargo Operation

Ten commenters address the need to extend the requirements for flightdeck door improvements to all-cargo operations.

- *Comment:* Commenters were divided on whether (1) the current requirements should be extended to any all-cargo airplane operating in part 121 service, or (2) the current requirements should be rescinded for all-cargo airplanes that have flightdeck doors installed and carry persons aft of the flightdeck.

*Response:* The FAA believes the proponents of each argument make many good points on an issue that is not simple. We believe that (1) all-cargo operations need to be treated consistently, and (2) improvements in security are necessary for all-cargo operations that permit the carriage of persons, whether on the flightdeck or aft of it. For reasons of security, the details surrounding all the issues will not be discussed here. However, based on all available information, the FAA adopted Amendment Nos. 121–299 and 129–38, which permit operators to adopt security programs, in lieu of installation of a reinforced flightdeck door in certain situations. Regardless of whether the operator has a flightdeck door installed on its airplanes, the operator is still subject to security requirements of the TSA and FAA. These actions were taken in coordination with the Transportation Security Administration (TSA) and are discussed further elsewhere in this document.

### Rule Applicability

Three commenters address extending the existing standards to other types of airplanes operating in part 121 service.

- *Comments:* Two commenters state that improved flightdeck doors were impractical for other than transport category airplanes, and would not have a practical impact on security in any case. They point out that many of these airplanes do not have separate flightdecks and, on those that do, the structure necessary to support a reinforced flightdeck door is not present. They note that emergency egress from these airplanes is frequently predicated on there being no obstacle between the flightdeck and emergency exits, and the installation of flightdeck door would compromise egress. Similarly, these commenters note that other airworthiness requirements (such as accommodating rapid decompression) would be very difficult to address were a flightdeck door installed where none previously existed.

- One commenter encourages adoption of similar standards for

commuter category airplanes (part 23). He argues for an equivalent approach to security for airplanes operating in commercial passenger service.

*Response:* After extensive discussion with the TSA to determine the threat/risk present and the most appropriate method of mitigation, we do not plan to extend the requirements for reinforced flightdeck doors beyond their current applicability. If additional action is needed to extend these requirements to commuter category airplanes, we will do so in separate rulemaking, and we will address any egress problems.

- *Comment:* One commenter proposes 75,000 pounds as the lower weight limit on airplanes required to comply with this requirement.

*Response:* The FAA disagrees. The proposed weight limit would exclude a large number of significant size regional jets and airplanes operating in part 121 service. As discussed in the preamble, the FAA has already established the need for a door between the flightdeck and the passenger cabin and includes airplanes less than 75,000 pounds. Certain airplanes should have flightdeck doors, and this requirement establishes performance criteria for those doors. To arbitrarily establish a weight limit for incorporation of the performance requirements would diminish the effect of the rule and reduce the overall level of safety and security.

### Performance Standards

Six commenters address the severity of the standards for intrusion and ballistic penetration resistance. These commenters state that one or both standards were not severe enough.

- *Comment:* Commenters addressing the intrusion requirements point out that there are ways to achieve higher than a 300 Joule (300J) impact, and that the existing standard might not be adequate. One commenter at the FAA public meeting on flightdeck security for foreign operators questioned the adequacy of tension load requirements and stated that the values required could easily be exceeded.

*Response:* We considered several factors in establishing the requirement at 300 Joules. Based on the comments, we revisited the standard and have concluded that it is adequate. First, the rule requires that the impact be applied on very localized areas of the door. In virtually all instances where higher than 300J could be exerted, the impact would be spread over a greater area, effectively reducing the severity of the impact locally. Second, as noted in the rule, the intent of the requirement is not to make the door impenetrable, but to significantly add to its ability to resist

an intruder, until other measures can be taken. Given the measures necessary to actually generate more than 300J, the FAA is confident that the current standard provides the level of protection necessary to satisfy the intent of the requirement and significantly upgrade security and safety.

Regarding the tension load requirement, it is possible to exert a higher force on the doorknob or handle in some cases; however, the FAA has concluded that this is not a practical concern. The installation configuration of flightdeck doors on airplanes and the basic fragility of the doorknob does not compromise the intrusion resistance of the door.

- *Comment:* One commenter suggests that the standard be modified to address a time element *i.e.*, duration of an attack.

*Response:* We expect other measures would be invoked before an intruder could sustain a prolonged attack on the door. In addition, such a requirement is not suitable as a certification standard unless a quantifiable way of measuring performance can be standardized. The FAA is unaware of any such standard and, given the severity of the impact and tension load requirements, is satisfied that the existing intrusion standard is adequate.

- *Comment:* One commenter suggests modifying the ballistic penetration standard to require testing in conditions of extreme humidity. The commenter notes that many ballistic materials can lose their performance characteristics when wet, and is concerned that issue is not being addressed.

*Response:* Prolonged exposure to very high humidity can affect ballistic performance. This is not, however, a practical concern for commercial airplanes. To the degree that humidity does vary in the airplane, it is typically very low, and any exposure to higher humidity would be for far shorter times than would be necessary to noticeably affect the performance of the material. The FAA does not plan to change the standard.

- *Comment:* One commenter objects to the language in Advisory Circular 25.795–2, which notes that protrusion of the bullet (*i.e.*, partial penetration) is acceptable, as long as no penetration occurs. The commenter suggests that bullets should not be allowed to protrude through the door.

*Response:* We do not agree. As long as no penetration of the bullet or fragments occurs, the door will have met its objective. From a certification standpoint, this is a readily achievable standard that does not require interpretation. On the other hand, a

“partial protrusion” could be interpreted in many ways and could lead to non-standardized application of the requirement, for no real gain in safety.

- *Comment:* Two commenters believe that the ballistic and intrusion requirements should be considered in combination with each other, or with other failures. These commenters believe that the standard should require, for example, that the door retain its intrusion and ballistic resistance after the airplane experiences a rapid decompression. The commenters suggest that the scenario whereby the airplane experiences a rapid decompression and is subsequently targeted for terrorist action is sufficiently likely to require regulatory action.

*Response:* We do not agree. A rapid decompression sufficient to compromise the integrity of the flightdeck door is a very severe and infrequent event. The likelihood of this event, coupled with an intruder on board, is extremely small. If the airplane experiences such rapid decompression, it is unlikely that an intruder would be able to carry out an action against the airplane because of the resultant damage that would affect the flying conditions.

Finally, the practicality of designing a door that would provide adequate venting for rapid decompression while still being intrusion and ballistically resistant is questionable at best. Satisfying decompression requirements without consideration of maintaining security proved to be a very difficult certification issue; the FAA doubts that such designs could be implemented in a timely manner, if at all. With regard to whether the intrusion and ballistic requirements should be considered in combination with each other, the FAA notes that the current requirements are focused on preventing intrusion into the flightdeck. As such, the ballistic requirements include consideration of any failure that would permit the door to be opened, in addition to the penetration resistance of the door itself. The FAA considers that this provision adequately addresses the existing fleet and will provide a high level of security. For future airplanes, the FAA will consider the need to require penetration resistance following tests for intrusion. Such a requirement would be more practical on new airplanes than for a retrofit application and, while the improvement in security is likely to be small, such designs may be more readily developed for a new design with minimal cost.

### *Emergency Access to the Flightdeck*

One commenter addresses the requirement for inflight access by flight attendants in the event the crew becomes incapacitated.

*Response:* In accordance with § 121.587(b), certificate holders are already required to have FAA-approved procedures for opening, closing, and locking the flightcrew compartment door. These procedures may include the use of an FAA certificated electronic access system. While the use of highly sophisticated systems for flightcrew compartment access is not presently required, many certificate holders have elected to use these systems voluntarily. The FAA has concluded that the current requirements are sufficiently safe as written, and no change is necessary.

### *Advisory Material*

Four commenters addressed the advisory material.

- *Comment:* One commenter that filed comments before the FAA issued the regulation and advisory materials states that language in draft advisory material reflects a product bias. He recommends that such language be changed. A trade association commenter supports this position.

- *Response:* The FAA modified the final version of the advisory material to reflect more generic language, although there was never any intended endorsement of one product type over another. No further comments on this topic were received during the comment period.

- *Comment:* Two commenters request additional advisory material. One commenter requests an advisory circular (AC) to address the access systems discussed above. The other commenter requests advisory material on minimum requirements for dispatch with regard to the performance of the flightdeck door.

*Response:* Before issuing the rule, the FAA maintained a guidance memorandum and a list of “frequently asked questions.” (See Web site at: [http://www.airweb.faa.gov/Regulatory\\_and\\_Guidance\\_Library/rgPolicy.nsf/0/324ED6824765F7E](http://www.airweb.faa.gov/Regulatory_and_Guidance_Library/rgPolicy.nsf/0/324ED6824765F7E)

[D86256E600053490F?OpenDocument](#).) This memorandum effectively serves as advisory material for the access system. The FAA will consider whether a dedicated AC is needed for the access system, however, there is no current plan for a separate AC.

The FAA has also developed a policy for use by the Flight Operations Evaluation Boards that establishes Master Minimum lists that the operators use to determine acceptable dispatch

configurations. This document is available at <http://www.opspecs.com> to all interested parties and satisfies the request for guidance.

### *Other Designs*

- *Comment:* Two commenters state that a double door arrangement, creating a chamber between the two doors outside the flightdeck should be required. One commenter proposes designs for such an arrangement, while one commenter refers to similar configurations used by a foreign airline.

*Response:* We do not agree. Using two flightdeck doors will typically magnify all other compliance issues, as discussed in the preamble. In particular, venting for rapid decompression, emergency egress, and smoke evacuation would be much more difficult to address with two doors instead of one. The principal advantage of a double door arrangement is that it separates the flightdeck from the cabin and both doors would not have to be open at the same time.

With regard to the foreign operator that has this arrangement, the FAA notes that this is a voluntary configuration that is used on only one aircraft type. In addition, that operator has experienced problems in satisfying certification requirements. While the FAA acknowledges that such designs are possible, to retrofit them into existing airplanes would be very complicated and would require a longer compliance time than is considered prudent. For new airplanes, such designs might be more feasible, and the FAA will consider whether the benefits of a double door arrangement would outweigh the costs in any future rulemaking. At this time, however, no action is planned.

### *Flightdeck Bulkhead*

- *Comment:* Two commenters propose that the bulkhead that separates the flightdeck from the passenger cabin be subject to the same standards as the flightdeck door.

*Response:* The FAA agrees and is in the process of proposing requirements to adopt the same standards into part 25 that are currently required for the flightdeck door. This requirement would apply to new type design and would not require retrofit. For the existing fleet, the flightdeck door represents the most significant security weakness. The bulkheads are typically much more substantial and contain equipment and features on the flightdeck that provide inherent protection. While it would undoubtedly be an improvement to apply the same standards to the bulkheads of airplanes

in the existing fleet, the FAA concludes that this modification would be very difficult and expensive for an incremental improvement in security. To the extent that an operator can accomplish this modification readily on a particular airplane type, the FAA would encourage it to do so.

#### *Funding*

- *Comment:* Two commenters state that, since certain cargo operators are being required to modify airplanes, they should be eligible for reimbursement from government funding.

*Response:* While not strictly relevant to this rulemaking, part 121 cargo operators were eligible for reimbursement.

#### **Amendment No. 121–299 (Part 121)**

Eight commenters responded to the final rule request for comments: four individuals, one cargo airline association, one cargo airline holding company, one U.S. cargo airline, and one foreign cargo airline. Comments generally were supportive of the rule. They addressed security procedures and screening, door installation costs, surveillance cameras, the rule compliance date, and applicability.

#### *Security Procedures and Screening*

- *Comment:* One individual suggests that security measures should be as effective and enforced as stringently for all cargo operations as they are for passenger operations and that security screening would be more effective than hardened doors.

*Response:* Security screening procedures for cargo operations are different from those used for passenger flights because of the limited number of occupants permitted on board and the airport environment into which cargo airplanes operate. This rule provides operators with an option of upgrading flightdeck doors or adopting a TSA-approved security program.

- *Comment:* One commenter recommends increasing the number of personnel that would be responsible for ensuring only authorized persons are granted access to operational areas and the aircraft. Another commenter suggests arming the pilots.

*Response:* Air cargo operators are already performing screening measures for the limited number of occupants allowed on all-cargo airplanes. Requiring a new crewmember position, such as a security guard, is beyond the scope of this rule. Arming of pilots in all-cargo operations is underway in accordance with Section 609 of Public Law 108–76.

- *Comment:* A cargo airline holding company requests the FAA provide more specificity about the nature of the security procedures. The commenter states: (1) The TSA has, in effect, nullified an FAA regulation conferring specific benefits on carriers and criticizes TSA's action as likely to erode the business opportunities for a number of carriers, create a discriminatory regulatory environment that disadvantages some carriers, and favor others; (2) the FAA should reinforce its intent by publishing a supplemental notice advising the TSA to develop security based procedures for carriers, rather than requiring reinforcing flightdeck doors; and (3) each carrier should be permitted to tailor its procedures to its particular operation.

*Response:* The FAA responds in the following manner: (1) We do not agree that the TSA security program required by this rule has nullified an FAA regulation or created a discriminatory environment within the air cargo industry; (2) while the FAA collaborates with the TSA on matters that concern both organizations, the TSA makes the final determination concerning content of security programs that are subject to their approval; and (3) the TSA-approved program contains a provision for air carriers to request alternative procedures to those specified in the program.

#### *Surveillance Cameras*

- *Comment:* Two individual commenters suggested installation of a video system or monitor that would allow the flightcrew to see an individual requesting entry onto the flightdeck. One individual commenter suggested that installation of surveillance cameras would be more cost effective than installation of a door.

*Response:* The FAA does not oppose the use of video monitoring systems.

Use of surveillance cameras implies installation of a flightdeck door, or similar barrier, if one does not already exist. The FAA did not mandate a video system in addition to a flightdeck door in this rule. Most flightdeck doors have a viewing device that permits the crew to see a person in the area outside the flightdeck door before allowing access.

#### *Compliance Date*

- *Comment:* A cargo airline states its vendor would not be able to meet the October 1, 2003, deadline and asks about options for all-cargo operators beyond the deadline date.

*Response:* For security reasons, the FAA did not extend the compliance deadline.

#### *Applicability to Fleet*

- *Comment:* A cargo airline association opposes the requirement for a TSA security program to apply to all airplanes in an operator's fleet, including those with hardened doors, if a single airplane within that fleet requires the security program. The commenter requests the FAA amend the rule to apply to an individual aircraft, rather than an entire fleet of that aircraft type.

*Response:* The FAA disagrees. The FAA rule requires a hardened door or implementation of an approved TSA security program. Under Title 49 CFR 1544, 1546, and 1550.7(b), the TSA security program requires all all-cargo operators to have a TSA-approved program applicable to every all-cargo aircraft in its fleet. Accordingly, because the FAA rule is based on the TSA security program, and the security program applies to all all-cargo aircraft in a fleet, the FAA does not intend to amend this final rule.

#### **Amendment Nos. 129–33 and –36 (Part 129)**

Thirty-seven commenters responded to the part 129 final rules and July 30 public meeting. Most commenters support the rule. Commenters included airline and pilot associations, air carriers, and individuals. They addressed security, the rule compliance date, harmonization efforts with foreign authorities, access to the cockpit, requirements for reinforced doors on all-cargo airplanes, and cost and funding.

#### *Balanced Approach to Security*

- *Comment:* One association cautions against discarding all previous procedures and solutions that served well before the September 11 terrorist attacks. The commenter recommends solving the problem on the ground by screening passengers, staff, luggage, cargo, and equipment. The commenter suggests balancing safety, security, and financial concerns proportionately so the security costs do not hinder people from flying and or the security process does not dampen their desire to fly.

*Response:* The FAA and the TSA have worked together on risk and threat assessments to determine applicability of proposed security requirements to airplane design and operation. For the last several years, we focused attention on the certification and installation of reinforced flightdeck doors. We, however, are working other security related initiatives as well. Both the FAA and the TSA expect to continue to coordinate closely to ensure a systemic approach to aviation security.

### *Coordination and Harmonization by Regulatory Authorities*

• *Comment:* Three commenters, including two associations and one operator, ask that, before introducing more legislation, the European Union, the United States, and the ICAO coordinate more with foreign governments, operators, and stakeholders, including part 129 air carriers.

One of the associations states it believes that States must work together in a cooperative manner, with input from the industry to ensure harmonized implementation of globally recognized standards.

*Response:* The FAA currently does, to a great extent, and will continue to work and coordinate with other regulatory authorities on standards and recommended practices.

### *Authority To Grant Access to the Cockpit and Operational Procedural Requirements for Locking the Door*

• *Comment:* One association suggests the need for additional training and operations procedures to include communications and a way to visually monitor the area adjacent to the cockpit door. The commenter states that the cockpit door is one of the emergency exits and that new technical procedures and solutions must not hinder the emergency operation.

*Response:* We agree and recognize that good communications and interaction between the flightcrew and cabin attendants has a positive influence on flight safety and security. A closed and locked door, however, can be a challenge to effecting good communications. Thus, the FAA currently requires training and operations procedures to include communications and a way to visually verify the identity of an individual prior to granting access to the flightdeck for U.S. airlines. The FAA also requires foreign air carriers to have procedures in place to prevent access to the flightdeck that are acceptable to the national authority having oversight.

The FAA is considering rulemaking to propose requirements for visually monitoring the area outside and adjacent to the flightdeck and for alerting the flightcrew to any suspected threats and is attempting to harmonize the proposal with other national authorities.

• *Comment:* One association states that the captain should retain final authority on when to lock the door. This same association and one individual commenter state the captain should have discretion on whom to admit to the flightdeck.

*Response:* The FAA disagrees. The events of September 11, 2001, emphasized the need to maintain the integrity of the flightdeck and command of the aircraft at all costs. In response to the Transportation Security Act, the FAA required operators to adopt operational changes restricting access to the flightdeck in flight. Because of the demands on aviation safety and security, Amendment No. 129–33 adopted § 129.28(d), which required procedures to restrict access to the flightdeck. This action is consistent with Amendment 27 to Annex 6, Part 1 of the ICAO standards, which includes the requirement to lock the flightdeck door.

• *Comment:* One operator states the FAA and manufacturers should ensure that Phase II door designs and procedural requirements are such that the flight crew does not have to vacate control seats to allow entry to the flightdeck and that current Phase II door designs do not cause intrusive noise in the crew rest area.

*Response:* The FAA agrees that requirements for sleeping quarters must be met, including the procedures associated with entry into the flightdeck. While the rule does not specifically address this issue, since the issue does not relate to flightdeck security per se, each carrier will have to satisfy its national authority that these requirements continue to be met. Up to now, all approvals for long range airplanes include provisions that enable the crew to operate the flightdeck door lock without having to leave their seat. The rule requires part 129 air carriers to have procedures in place, acceptable to the civil aviation authority responsible for oversight, that prevent unauthorized persons access to the flightdeck. As such, the operator has the discretion to install video systems, acceptable to its civil aviation authority, to monitor the areas external to the cockpit and authorize entry to the flightdeck without requiring the pilots to vacate their control seats. ICAO has adopted standards associated with monitoring the area outside the flight deck and discretely alerting the flightcrew of suspected threats.

• *Comment:* One commenter states that § 129.28 should include detailed emergency exit procedures for pilots and that doors should have two-person integrity on all internal locking devices to assure proper security procedures are followed. This commenter also suggests that detailed emergency exit procedures should be included for pilots who are locked behind the reinforced doors in the event of an accident or other emergencies. Finally, the commenter

states the proposed rule neglects to cover how authorized persons may exit the flightdeck during abnormal situations.

*Response:* The flightdeck door is already subject to several requirements that affect its structural integrity, including: protection during decompression, emergency egress considerations, and the capability for rescue personnel to enter the flightdeck in the event the flightcrew is unable to egress on its own. After reviewing several design proposals, the FAA has determined that the requirements can be accommodated by proper door design and installation. As a result aircraft meeting the requirements of this rule should continue to meet all the requirements necessary to maintain a valid certificate of airworthiness from the country of registry.

### *Requirement To Have a Reinforced Door and Lock the Cockpit Door on All-Cargo Airplanes*

• *Comments:* One operator suggests rephrasing § 129.28 (a)(2) and 129.28 (c) to read “\* \* \* between the pilot compartment and any other compartment when occupied by persons other than those listed in 129.28 (d)(3).” The operator states this will exclude all-cargo airplanes that carry only persons listed in 129.28 (d)(3) from the requirements to reinforce the door. The operator also states this would solve the issue of conflicting requirements on those all-cargo airplanes (such as the MD–11) equipped with an airworthiness placard requiring that the cockpit door be latched open during taxi, takeoff and landing.

• Another operator states that certification requirements for the MD–11 require the door to remain open during takeoff and landing for emergency egress. This operator asks how it can comply with both the rule and certification requirements when they are in conflict since the rule requires the door to be closed and locked.

*Response:* The rule, as written, provides the relief suggested by the commenters. If an all-cargo airplane does not have a door, then the entire airplane is defined as a flightdeck. Section 129.28 (d) defines those individuals who can be admitted to the flightdeck. If only those individuals identified in § 129.28(d)(3) are carried on an all-cargo airplane, no door is required. Although this meets the intent of the FAA’s regulatory requirement, the TSA may impose additional security requirements on all-cargo airplanes.

### Security on All-Cargo Airplanes

Six commenters, including one association and five air carriers recommend that all-cargo airplanes either be exempted from the flightdeck door requirements or that the deadline for implementation be extended. They suggest that the nature of cargo operations is different from passenger operations and actions necessary to enhance flightdeck security can also be different. Several commenters expressed similar concerns as part 121 operators about extending the compliance deadlines.

- *Comments:* One commenter states that all-cargo airlines, especially those operated on a charter basis, pose the least risk of having airplanes used as weapons by terrorists since all-cargo charter operations do not publish a schedule for service. Also, it would be difficult to know in advance when an aircraft would be operated.

- Both the association and one air carrier suggest that it is possible to implement operational and security procedures, such as background checks, to ensure adequate security and provide an alternative means of compliance.

- Two air carriers cite the inconsistency of the regulation because cargo airplanes without flightdeck doors are not subject to the provisions of the regulation. One carrier contends that this inconsistency fails to effectively enhance flightdeck security. The second carrier states the rule places it at a competitive disadvantage against air carriers whose fleet is designed and operated with no doors without improving the security environment. According to the second carrier, the crew exits the flightdeck regularly to visit the galley or lavatory, perform routine inspection, or in the event no flight attendants are available, ensure the area is clear and secure before a flightcrew member exits. The carrier states that in the event of an intrusion when a flightcrew member is absent from the flightdeck, a reinforced door will prevent that return to the flightdeck to assist the other flightcrew member(s).

- Another air carrier expressed concern at the July 30, 2002, public meeting, that it would be physically impossible to modify all affected aircraft by April 9, 2003. The commenter suggests making U.S. passenger carriers a higher priority because they present a higher security risk.

- One carrier comments that the FAA did not amend part 121 to require reinforced flightdeck doors on all cargo operations until Federal Express petitioned it to do so. The commenter indicates and there is no evidence in the

public record that the reinforced cockpit door requirement has appreciably increased aircraft security or reduced the threat of a terrorist attack in the U.S. The carrier urges the FAA to develop a policy for granting exemptions to all cargo carriers that have developed enhanced all-cargo security programs that provide for equivalent, or perhaps greater, levels of security than that brought about by the installation of reinforced doors.

- *Comment:* One air carrier states that the purpose of the rule can better be served with less economic impact if the FAA would focus specifically on carriers posing a significant risk and apply the rule with flexibility in light of what carriers can feasibly accomplish. The commenter argues that putting foreign all-cargo carriers on the same timetable as the more risk-prone U.S. passenger carriers may actually compromise security as it may result in some passenger aircraft being delayed in favor of freighter aircraft for which the commenter asserts the flightdeck door retrofit accomplishes very little increase in real security.

- *Response:* The FAA found many of the points made by these commenters to be persuasive. In recognizing that differences exist in the design and operation of all-cargo airplanes, the FAA allowed all-cargo carriers to opt for an alternate means of compliance by adopting enhanced security procedures approved by the TSA in lieu of installing a reinforced door.

- *Comment:* One association indicates that it supports reinforced doors on all cargo aircraft. The commenter cites the following factors that, when combined, increase the opportunity for a terrorists attack: (1) Limited ground security procedures in place at cargo operations versus those in place for passenger carrying operations; (2) company employees carried as "passengers" or "occupants" on cargo aircraft, have far less scrutiny than fare-paying passengers in common carriage; (3) ramp areas for cargo operations are less controlled than in typical passenger operations; and (4) cargo operations lack the benefit of flight attendant or passenger intervention in the event of an unwanted intruder on an aircraft.

- *Response:* The FAA believes that improvements in security are necessary for all-cargo operations that permit the carriage of persons, whether on the flightdeck or aft of it. For reasons of security, the details surrounding all the issues will not be discussed here. However, based on all available information, the FAA adopted Amendment Nos. 121–299 and 129–38, which permit operators to adopt

security programs, in lieu of installation of a reinforced flightdeck door in certain situations. These actions were taken in coordination with the TSA and are discussed further elsewhere in this document.

### Overflight Operations

- *Comments:* One association believes that an aircraft on an overflight could potentially pose a threat if the aircraft were commandeered. The commenter states that although the FAA does not have the means for surveillance of foreign carriers unless they are on the ground, aircraft conducting overflight of the U.S. operating under part 129 must be required to comply with the requirement to install a reinforced door.

- One air carrier asks if the addition of the word "overflight" is intentional in § 129.28.

- *Response:* The FAA excluded overflights in Amendment No. 129.36, in which we state:

In general, the FAA has no practical means of conducting surveillance of foreign carriers other than on the ground within the United States. Accordingly, we are changing the phrase "within the United States or on overflights" to read "within the United States, except for overflights" in § 129.28.

The FAA's position does not prevent the TSA or other Federal agencies, from imposing such security requirements.

### Editorial and Technical Changes

- *Comments:* One commenter proposes all carriers entering the United States be required to have annual certification for the durability and safe operation of the flightdeck door.

- One commenter suggests § 129.28(c) include that flightdeck door locks be impenetrable by unauthorized keys or other devices.

- One commenter suggests editorial changes to § 129.28(c).

- *Response:* The FAA's intent is to keep requirements consistent with those of parts 25 and 121. Therefore, no changes in wording were made.

- *Comment:* One air carrier suggests using the effective date of the rule, June 21, 2002, as a cockpit door installation reference date instead of January 15, 2002, in § 129.28 (a)(2).

- *Response:* The FAA agrees and the date has been changed by Amendment No. 129–38.

- *Comment:* One commenter recommends including provisions for airplanes being ferried for maintenance to the U.S.

- *Response:* The FAA disagrees because the rule already allows for maintenance ferry flights as long as no passengers are on board.

• *Comment:* One carrier suggests including a termination date of April 8, 2003, for the purposes of the requirements of § 129.28 (a).

*Response:* The FAA disagrees. The provision that an airplane must have a reinforced door meeting certain resistance and ballistic penetration requirements supercedes the "Phase 1" locking requirement for the flightdeck door.

• *Comment:* One commenter supports the intent of the rule but suggests restricting additional items to be carried on board the aircraft. The commenter also suggests that the flightcrew needs an alternative to help the crew without leaving the cockpit.

*Response:* ICAO has recognized the need for the aircraft crew to operate as a team and provides guidance material for use by airlines in developing training programs that ensure both cabin and flight crews can act in the most appropriate manner to minimize the consequences of unlawful interference. These requirements are outlined in the ICAO standards on training programs. The FAA agrees with this concept and is considering rulemaking to require a means for the cabin crew to discretely notify the flightcrew in the event of suspicious activity or security breaches.

Identification of items prohibited to be carried aboard air carriers is the responsibility of the TSA and is beyond the scope of this rule.

• *Comment:* One air carrier states that the original § 129.13 requires that aircraft carry current airworthiness certificates (COA). The air carrier submits that the new except clause can be read as a waiver to the requirement to carry a COA. The commenter states this would introduce a discrepancy with Article 29 of the Chicago Convention that requires every aircraft used internationally to carry a valid COA.

*Response:* After September 11, the FAA issued a series of SFARs that first allowed, and then required the installation of internal locking devices on flightdeck doors pending installation of reinforced doors. Section 129.28(a) adopted a requirement for a similar improvement in flightdeck security for foreign air carriers. This requirement was consistent with SFAR 92. As noted in the preamble of the SFARs, the required modifications had the potential to compromise other airworthiness standards. As a result, § 129.28(b) provided relief from the otherwise applicable provisions of § 129.13 only until April 9, 2003, because of the short deadline. Because the FAA does not directly regulate airworthiness of foreign registered aircraft, modifications required by § 129.28(a) may have also

required relief from the country of registry. Based on communications with other national authorities, the FAA determined that most were prepared to grant such relief and this amendment should not have created a conflict. In the event a country was not willing to grant such relief, the FAA was prepared to work out a mutually acceptable solution. This issue, however, became moot after April 9, 2003, because § 129.28(b) was only applicable until April 9, 2003 to provide relief from a short deadline. Any requested deviations submitted after April 9, 2003 were handled as a normal deviation request, and not under § 129.28(b).

#### *Business Aircraft and Those With a Seating Capacity of Less Than 20 Passenger Seats*

• *Comments:* Two air carriers and one air carrier association urge the FAA to exclude business aircraft and those transport category airplanes originally type certificated with 19 seats or less.

• One association opposes limiting the security requirements based upon size of aircraft or type of mission.

*Response:* The FAA agrees with the first set of position. Amendment No. 129.36 exempts transport category airplanes originally type certificated with 19 or less passenger seats or transport category all-cargo airplanes with a payload capacity of 7,500 pounds or less from the flightdeck door requirements. This requirement is effectively equivalent to the part 121 requirements for flightdeck security.

The FAA disagrees with the other position for the reasons stated in the preamble of Amendment No. 129-36. Part 129 covers the operational equivalent to both parts 121 and 135 in terms of size of airplanes used and scope of operations conducted. The FAA's intent was to have consistent flightdeck security requirements for parts 121 and 129. The application of the current requirement is effectively equivalent to airplanes of the same size as those used in part 121 operations. The FAA has not applied the flightdeck security requirements to carriers operating under part 135 in the United States and did not intend for the requirements to be extended to the types of airplanes operated under part 135.

#### *Funding for New Security Requirements*

• *Comment:* One airline association commented that it believes governments have direct responsibility for aviation security and it's funding to include protection of citizens. The association states that the security threat against airlines is a manifestation of the threat against the state and, therefore, the cost

of aviation security should be borne by the states from general revenues and not from user fees.

*Response:* Discussion of funding is beyond the scope of this rule.

#### *Costs of Reinforcing the Flightdeck Doors*

Ten commenters, representing airlines, manufacturers, and associations, address the FAA's estimated cost. (**Note:** In response to the comments it received on the first rule, the FAA increased its estimate of the costs of the security doors in the later rulemakings.)

• *Comments:* All the commenters state the initial estimate of \$12,000 to \$17,000 was too low. Two state a door kit for a B-747-200 costs between \$190,000 and \$195,000. One states that a door kit for a B-747-400 costs \$38,500. Three report that the cost of a door kit for a widebody is \$39,000. Six state that the cost of a door kit for a narrowbody is between \$23,000 and \$40,000.

*Response:* When we initially estimated the security door kit cost, no security doors had been certificated to the new standards. Consequently, our estimate was based on preliminary responses from potential vendors. Subsequently, in the final rule for large cargo airplanes, the FAA revised its estimated cost for the security door kit to be between \$42,000 and \$50,000 for a narrowbody airplane, \$50,000 and \$60,000 for a widebody airplane, and \$210,000 for a B-747-100/200/300. By way of comparison, a non-security flightdeck door costs about \$5,600.

The difference between our initial cost estimate and the current security door kit prices can be largely attributed to technological complexities that were not anticipated and to additional door features that are not required by the final rule. One technological complexity is the safety issue associated with flightdeck decompression situations. Coping with this complexity required more design and bulkhead modification than the FAA had anticipated. Similarly, the amount of destructive testing necessary to certificate the doors and the amount of these costs to recover from the kit prices were greater. However, security door kits also contain items beyond the requirements of the rule (e.g., remote keypad entry systems) that make the door kit price greater than the cost necessary to meet the new standards. As a result, although the kit prices overestimate the actual cost of a door that would meet the FAA requirements, the prices in the previous paragraph are those faced by the



operators, notwithstanding volume discounts for bulk purchases.

#### *Labor Cost of Door Installation*

- *Comment:* An individual commenter states all [flightdeck] doors should be corrected, saving money in the long run. The commenter goes on to state that airlines are already spending money on security and that either option will result in expenditure.

*Response:* Most commenters state their support of a security program as an alternate means of compliance for cargo airline security requirements. However, a hardened door remains available as an option to operators that elect to take this course of action.

- *Comment:* One individual disagrees that a cost savings will be realized by a security program, but asks who will pay for security screening.

*Response:* As indicated in the rule, if all airlines in the cargo industry chose to develop a TSA approved security program instead of installing hardened flightdeck doors, operators will save a total of about \$68.117 million between 2003 and 2013. Should an individual operator, however, determine that it is more advantageous to install a hardened flightdeck door, the operator has the option to do so. Security screening is covered by TSA regulations and not addressed in this rule.

- *Comment:* A cargo airline asked how the new security program implementation would be funded. The commenter states that a large air cargo airline would require, on average, about \$250,000 initially, with annual costs of about \$120,000.

*Response:* This rule does not provide funding for security programs.

- *Comment:* Six commenters indicate the FAA's initial estimate of labor cost of \$3,000 is too low and that the retrofit and installation cost should be between \$3,000 and \$50,000 per door.

*Response:* We agree that our initial labor cost estimate was too low. We believe, however, that most of the commenters overestimated the amount of hours needed to retrofit flightdeck doors. In Amendment No. 121.299, the FAA determined that it takes between 72 and 96 labor hours (at a cost of \$5,760 to \$7,680) to install and fully test reinforced doors and associated systems for most airplanes. It takes about 172 hours (\$13,760) to retrofit a B-747-100/200/300. However, the FAA now estimates that retrofitting an Airbus widebody takes between 250 to 300 labor hours (a cost of \$20,000 to \$24,000).

#### *Number of Out-of-Service Days*

- *Comments:* The FAA had initially estimated that retrofitting the security doors would involve 1 out-of-service day. In Amendment No. 121.299, the FAA revised the estimate to 2-to 4-out of service days. Two commenters state that it would take about 10 days or less to retrofit the door electrical system and the bulkhead reinforcement vent for Airbus twin aisle airplanes. Another commenter states that it would take 6 to 7 days of down time to complete the retrofit on the Airbus twin aisle airplanes. Another commenter states that it will take 4 days to retrofit its B-747-400s. A final commenter states that it was taking 3 days to retrofit their single aisle airplanes although they hoped to be able to reduce that to 2 days.

*Response:* The FAA agrees that its initial estimate of 1 out-of-service day was too low. As installers became more familiar with the procedures, the vendors and some airline maintenance supervisors told us that 2 days out of service was their experiences for Boeing airplanes, other than the B-747-100/200. Those B-747s were taking 6 to 8 days to install because the weight of the doors was too much for the first level ceiling to support and the ceiling needed to be reinforced. We disagree with the 10-day estimate for Airbus airplanes. These same individuals told us that it took them 4 days to install the doors on Airbus airplanes. At the time of the comments, the security door kits were months from being certificated and significant installation issues had not been answered at that time.

#### *Value of Out-of-Service Time*

- *Comments:* One association comments that one of its member carriers loses \$350,000 per out-of-service day. Another commenter reports that it costs \$140,000 per day in parking fees and lost revenue to ground one of its airplanes. Another commenter states that the out-of-service losses will be greater than the costs to retrofit the security doors.

*Response:* The FAA has used an average lease rate for the various airplanes models to proxy the losses to the aviation system from taking an airplane out of service. These daily rates range from about \$4,750 to \$14,000—depending on the airplane model. We disagree with the magnitudes of these losses because the reported losses do not consider offsetting gains. For example, while individual airline A loses revenue on the day its airplane is grounded, rather than canceling their trips, most of the passengers will re-

book their flights on airline B or on another Airline A flight. When airline B grounds its airplane, most of those passengers will re-book their flights on airline A or on another airline B flight rather than canceling the trip. These subsequent offsetting gains are not accounted for in the reported out-of-service time costs. Thus, when the entire airline as a whole is considered over the period of compliance, the losses are not as large as those reported in the comments.

#### *Total Fleet Retrofitting Cost*

- *Comment:* One association estimates a total cost of \$30 million for the door kits and labor to retrofit its members' 632 affected airplanes.

- *Response:* We agree. The average cost per airplane is about \$47,750, which is a reasonable estimate.

#### *Maintenance and Fuel Costs*

*Comment:* One airline states that it would incur an annual cost of \$50,000 for maintenance and fuel costs due to these security doors.

- *Response:* We agree. It is early in the life history of these doors and the need to replace or repair them any more frequently than the doors they replaced is unknown. Given that unknown aspect, in the cargo airplane final rule, the FAA conservatively assumed that the door is replaced every 5 years for an average annual maintenance cost of \$10,000. The FAA also assumed that the average safety door system adds 100 pounds to a large airplane. This additional weight would have minimal impacts on weight and distance limitations. Based on a study by the Washington Consulting Group, *Impact of Weight Changes on Aircraft Fuel Consumption*, March 1994, p.16, each pound of weight increases fuel consumption by 12.25 gallons per year. The resulting total fuel increase is 1,225 gallons per year, which, at a price of \$1 per gallon results in a \$1,225 fuel consumption increase. The result is a total estimated increased maintenance and fuel cost of \$11,225.

#### *Economic Analysis*

- *Comment:* One commenter suggests that the FAA adjust the benefits and costs section to specifically address the cost of the B-747-100/200/300 and reconsider whether the rule is still cost-beneficial for all kinds of operations, including all-cargo operations.

*Response:* The FAA disagrees. The potential catastrophic losses from a terrorist using a cargo airplane are similar to the potential losses from a terrorist using a passenger airplane. Consequently, the FAA determines that



the potential benefits would outweigh even recalculated costs.

#### **Transportation Security Administration Activity**

The Aviation and Transportation Security Act enacted by Congress on November 19, 2001, transferred airplane security to the TSA, but the physical airplane structure and the operational rules of airplanes remain the responsibility of the FAA. The TSA worked very closely with the FAA in developing and coordinating the flightdeck security rules, as well as providing an alternative means for cargo operators who are required to have a reinforced cargo door.

Additionally, as an interim step, the TSA issued security directives to

require random inspection of air cargo and to require foreign all-cargo air carriers to comply with the same cargo security procedures that domestic air carriers must follow. Passenger aircraft that carry cargo and all-cargo planes, both foreign and domestic, will be subject to the random inspections on flights within, into, and out of the U.S. For longer term action, the TSA is implementing a broad Air Cargo Strategic Plan that employs a layered approach to security critical elements of the entire air cargo supply chain. The plan incorporates a threat-based risk management approach to ensure that all cargo deemed high-risk is inspected. It focuses on strategies to secure air cargo perimeters, facilities, equipment, and personnel. Enhanced background

checks on persons who have access to cargo or cargo aircraft and required screening of persons transported aboard cargo planes are among many measures that will be adopted.

#### **Conclusion**

After consideration of the comments submitted in response to the final rules and in view of actions being implemented by the TSA for safe air cargo operations, the FAA has determined that no further rulemaking action is necessary.

Issued in Washington, DC, on April 19, 2005.

**Marion C. Blakey,**  
*Administrator.*

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