Secondary Flightdeck Barrier on Commercial Passenger Aircraft Aviation Rulemaking Committee

Recommendation Report
August 22, 2025

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I. Executive Summary

Per section 350 of the Federal Aviation Administration (FAA) Reauthorization Act of 2024 (Public Law 118-63), the FAA convened an aviation rulemaking committee (ARC) to "review and develop findings and recommendations to require installation of a secondary cockpit barrier on commercial passenger aircraft operated under the provisions of part 121 of Title 14, Code of Federal Regulations, that are not captured under another regulation or proposed regulation."[1] In addition, section 350(e) of the Act states that the FAA Administrator shall "issue a final rule requiring installation of a secondary cockpit barrier on each commercial passenger aircraft operated under the provisions of part 121 of title 14, Code of Federal Regulations."[2]

Section 305(c) states that the ARC shall consider:

(1) Minimum dimension requirements for secondary barriers on all aircraft types operated under part 121 of title 14, Code of Federal Regulations;
(2) Secondary barrier performance standards manufacturers and air carriers must meet for such aircraft types;
(3) The availability of certified secondary barriers suitable for use on such aircraft types;
(4) The development, certification, testing, manufacturing, installation, and training for secondary barriers for such aircraft types;
(5) Flight duration and stage length;
(6) The location of lavatories on such aircraft as related to operational complexities;
(7) Operational complexities;
(8) Any risks to safely evacuate passengers of such aircraft; and
(9) Other considerations the Administrator determines appropriate.[3]

The ARC formed three working groups: the Operations and Training Working Group, the Technical Working Group, and the Cost-Benefit Working Group. Each working group developed recommendations, which are listed below and are organized by working group.

[1] FAA Reauthorization Act of 2024, Public Law 118-63, § 350(a) (May 16, 2024). https://www.congress.gov/public-laws/118th-congress.
[2] *Id*. at (e).
[3] *Id*. at (c).

Operations and Training Working Group	
Recommendation 1.	The FAA should develop regulations and advisory guidance to ensure crewmember operational procedures incorporate situational awareness and consistent application of Common Strategy principles.
Recommendation 2.	The FAA should define appropriate design and performance standards to account for crewmember operational complexities and human factors considerations.
Recommendation 3.	The FAA should specify consistent, minimum industry training standards to ensure all crewmembers are familiar with the basic design, operational, and airworthiness concepts, and are able to properly utilize the equipment under all normal and emergency conditions.
Recommendation 4.	The FAA should amend AC 120-110A to ensure that guidance for use of secondary barrier systems by airlines operating under part 121 is consistent with recommended regulatory changes.
Technical Working Group	
Recommendation 5.	The FAA should limit the installation of secondary flightdeck barriers on existing part 121 aircraft based on flight duration, with cost-benefit considerations providing additional justification for this approach.
Recommendation 6.	The FAA should allow flexibility in the installation of secondary barriers for aircraft manufactured on or before August 25, 2025.

Recommendation 7.	The FAA should implement performance-based requirements centered on the protective function of the barrier, rather than fixed dimensional requirements.
Recommendation 8.	The FAA should not implement the requirement to install secondary cockpit barriers on aircraft operating under 14 CFR part 129.
Recommendation 9.	The FAA should implement an eight-year compliance timeline after retrofit rules are published to allow sufficient time for the industry and the FAA to develop, certify, and deploy retrofit solutions that meet the rule's intent without introducing disproportionate burdens or operational disruption.
Recommendation 10.	The FAA should revise 14 CFR 121.313(l), AC 120-110A, and AC 25.795-10 to implement the retrofit requirements for aircraft manufactured on or before August 25, 2025, in alignment with the Technical Working Group's recommendations.
Recommendation 11.	The FAA should improve AC 25.795-10 for aircraft manufactured after August 25, 2025.
Cost-Benefit Working Group	
Recommendation 12.	The FAA should consider each aircraft category separately to assess the cost benefit ratio of an Installed Secondary Barriers (IPSB) with Regional Aircraft not reaching the required threshold.

A detailed discussion of each recommendation is in Section IV. The ARC was unable to achieve consensus on all the recommendations. Therefore, the ARC decided that each working group would develop its own recommendation report, and voting members of the ARC would vote on each recommendation individually to provide the FAA with various perspectives regarding the issues. This report has been organized accordingly to present each working group's recommendation report, with ballots and comments in Appendix B.

II. Background

Over the past two decades, the threat of terrorist attacks against commercial aircraft has led to ongoing enhancements in flightdeck security. In response to the events of September 11, 2001, most passenger and large cargo aircraft were required to install hardened flightdeck doors to prevent unauthorized entry. However, during in-flight periods when the cockpit door must be opened—such as for crew transitions or meal service—security vulnerabilities remain. This gap in protection continues to pose risk and has prompted legislative and regulatory action to require an additional layer of defense: Installed Physical Secondary Barriers (IPSBs).

An IPSB is a robust, non-lockable, intrusion-resistant barrier located between the cabin and the cockpit, designed to delay unauthorized access for at least five seconds—during these vulnerable moments. This delay is intended to give crewmembers the opportunity to secure the cockpit before an intruder could reach the flightdeck.[4] The Transportation Security Administration (TSA) and Federal Air Marshal Service (FAMS) have conducted tests demonstrating that alternative deterrents, such as beverage carts or crew presence alone, are insufficient to prevent attackers from breaching the cockpit in the time required to secure the reinforced door.[5] Therefore, properly designed and deployed IPSBs provide essential, verifiable protection.

Recognizing this need, Congress passed a series of bills, including those named in honor of Captain Victor Saracini, a pilot killed on September 11, 2001. Most recently, Section 350 of the FAA Reauthorization Act of 2024 (Public Law 118-63) mandates the installation of secondary cockpit barriers on all Part 121 commercial passenger aircraft, not just newly manufactured models.[6] In support of this mandate, the FAA established the ARC on October 21, 2024, and previously issued a final rule on June 26, 2023 requiring that all new passenger aircraft delivered after August 25, 2025, be equipped with secondary barriers.[7] Cargo aircraft and foreign carriers are currently excluded from this rule.

With approximately 5,900 U.S. passenger aircraft in service and an estimated 300 new deliveries per year, the FAA anticipates it could take up to 25–28 years to retrofit the entire fleet under current policies.[8] However, Section 350(e) of the FAA Reauthorization Act explicitly directs the FAA to develop rulemaking for retrofitting existing aircraft, which is critical for achieving comprehensive

[4] Congress.gov. "Secondary Cockpit Barriers for Airline Aircraft." August 1, 2024. https://www.congress.gov/crs-product/IF12435.
[5] RTCA DO-329, Aircraft Secondary Barriers and Alternative Flight Deck Security Procedures, 9/28/2011. In Appendix D, a committee working group noted that the effectiveness of non-IPSB systems they tested was "unsatisfactory".
[6] FAA Reauthorization Act of 2024, Public Law 118-63, § 350(e) (May 16, 2024).
[7] Installation and Operation of Flightdeck Installed Physical Secondary Barriers on Transport Category Airplanes in Part 121 Service, June 26, 2023, p. 41304. https://www.federalregister.gov/d/2023-13071/p-9
[8] *Id.*

protection across the fleet. The FAA estimates installation and training costs at approximately $35,000 per aircraft, a modest investment given the life-saving potential of these systems.[9]

Commercial aircraft remain an attractive target for domestic and international threats. The implementation of IPSBs on all Part 121 aircraft is not just a policy recommendation—it is a legislative mandate designed to protect flightcrews, passengers, and the broader public from evolving threats. This ARC's work reflects both the technical considerations and the national security imperative behind the deployment of secondary flightdeck barriers.

III. ARC Charter – Tasks and Objectives

On October 21, 2024, the U.S. Department of Transportation issued the Secondary Flightdeck Barrier on Commercial Passenger Aircraft Aviation Rulemaking Committee charter in accordance with title 49 of the United States Code (49 U.S.C. § 106(p)(5)).[10] The sponsor of the ARC is the Associate Administrator for Aviation Safety.[11] The ARC was tasked to:

a. Review and develop findings and recommendations to require installation of a secondary flightdeck barrier on commercial passenger aircraft operated under the provisions of part 121 of title 14, Code of Federal Regulations (14 CFR), that are not captured under another regulation or proposed regulation.

b. Determine if the FAA's rule should apply to airplanes operated under parts in addition to 14 CFR part 121 (e.g., 14 CFR part 129). If so, review and develop findings and recommendations for airplanes operating in these other 14 CFR parts as well.

c. Consider the list of items in the FAA Reauthorization Act of 2024, section 350, subsection (c) in developing the findings and recommendations.

d. Review Advisory Circular (AC) 25.795-10*, Installation of Physical Secondary Barriers for Transport Category Airplanes*, and AC 120-110A, *Aircraft Secondary Barriers and Alternate Flightdeck Security Procedures*, to determine if revisions are required as a result of the ARC proposals. If so, provide proposed changes.

e. Provide initial qualitative and quantitative:
   i. Estimates of cost to implement the change, including both safety and monetary costs.

[9] *Id.*
[10] Federal Aviation Administration. "Charter of the Secondary Flightdeck Barrier on Commercial Passenger Aircraft Aviation Rulemaking Committee." (October 21, 2024). https://www.faa.gov/sites/faa.gov/files/Secondary-Barriers-ARC-Charter_signed-10212024.pdf
[11] *Id*. at 1.

ii. Estimates of benefits to the public, including both safety and monetary benefits.

f. Develop a report that provides the findings and recommendations. Explain in the report how the considerations in the FAA Reauthorization Act of 2024, section 350, subsection (c) led to the findings and recommendations. Also, include in the report,
   i. if applicable, any dissenting positions on the findings and the rationale for each position; and
   ii. any disagreements with the recommendations, including the rationale for each disagreement and the reasons for the disagreement. [12]

In response to the ARC charter tasking, the Secondary Flightdeck Barrier on Commercial Passenger Aircraft Aviation Rulemaking Committee developed recommendations with respect to technical design and installation of secondary barrier systems and associated operational procedures, crewmember training, and advisory circular guidance, with costs and benefit estimates for proposed regulatory changes. These recommendations are provided in this report for consideration by the FAA Administrator.

IV. Working Group Reports and Recommendations

A. Introduction to ARC Working Group Reports

During the course of the ARC's work, ARC members acknowledged they had differing views about how requirements for secondary flightdeck barriers should be implemented. To accommodate these differing perspectives, the ARC decided to present in this report each working group's recommendations, even if contradictory, to enable the FAA to evaluate the various findings and recommendations presented in this report. The following sections present each working group's report in its original format.

Each ARC member noted their consensus or dissent on each individual recommendation. This information is presented in Appendix B. Members were also encouraged to include any comments they may have on each separate recommendation. These are also presented in Appendix B, accompanying members' ballots and results.

[12] *Id*. at 4.

B. Operations and Training Working Group Report

I. Summary

For all secondary barrier systems, including Installed Physical Secondary Barrier (IPSB) systems that will be retrofitted into existing part 121 aircraft, the Operations and Training Working Group proposes the four operational and crewmember training recommendations below to enhance the security of U.S. commercial passenger air travel. Each recommendation is discussed in detail in the following section.

Recommendation 1: For secondary barrier systems used by airlines operating under part 121, the Operations and Training Working Group recommends that the FAA develop regulations and advisory guidance to ensure crewmember operational procedures incorporate situational awareness and consistent application of Common Strategy principles.

Recommendation 2: For secondary barrier systems used by airlines operating under part 121, the Operations and Training Working Group recommends that the FAA define appropriate design and performance standards to account for crewmember operational complexities and human factors considerations.

Recommendation 3: For secondary barrier systems used by airlines operating under part 121, the Operations and Training Working Group recommends that the FAA specify consistent, minimum industry training standards to ensure all crewmembers are familiar with the basic design, operational, and airworthiness concepts, and are able to properly utilize the equipment under all normal and emergency conditions.

Recommendation 4: The Operations and Training recommends that the FAA amend AC 120-110A to ensure that guidance for use of secondary barrier systems by airlines operating under part 121 is consistent with recommended regulatory changes.

In addition, the Operations and Training Working Group recommendations are summarized in Table 1 below.

Table 1: Summarized Secondary Barrier Training Recommendations

Topic	Method	Estimated Duration	Initial / Recurrent	Details
Introduction to Secondary Barrier Concept	CBT, Classroom	2 Minutes	Initial	Basic functionality, time constraints; airworthiness standard
Performance Standard in Normal Operation	CBT, Classroom	2 Minutes	Initial	Installation, Deployment, Latching, Unlatching, Stowage, Max time to operate. Recognize connection points and operable condition; procedure to document malfunction in mx log.
Preflight	Hands-On	2 -8 mins., depending on barrier design	Initial, Recurrent	In stowed position; Deploy to secure position and restow
Normal flight deck entry / meal delivery procedures using secondary barrier, including the specific FA responsible for the barrier	CBT, Classroom, Scenario	5 Minutes	Initial, Recurrent	Location of Cabin Observer and FA operating FD door in relation to barrier; FA working position responsible for entering FD; consider location of lavatory for pilot use.
Security Threat Level procedures using the barrier and defensive techniques	Classroom, Scenario, CBT	5 Minutes	Initial, Recurrent	Barrier deployed at particular threat levels; defensive techniques particular to use of barrier; when to stow for landing
Barrier malfunction procedures, including securing IPSB open, MEL procedures	CBT, Hands-On	5 Minutes	Initial, Recurrent	If possible, stow inop IPSB in open position, if not remove to another stowage location. Review MEL dispatch procedures.
Interaction of the barrier with cabin exit doors in possible emergency evacuation	CBT, Classroom, Scenario	5 Minutes	Initial, Recurrent	Consider proximity of barrier to main cabin door(s), barrier malfunction on landing may block egress
Procedures regarding barrier in decompression event	CBT	5 Minutes	Initial, Recurrent	Barrier not certified for operation during decompression
Reporting procedures for any event involving a passenger attempting to breach the barrier	CBT	2 Minutes	Initial, Recurrent	Document irregularities in company reporting channels
Hands-On Training	Hands-On	10 Minutes	Initial, Recurrent	Preflight in stowed position; Unlatch from stowed, extend, attach in deployed position; Unlatch from deployed, bestow and latch; Stow / remove in event of malfunction inflight.
Differences in barrier designs and installations on different aircraft configurations	CBT, Classroom	5 Minutes	Initial, Recurrent	Different aircraft models or configurations may have different barrier designs / operation

II. Recommendations

A. Retrofit IPSB Operational Considerations

Recommendation 1.

The FAA should develop regulations and advisory guidance to ensure crewmember operational procedures incorporate situational awareness and consistent application of Common Strategy principles.

The greatest security risk for airborne aircraft is the time during which the flightdeck door is either opening or closing. The standard three-second rule for opening to securely closed remains the primary goal whenever the flightdeck door is opened during sterile flightdeck period or when inflight.[13] An additional requirement is that one person maintains physical contact with the door handle at all times during the transition of door opening or closing, and when an exchange of persons or service items is made into or out of the flightdeck.

The use of the secondary barrier should be incorporated into security threat level procedures. For all threat levels, when the flightdeck goes into lockdown, the barrier should be deployed as an additional security measure. Threat level protocols fall under the Transportation Security Administration (TSA) Common Strategy, and use of the secondary barrier should be incorporated into the Common Strategy to ensure that all U.S. airlines follow consistent procedures. [14] The addition of the secondary barrier does not remove or replace any of the current Common Strategy procedures that are in place by the FAA and TSA. Situational awareness and common sense are still the emphasis in Operations and Training. For example, to incorporate secondary barrier systems into the Common Strategy, airlines should consider when to stow the barrier (in the open position) prior to landing during a security threat situation; for example, how many minutes before landing and whether that would depend on the threat level.

Use of a Cabin Observer whenever the flightdeck door is to be opened is an industry best practice. FAA Advisory Circular (AC) 120-110A, paragraph 8.2 notes that Improvised Non-Installed Secondary Barrier (INSB) methods use "crewmembers to monitor the area in front of the flightdeck door."[15] For IPSB or INSB, the Radio Technical Commission for Aeronautics RTCA DO-329 standard states that a crewmember should be given adequate space to "monitor the area behind the flight deck door during door transition."[16] The purpose and primary duties of the crewmember acting as the Cabin Observer do not change with the retrofitted IPSB. Based on

[13] RTCA DO-329, *Aircraft Secondary Barriers and Alternative Flight Deck Security Procedures*, 9/28/2011, p. 25, paragraph H.
[14] FAA, AC 90-103, Reporting of Threats in Accordance with the Common Strategy, Sep. 11, 2006, Cancelled Dec. 2, 2015, see Cancellation Memo AC 90-103.
[15] FAA, AC 120-110A, Aircraft Secondary Barriers and Alternate Flightdeck Security Procedures, June 1, 2023, p. 2.
[16] RTCA DO-329, *Aircraft Secondary Barriers and Alternative Flight Deck Security Procedures*, 9/28/2011, p. 6, paragraph 1.5 F.

current best practices, the observer is positioned forward of the barrier and will control opening and stowing of the barrier when the flightdeck door is closed and secured, for installations where there is adequate space forward of the barrier to accommodate this person. If there is not adequate space forward of the installed barrier, the Cabin Observer would be positioned aft of the barrier. The barrier should be deployed and secured whenever the flightdeck door is to be opened. After the transition of persons or service items, it should be immediately stowed in its secured (open) position.

The situational focus of the Cabin Observer is the passenger cabin aft of the barrier. If any person approaches, regardless of intent, the only responsibility of the observer per the Common Strategy procedures is to shout a command to shut the door. The Cabin Observer's responsibility is not to determine intent of the approaching person, or negotiating with that person, they are only responsible for sounding the alarm of possible attack. The repeated command in clear English alerts the other cabin crew or pilot at the flightdeck door to also repeat the command and stop the door from opening, and if in transition, force the door closed. This command alerts the flightdeck occupant of a threat and to immediately close and secure the flightdeck door.

Normally, the Cabin Observer is an additional cabin crewmember on aircraft with more than 50 passenger seats. However, there may be cases on smaller regional aircraft with fewer than 51 passenger seats where only one cabin attendant is required. This person must serve both the Cabin Observer role and the role of the person in control of the flightdeck door during the opening and closing of the door. The pilot on the other side should likewise have heightened situational awareness during the transition of persons or service items, as a lone cabin crewmember can be more easily distracted and overcome by an attacker than multiple crewmembers would be.

On aircraft with only one flight attendant, that flight attendant is required to replace a pilot who steps out of the flightdeck to ensure there are two people present in the flightdeck. Current procedures on single flight attendant aircraft leave the cabin unattended when the flightdeck door must be opened. This creates a security risk in the cabin. Use of an IPSB would provide an additional level of safety on these aircraft, with the pilot leaving the flightdeck responsible for the operation of the barrier when there is no flight attendant in the cabin.

Visibility, or line of sight, along the cabin aisle(s) in the direction forward toward the flight deck door, as well as aft from the flight deck into the cabin, is a critical security aspect of flight deck door open/close procedures with a secondary barrier in place. Any cabin dividers that cross the aisle(s) should not restrict visibility along the aisle(s). To enhance visibility, cabin lighting at the forward entry door area, or vestibule aft of the flight deck door, should be turned on prior to initiating flight deck door open/close procedures utilizing a secondary barrier.

Recommendation 2.

The FAA should define appropriate design and performance standards to account for crewmember operational complexities and human factors considerations.

Crewmember operational and human factors considerations require development of appropriate design and performance standards for secondary barrier systems. For example, maximum deployment and stowage times with a minimum number of required steps are crucial, as are obvious and simple latching mechanisms. In addition, there is no standard secondary barrier system design appropriate for use on all aircraft types, models and configurations. Even specific cabin configurations within each type of retrofitted aircraft at an airline may require use of differing physical designs and procedures for the chosen baseline system. Just because one manufacturer has built the aircraft, that does not mean airlines or operators will choose that manufacturer's design for use in their cabin.

At any given time, an operator may have several different barriers in use on the same type of aircraft. For example, one configuration of B787 used on longer flights may have monuments located in first class with lie flat beds, while other B787 configurations used on shorter segments may have economy plus or business class layout without such monuments. The locations of weight bearing structures are additional important considerations for IPSB systems design.

Any variations in secondary barrier configurations can impact operational aspects of flight attendant daily work life. While pilots are married to one aircraft operation certificate, cabin crew may not only work various configurations of the same aircraft type but may change aircraft type multiple times in their daily schedules. Design of a secondary barrier system should consider flight attendant anthropometrics, from a 95th percentile male to a 5th percentile female. Location and accessibility of any latching device, grip location, or other design features should accommodate these size ranges. Installation of IPSB should allow for sufficient space forward of the barrier, with the flightdeck door closed, for at least two people to exchange places, as well as for a flight attendant with two meal trays in hand.

In normal use, a secondary barrier system would be deployed during flight and stowed when not in use and would be stowed for landing so as to not hinder an emergency evacuation. It may be possible that the secondary barrier system becomes unsecured during landing. If a barrier is not stowed, and an emergency evacuation takes place, the barrier may become a hindrance.

Emergency evacuation procedures should include a step to ensure the secondary barrier is properly stowed. There should be a back-up method for stowage, or removal, in the event the stowage/latching mechanism fails. Another consideration regarding the possible interaction of the secondary barrier with emergency evacuation is its usual proximity to a forward main cabin entry door. In some cabin configurations, the barrier, when deployed, may block access to a forward

door. This point gives more emphasis to the importance of ensuring, during an evacuation, that the barrier is stowed or removed using either the intended latching mechanism or a back-up system.

Stowage mechanisms for IPSB should have a back-up process in the event of latch failure. Back-up may involve additional latches or means to remove the IPSB and stow elsewhere, a process that should also be feasible for a 5th percentile female cabin crew to accomplish.

The secondary barrier system should be included in routine maintenance checks. If the barrier is inoperative prior to flight, the airline should specify the minimum equipment list (MEL) relief. If the barrier becomes inoperative during flight, there should be a method for cabin crew to either stow it or remove it. In the event the barrier is non-functional, flightdeck entry/exit procedures and training should be follow the guidance provided by the FAA in paragraph 9.3 of AC 120-110A.[17]

From the crewmember operational perspective, flight duration in relation to the use of and need for secondary barrier is not considered relevant. The threat risk to any aircraft operated under part 121 is significant regardless of flight duration and passenger capacity, and any aircraft without an IPSB would be at an increased risk in comparison to aircraft without an IPSB. On short flights, there are various reasons a flightdeck occupant may be required to enter the cabin while the airplane is on the ground and in sterile flight operations mode. For example, a flightdeck occupant may have to perform a contamination check of the wings. During a tarmac delay, a pilot may need to use the lavatory or become ill and require assistance outside of the flightdeck.

It should be noted that flight duration includes taxi, takeoff, and landing. While many regional operators' flights are limited to 45 minutes to an hour, the taxi out queue for takeoff may take longer than the actual flight. The large airports used as hubs generally require greater time in the takeoff queue than a smaller community airport.

Lavatory location may be considered an operational complexity, especially if the airplane has only one lavatory and it is located away from the forward area of the cabin. However, when a flightdeck occupant enters the cabin to use the lavatory, regardless of where the lavatory is located, flightdeck exit/entry procedures would be followed, and a secondary barrier would enhance those procedures. Reluctance to use lavatory facilities because of security concerns could lead to personally unsafe or unhealthy conditions; for example, chronic dehydration may lead to kidney stones.[18]

A healthy person will produce between 800-2,000 mL of urine per day and the normal bladder can hold 360-480 mL of urine; age and illness can influence the necessity to void and urine output may increase with caffeine.[19] Males over the age of 40 are more likely than younger males to have

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[17] FAA, AC 120-110A, https://www.faa.gov/documentLibrary/media/Advisory_Circular/AC_120-110A.pdf, June 1, 2023, p. 3.

[18] Embon OM, Rose GA, Rosenbaum T. Chronic dehydration stone disease. Br J Urol. 1990 Oct;66(4):357-62. doi: 10.1111/j.1464-410x.1990.tb14954.x. PMID: 2224429.

[19] Open Resources for Nursing (Open RN); Ernstmeyer K, Christman E, editors. Medical Terminology [Internet]. 2nd edition. Eau Claire (WI): Chippewa Valley Technical College; 2024. Chapter 5 Urinary System Terminology. https://www.ncbi.nlm.nih.gov/books/NBK607447/

enlarged prostates, leading to inflammation and pressure on the bladder that require more frequent voiding and other health complications.[20]

Unlike female flight attendants, the collective bargaining agreements between pilot unions and carriers may allow the pregnant pilot to fly up to delivery.[21] Fetal development in pregnancy, especially in later stages, will reduce bladder volume.[22] Gynecologists recommend that a pregnant woman walk and stretch at regular intervals to reduce the risk of deep vein thrombosis (blood clots); therefore, for flights of one hour or greater duration, pregnant pilots may choose to get up and move out of the flightdeck. [23] In addition, pilots for regional carriers usually have student loans to pay off from aviation schools, an economic factor that encourages newer pilots to continue flying longer into their pregnancies.

Most emergency equipment sits in a static airworthiness status while securely bracketed and is preflight checked once a day or at the start of the crew's operational cycle. A visual inspection is sufficient for equipment, such as fire extinguishers, portable oxygen bottles, first aid kits, and other similar equipment, carried on part 121 aircraft. A secondary barrier, on the other hand, should be deployed and secured during preflight checks to allow attention to an issue before the barrier is needed for inflight use. Verifying correct alignment and stowage of the barrier to ensure correct functioning is best done in preflight. Preflight concerns are highlighted because an IPSB will operate with a high number of repetitive operations due to its intended use whenever the flightdeck door is to be opened in flight. Therefore, we recommend that the IPSB preflight check also include the physical deployment and engagement of the security lock. If the barrier has an automatic release latching system that takes five seconds to activate to allow the barrier to open, this should be checked for compliance and functionality. If the IPSB contains hooks or other means of securing it to the cabin ceiling, walls, and/or floor, the preflight check should include fully attaching all restraints to verify they are functional, and the barrier is taut and not sagging or improperly positioned when opened in the deployed position.

The IPSB's repetitive use may lead to maintenance issues such as drooping and fittings becoming loose or dislodged. On IPSB systems that use fabric netting or webbing, one may expect fraying, chafing and stretching of its fabric and connection hooks or securing system. Unlike ground-based (non-aviation) structures, the IPSB is subject to three-dimensional movement continually in its open or stowed position, which increases possible wear and tear not seen on other similar sorts of barriers, for example, those installed in banks or shopping malls.

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[20] National Institutes of Health, https://www.niddk.nih.gov/health-information/urologic-diseases/prostate-problems/enlarged-prostate-benign-prostatic-hyperplasia#complications, June 2024.
[21] Alaska Airlines, for example, allows a pilot to fly to delivery if there are no medical restrictions on pregnancy, and flight attendants are restricted after their 28th week.
[22] Open RN, 5.4. Anatomy of the Urinary System.
[23] American College of Obstetricians and Gynecologists, https://www.acog.org/womens-health/faqs/travel-during-pregnancy.

B. *Retrofit IPSB Crewmember Training*

Recommendation 3.

For secondary barrier systems used by airlines operating under part 121, the FAA should specify consistent, minimum industry training standards to ensure all crewmembers are familiar with the basic design, operational, and airworthiness concepts, and are able to properly utilize the equipment under all normal and emergency conditions.

Airlines have various procedures defining which flight attendant may, or must, enter the flightdeck during entry/exit procedures, and which one may be the cabin observer who stays outside. The deployment and stowage of the secondary barrier system may be the responsibility of a single flight attendant working position, such as a purser, or First Flight Attendant, or of any other of the working crew. Flight attendants may work different positions on different flight assignments, or may change positions during a trip, or the barrier-assigned flight attendant may be unable to perform that task. Therefore, all the carrier's flight attendants should receive consistent training on the use of the secondary barrier, appropriate to the specific aircraft type and secondary barrier equipment configuration. At a minimum, the elements of secondary barrier training should include:

1. An understanding of secondary barrier functionality, including an emphasis on deploying the barrier in the briefest time possible.
2. How the barrier is intended to be installed, deployed, and latched in place, and how it should be unlatched and stowed. Performance standards for the barrier should be defined, including maximum times for deployment and stowage.
3. How to preflight the secondary barrier system in the stowed position and physically deploy it into a secured position during normal operations.
4. Procedures for use in normal flightdeck entry and meal delivery procedures, to include defining which flight attendant may, or must, enter the flightdeck during entry/exit procedures, and which flight attendant is the cabin observer who stays outside the flightdeck.
5. Procedures during a security threat level situation, including appropriate defensive techniques to be used in conjunction with the secondary barrier system.
6. Procedures for when a secondary barrier fails or malfunctions during flight, including how to secure it open and how to minimize the impact of malfunction should an evacuation become necessary.

7. Procedures regarding the possible interaction of the secondary barrier system with emergency evacuation with respect to its proximity to a forward main cabin entry door, if the barrier, when deployed, blocks access to a forward door.

8. Relationship of the IPSB to a possible decompression event: When deployed, the barrier is not designed, constructed, tested, or certified to withstand the forces of a high-altitude depressurization and is not certified to the requirements of 14 CFR 25.365. It is certified for a rapid depressurization only in its stowed and secured position. It is possible that, when deployed, IPSB parts may detach and injure occupants while in their seats or standing in the cabin aisle. Therefore, procedures for securing (and properly reporting) an IPSB that has sustained damage or malfunction after a depressurization should be trained and included in flight crew manuals and lesson plans.

9. Reporting procedures for any event involving a passenger attempting to breach the barrier, regardless of intent.

In addition to the above training elements, all flight attendants should have hands-on experience with each type of IPSB system in use at their airline during Initial Training and at least every 24 months in Recurrent Training, and any other pertinent required training events. Hands-on training would include deploying and securing the barrier in place and then stowing the barrier under normal securing procedures. Training should also include hands-on procedures for securing the secondary barrier system should a malfunction occur in flight. In general, hands-on training on secondary barrier systems should be provided in a realistic representation of the cabin environment and should include, at minimum, the following elements:

1. Preflight in stowed position;

2. Unlatching from stowed position, extending and attaching in deployed position;

3. Unlatching from deployed position and re-stowing and latching; and

4. Stowage or removal in the event of inflight barrier malfunction.

Cabin crew should be able to recognize secondary barrier system support issues, such as connection points that fail to align with connection fittings. This cannot be adequately addressed in just classroom or computer-based training. The physical hands-on muscle memory of deploying and securing the barrier under normal airworthiness conditions will allow the crew members to determine if the barrier requires maintenance attention. Use of only a video or classroom presentation without hands-on operation of an appropriately representative secondary barrier system would be inadequate for an inexperienced crew member to determine if the barrier is functioning as intended or requires maintenance.

For any secondary barrier system, crewmembers should physically verify that it can be re-stowed in a secure manner such that it does not interfere with passenger egress in an emergency evacuation or restrict access to emergency equipment. This requires an understanding of the barrier's

airworthiness standards, use, and function. The best way for crewmembers to obtain the needed muscle memory to securely re-stow the IPSB is through hands-on training.

C. Advisory Circular 120-110A

Recommendation 4.

The FAA should amend AC 120-110A to ensure that guidance for use of secondary barrier systems by airlines operating under part 121 is consistent with recommended regulatory changes.

The ARC charter requests a review of AC 120-110A, Aircraft Secondary Barriers and Alternate Flightdeck Security Procedures, to determine if revisions are required and to provide proposed changes. The Operations and Training Working Group has determined that the following changes to the AC are required if the Operations and Training Working Group's recommendations in this report are adopted in full:

1. Insert new paragraph 8.4: "Section 350 of the FAA Reauthorization Act of 2024 (Public Law 118-63) required the retrofit installation of IPSBs on passenger aircraft operating under part 121. The FAA adopted amendments 25-xxx and 121-yyy, with § 121.313(z) requiring the installation of IPSBs and § 121.584(a)(3) requiring the use of them in flight when opening the flightdeck door." [Note: Amendment and regulatory references provided above are to be determined and/or revised.]
2. Revise paragraph 9.1 to account for any new regulatory paragraph requiring retrofit IPSB.
3. Revise paragraph 9.2.2 to state, "Establish procedures of secondary flightdeck security using the IPSB, to include required training of crewmembers consistent with concepts listed in the Appendix."
4. Add the following Appendix:

   Crewmember training for secondary barrier systems should include:

   1. An understanding of secondary barrier functionality, including an emphasis on deploying the barrier in the briefest time possible.
   2. How the barrier is intended to be installed, deployed, and latched in place, and how it should be unlatched and stowed. Performance standards for the barrier should be defined, including maximum times for deployment and stowage.
   3. How to preflight the secondary barrier system in the stowed position and physically deploy it into a secured position during normal operations.
   4. Procedures for use in normal flightdeck entry and meal delivery procedures, to include defining which flight attendant may, or must, enter the flightdeck during entry/exit procedures, and which flight attendant is the cabin observer who stays outside the flightdeck.

5. Procedures during a security threat level situation, including appropriate defensive techniques to be used in conjunction with the secondary barrier system.
6. Procedures for when a secondary barrier fails or malfunctions during flight, including how to secure it open and how to minimize the impact of malfunction should an evacuation become necessary.
7. Procedures regarding the possible interaction of the secondary barrier system with emergency evacuation with respect to its proximity to a forward main cabin entry door, in the event that the barrier, when deployed, blocks access to a forward door.
8. Relationship of the IPSB to a possible decompression event: When deployed, the barrier is not designed, constructed, tested or certified to withstand the forces of a high altitude depressurization and is not certified to the requirements of 14 CFR 25.365. It is certified for a rapid depressurization only in its stowed and secured position. It is possible that, when deployed, IPSB parts may detach and injure occupants while in their seats or standing in the cabin aisle. Therefore, procedures for securing (and properly reporting) an IPSB that has sustained damage or malfunction after a depressurization should be trained and included in flight crew manuals and lesson plans.
9. Reporting procedures for any event involving a passenger attempting to breach the barrier, regardless of intent.

In addition to the above training elements, all flight attendants should have hands-on experience with each type of secondary barrier system in use at their airline during Initial Training and at least every 24 months in Recurrent Training, and any other pertinent required training events. In general, hands-on training on secondary barrier systems should be provided in a realistic representation of the cabin environment and should include at minimum the following elements:

1. Preflight in stowed position;
2. Unlatching from stowed position, extending and attaching in deployed position;
3. Unlatching from deployed position and re-stowing and latching; and
4. Stowage or removal in the event of inflight barrier equipment malfunction.

C. Technical Working Group Report

I. Summary

The Technical Working Group presents the encompassed recommendations for implementing secondary flightdeck barriers on commercial passenger aircraft operated under 14 CFR part 121. The approach taken by the Technical Working Group balances security objectives with technical feasibility and operational realities across a diverse fleet.

For retrofitting aircraft, the Technical Working Group recommends excluding aircraft with fewer than 125 FAA-certificated passenger seats from the requirement, reflecting their lower operational exposure and reduced security risk. For aircraft manufactured on or before August 25, 2025, the Technical Working Group proposes a performance-based requirement focused on achieving the core protective function: delaying unauthorized access to the flight deck by at least five seconds during door transition events. The level of safety achieved through this retrofit approach is considered equivalent to that of production aircraft, not by replicating specific design solutions, but by ensuring that this minimum delay is consistently met across all applicable configurations.

Recognizing the structural and operational limitations of retrofit aircraft, the Technical Working Group does not recommend applying all design-specific paragraphs of § 25.795(a)(4). The Technical Working Group also recommends that the rule not apply to part 129 operators and suggests updating Advisory Circulars AC 120-110A and AC 25.795-10 to provide clear guidance for both retrofit and new production aircraft.

Interpretation of the Charter

The Charter specifically calls for recommendations on the **installation of a secondary barrier**, without limiting the scope strictly to **physical barriers**. Additionally, the FAA clarified "installed" to refer to solutions incorporated into the type design of the aircraft.

Therefore, the Technical Working Group assessed both **physical installations** and **performance-based alternatives** to meet the intended security objectives.

Purpose of Report

The purpose of this report is to:

- Provide recommendations and considerations that align with the security goals of the ARC Charter.
- Ensure that proposed solutions are practical and scalable across the existing diverse fleet.
- Maintain a balance between operational feasibility, regulatory compliance, and effective security enhancement.

Principles Guiding Analysis

The following key principles were adopted by the Technical Working Group throughout the evaluation:

- **Barrier Effectiveness:** Focus on achieving a minimum five-second delay during flightdeck door transitions (§ 25.795(a)(4)(iii) Amendments 25-150).
- **Fleet Diversity Matters:** Recognize the significant variation in cabin layouts, monument configurations, and operational constraints across the part 121 fleet.
- **Technical Evidence Over Assumptions:** Base all recommendations on detailed technical evaluations, avoiding assumptions unsupported by data.

Correlation between ARC Charter and Technical Working Group Recommendations

The table below illustrates how the Technical Working Group's recommendations address each specific task assigned by the ARC Charter, including references related to the Aviation Rulemaking Advisory Committee (ARAC) Flightdeck Secondary Barrier Working Group recommendations where applicable:[24]

[24] The Aviation Rulemaking Advisory Committee (ARAC) created the Flightdeck Secondary Barrier Working Group in September 2019, with the report published in March 2020. The group was asked to provide recommendations on Public Law 115-254, which requires that the FAA issue an order for the installation of secondary cockpit barriers on each new aircraft that is manufactured for delivery to a passenger air carrier in the U.S. operating under 14 CFR 121. Many of the Technical Working Group's recommendations used the ARAC report as guidance in developing the recommendations in this report.
"Flightdeck Secondary Barrier Working Group Recommendation Report," 2020, https://www.faa.gov/regulations_policies/rulemaking/committees/documents/media/SBWG%20Recommendation%20Report%20(submitted%20to%20FAA%203-20-2020).pdf.

Table 2: Technical Working Group Recommendations and Related ARAC Recommendations

ARC Charter Tasks	Technical Working Group Recommendations	Related ARAC Recommendations
a. Review and develop findings and recommendations to require installation of a secondary flightdeck barrier on commercial passenger aircraft operated under the provisions of part 121 of title 14, Code of Federal Regulations (14 CFR), that are not captured under another regulation or proposed regulation.	Recommendations 5, 6, 7, 9 and 10	
(b) Determine if the FAA's rule should apply to airplanes operated under parts in addition 14 CFR part 121 (e.g., 14 CFR part 129). If so, review and develop findings and recommendations for airplanes operating in these other 14 CFR parts as well.	Recommendation 8	Recommendation 13
Consider the list of items in the FAA Reauthorization Act of 2024, section 350, subsection (c) in developing the findings and recommendations.		
(1) minimum dimension requirements for secondary barriers on all aircraft types operated under part 121 of title 14, Code of Federal Regulations;	Recommendation 7	Recommendation 15
(2) secondary barrier performance standards manufacturers and air carriers must meet for such aircraft types;	Recommendation 7	Recommendation 15
(3) the availability of certified secondary barriers suitable for use on such aircraft types;	Not explicitly addressed	
(4) the development, certification, testing, manufacturing, installation, and training for secondary barriers for such aircraft types;	Recommendations 6 and 7	Recommendations 7, 8, 9, 10, 11, 12
(5) flight duration and stage length;	Recommendation 5	Recommendation 15
(6) the location of lavatories on such aircraft as related to operational complexities;	Recommendations 6 and 7	Recommendation 15
(7) operational complexities;	Recommendations 6, 7 and 9	Recommendation 15
(8) any risks to safely evacuate passengers of such aircraft; and	Addressed within Recommendations 6 and 7 (operational and design constraints)	Recommendation 15
(9) other considerations the Administrator determines appropriate	Recommendations 5 and 9	Recommendations 1 and 5
(d) Review Advisory Circular (AC) 25.795-10, Installation of Physical Secondary Barriers for Transport Category Airplanes, and AC 120-110A, Aircraft Secondary Barriers and Alternate Flightdeck Security Procedures, to determine if revisions are required as a result of the ARC proposals. If so, provide proposed changes.	Recommendation 10	Not specifically numbered (covered generally in ARAC Final Report discussion)
(e)Provide initial qualitative and quantitative:		
i. Estimates of cost to implement the change, including both safety and monetary costs.	Recommendations 5, 6 and 9	Recommendation 16
ii. Estimates of benefits to the public, including both safety and monetary benefits.	Recommendations 5, 6 and 9	Recommendation 16

II. Recommendations

A. Limitation for rule applicability for retrofit based on flight duration

Recommendation 5.

The FAA should limit the installation of secondary flightdeck barriers on existing part 121 aircraft based on flight duration, with cost-benefit considerations providing additional justification for this approach.

Recommendation Summary

The intent of this recommendation is to primarily limit the installation of secondary flightdeck barriers on existing part 121 aircraft based on flight duration, with cost-benefit considerations providing additional justification for this approach. There is a direct relationship between shorter flights and a reduced operational need to open the flightdeck door, which results in fewer exposures to potential security threats. Operational needs, such as restroom use, meal service, or crew changes occur less frequently — or not at all — on flights under two to three hours. This correlation is supported by medical research, including the EASA eMCO-SiPO study and findings from Henry Ford Health, both of which indicate that healthy individuals typically require lavatory access only after two to three hours of continuous flight.[25]

The reduced frequency of transitions proportionally limits the potential security benefit of IPSB installation on these aircraft.

Operational data from the U.S. Department of Transportation (DOT) further show that aircraft certified for fewer than 125 passenger seats predominantly operate short-haul flights, with the vast majority of routes lasting under two hours.[26] This operational pattern inherently reduces the frequency of cockpit door openings during flight, and thereby the risk of unauthorized access.

Furthermore, the DOT's lavatory accessibility regulation (which uses the 125-seat threshold) sets a regulatory precedent grounded in technical, operational, and cost-benefit analyses.[27] Although the lavatory rule is not a safety standard, it illustrates a valid use of operational characteristics to define regulatory applicability — a logic that also applies here.

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[25] European Union Aviation Safety Agency. "eMCO-SiPO: Extended Minimum Crew Operations—Single Pilot Operations—Safety Risk Assessment Framework." Horizon Europe projects, September 2022-April 2025. https://www.easa.europa.eu/en/research-projects/emco-sipo-extended-minimum-crew-operations-single-pilot-operations-safety-risk; Henry Ford Health - Detroit, MI. "How Often Should You Pee?," March 7, 2023, https://www.henryford.com/blog/2023/03/how-often-should-you-pee.

[26] U.S. Department of Transportation. 2023. "Accessible Lavatories on Single-Aisle Aircraft." *Federal Register* 88, no. 148 (August 1): 50020–50036. https://www.federalregister.gov/documents/2023/08/01/2023-16178/accessible-lavatories-on-single-aisle-aircraft.

[27] *Id*.

Applying a uniform retrofit requirement to all aircraft under part 121 would impose disproportionate burdens, especially on regional aircraft with limited cabin flexibility and minimal security exposure due to their operational profiles. A flight-duration-based exemption would maintain the security intent of the rule while preventing excessive cost and disruption.

Justification and Development

The recommendation to apply a threshold based on the FAA-certificated maximum seating capacity, accounting for flight duration considerations, is grounded in the operational characteristics of the existing fleet and the natural reduction of risk exposure associated with short-haul operations. Operational needs, such as lavatory use, meal service, or crew changes — the primary scenarios necessitating cockpit door transitions — occur infrequently on flights shorter than two to three hours. This is supported by medical studies, including the EASA eMCO-SiPO and Henry Ford Health (2023), which conclude that healthy individuals typically require lavatory access only after two to three hours of continuous flight.[28] Additionally, the ARC Cost-Benefit analysis in Section IV.D. shows that regional aircraft (typically below 125 seats) conduct over 90% of flights under two hours, with cockpit door openings in only about 20% of these. Retrofit cost per seat for these aircraft is up to ten times higher than for widebodies, with estimated cost per life saved exceeding $100 million, far above accepted regulatory benchmarks.

Data from the U.S. Department of Transportation further support this rationale: less than 2% of flights operated by aircraft with fewer than 125 seats exceed three hours, and less than 10% exceed two hours.[29] These aircraft predominantly operate short-haul routes, where the cockpit door generally remains closed throughout the flight, minimizing exposure to threats associated with door transitions.

FAA guidance also reinforces this point. AC 120-110A highlights that cockpit door openings are necessary primarily on long-haul missions, citing crew rest, meal delivery, and lavatory access. Thus, aircraft engaged in short-duration operations inherently present fewer security vulnerabilities.[30]

In addition to operational justification, cost and feasibility considerations strongly support limiting retrofit applicability. Retrofitting IPSBs into in-service aircraft introduces significant challenges absent in forward-fit designs, including layout rework (e.g., galley or lavatory relocation), structural reinforcements, and the need for a Supplemental Type Certificate (STC) or equivalent

[28] European Union Aviation Safety Agency. "eMCO-SiPO: Extended Minimum Crew Operations—Single Pilot Operations—Safety Risk Assessment Framework." Horizon Europe projects, September 2022-April 2025. https://www.easa.europa.eu/en/research-projects/emco-sipo-extended-minimum-crew-operations-single-pilot-operations-safety-risk; Henry Ford Health - Detroit, MI. "How Often Should You Pee?," March 7, 2023, https://www.henryford.com/blog/2023/03/how-often-should-you-pee.
[29] U.S. Department of Transportation, "Accessible Lavatories on Single-Aisle Aircraft."
[30] U.S. Department of Transportation, Federal Aviation Administration. "Advisory Circular 120-110A: Aircraft Secondary Barriers and Alternate Flightdeck Security Procedures." June 1, 2023. https://www.faa.gov/documentLibrary/media/Advisory_Circular/AC_120-110A.pdf

retrofit-specific approval. Installation requires aircraft downtime, leading to scheduling impacts and revenue losses. These constraints are especially severe for regional aircraft, which often lack the cabin flexibility of larger types and operate under tighter utilization windows.

The estimated cost of retrofitting IPSBs can be up to 2.5 times higher for forward-fit installations for widebodies and 10 times higher for regional aircraft (i.e., aircraft with fewer than 125 seats), as reported in working group technical assessments and also in the Cost-benefit Working Group section.[31] These cost multipliers account for downtime, redesign, installation labor, and revenue loss from reduced seat counts or cabin service areas.

From a policy standpoint, the recommendation aligns with risk-informed regulatory principles. Measures whose cost per life saved exceed $100 million are generally deemed unjustifiable from a public interest perspective. Retrofits for aircraft operating low-risk, short-duration missions likely exceed this threshold given their minimal incremental safety gain.[32]

Furthermore, global fleet data from Oliver Wyman indicate that approximately 30% to 40% of the global commercial fleet — around 8,500 to 11,400 aircraft — fall into the subcategory of having fewer than 125 FAA-certified seats.[33] These aircraft conduct more than 90% of their missions on routes with less than two hours of block time.[34] Imposing retrofit requirements on this segment would therefore result in high cost and operational disruption with limited safety benefit, undermining regulatory proportionality and effectiveness.

Conclusion and Next Steps

The analysis supports the exclusion of aircraft with an FAA Certificated Maximum Passenger Seating Capacity of up to 125 seats from the retrofit requirement for secondary flightdeck barriers. These aircraft operate predominantly short-haul missions, with limited operational needs that require cockpit door transitions during flight. As such, the probability of exposure to in-flight security threats is inherently low, and the marginal safety benefit gained through retrofitting IPSBs in this segment does not justify the regulatory, operational, and economic costs.

A risk-informed approach ensures that regulatory efforts remain targeted where security exposure is highest — namely, on long-haul aircraft with frequent door transitions. This preserves the original intent of the IPSB rule while avoiding disproportionate burdens on a significant subset of the part 121 fleet.

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[31] This estimate was made by the companies that comprise the Technical Working Group and Cost-benefit Working Group; *See* Section IV.D.
[32] Mark G. Stewart and John Mueller. "Are We Safe Enough? Measuring and Assessing Aviation Security" (Amsterdam: Elsevier, 2017).
[33] Oliver Wyman, "Global Fleet and MRO Market Forecast Commentary, 2024-2034" (New York: Oliver Wyman, February 28, 2024), https://www.oliverwyman.com/our-expertise/insights/2024/feb/global-fleet-and-mro-market-forecast-2024-2034.html
[34] *Id*.

Incorporating cost-benefit analysis further reinforces the viability of this recommendation. With retrofit costs up to 2.5 times (widebodies) or 10 times (regional aircraft) higher than forward-fit installations and minimal incremental safety gains, the cost-effectiveness threshold (e.g., $100 million per life saved) is likely exceeded for this category of aircraft.[35] Applying the same requirement uniformly across all fleet types would result in inefficient allocation of industry resources and unnecessary operational disruption, particularly in regional operations with low-risk profiles.

By narrowing the scope of retrofit applicability, the FAA can maintain security equivalence while respecting operational diversity across the commercial fleet. This ensures a focused, technically justified, and economically rational regulatory outcome.

To implement this recommendation, the ARC proposes the following actions:

- Amend 14 CFR 121.313(l) to introduce a threshold based on the FAA Certificated Maximum Passenger Seating Capacity, limiting the retrofit requirement to aircraft with 125 seats or more, manufactured on or before August 25, 2025, as detailed in Recommendation 6.
- Update AC 120-110A and AC 25.795-10 to align with these regulatory changes and provide supporting guidance for compliance.
- Proceed with these updates through the FAA's NPRM process, without creating a new Advisory Circular specific to flight duration or retrofit applicability.

While flight duration was part of the technical rationale supporting this recommendation, it is not included as a regulatory criterion in the proposed amendments.

Technical and Economic Support

Operational Profile of Regional Aircraft

Data from the Regional Aircraft Association (RAA) confirms that all aircraft operated by its part 121 member airlines have a Maximum Passenger Seating Capacity (MPSC) below 125 seats, averaging 67 seats in 2024.[36] These aircraft predominantly operate short-haul missions. The average scheduled block time is 111 minutes, with real-time averages around 90 minutes.[37] DOT data shows that less than 2% of these flights exceed three hours, and less than 10% exceed two hours.[38]

[35] This estimate was made by the companies that comprise the Technical Working Group and Cost-benefit Working Group; *See* Section IV.D.
[36] Regional Airline Association, "2024 Annual Report: U.S. Regional Airline Operational Data" (September 19, 2024), https://www.raa.org/raa-releases-2024-annual-report/.
[37] *Id*.
[38] U.S. Department of Transportation, "Accessible Lavatories on Single-Aisle Aircraft."

This operational profile correlates with FAA guidance that in-flight cockpit door transitions typically occur on long-haul flights, driven by physiological and operational needs.[39] Medical studies further confirm that healthy individuals generally require lavatory access only after two to three hours of continuous flight.[40] The Technical Working Group considered operational profiles, fleet characteristics, and cost-benefit factors when developing its recommendation to apply a 125-seat threshold for retrofit applicability.

Cost, Feasibility, and Risk-Benefit Assessment

Retrofitting in-service aircraft presents several challenges not encountered in forward-fit programs, including reconfiguration of galley or lavatory areas, structural reinforcements, retrofit-specific STC certification, and aircraft downtime. Revenue losses may also occur due to seat or cabin space reallocation. [41] Working Group technical analyses and OEM evaluations estimate retrofit costs up to 2.5 times higher than forward fit.[42]

The 2024 Congressional Research Service (CRS) report notes that FAA estimates per-aircraft IPSB retrofit costs up to $35,000, significantly higher than CBO's original assumption of $12,000.[43] FAA also anticipates long-term industry-wide lifecycle costs ranging from $20 million to $29 million annually through 2072, and acknowledges that cost-effectiveness depends heavily on barrier longevity and probability of use — parameters unlikely to be met in short-haul aircraft near retirement.[44]

From a public policy perspective, regulatory action should avoid imposing high-cost measures with limited safety return. The cost per life saved in low-risk fleets may exceed acceptable thresholds for regulatory efficiency (e.g., >$100 million/life, per Stewart & Mueller), especially when IPSBs are added late in the aircraft's service life.[45]

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[39] Federal Aviation Administration. "Advisory Circular: Aircraft Secondary Barriers and Alternate Flightdeck Security Procedures." June 1, 2023. https://www.faa.gov/documentLibrary/media/Advisory_Circular/AC_120-110A.pdf.

[40] European Union Aviation Safety Agency, *eMCO-SiPO*; "How Often Should You Pee?" *Henry Ford Health*.

[41] *RAA response to Technical Working Group questions.*

[42] This estimate was made by the companies that comprise the Technical Working Group. (Technical Working Group Internal Estimate, 2025.

[43] Congress.gov. "Secondary Cockpit Barriers for Airline Aircraft." August 1, 2024. https://www.congress.gov/crs-product/IF12435.

[44] Federal Aviation Administration. 2023. *Installation and Operation of Flightdeck Installed Physical Secondary Barriers on Transport Category Airplanes in Part 121 Service*. Final Rule. Federal Register. https://www.federalregister.gov.

[45] Stewart, Mark G., and John Mueller. *Are We Safe Enough? Measuring and Assessing Aviation Security*. Elsevier Science & Technology Books, 2017. https://openlibrary.org/books/OL28641337M/Are_We_Safe_Enough.

Flight Impact and Strategic Rationale

Oliver Wyman's 2024 Global Fleet Forecast estimates that approximately 8,500 to 11,400 aircraft worldwide have fewer than 125 seats — accounting for 30–40% of the global commercial fleet.[46] These aircraft conduct over 90% of their operations on sub-two-hour routes.[47] A blanket retrofit requirement would disproportionately affect this fleet segment, essential for regional connectivity across the U.S.

The CRS further estimates that, under the current FAA rules, it would take 25 to 28 years for most of the U.S. passenger fleet to naturally acquire IPSBs via forward-fit only.[48] Mandating retrofit on existing aircraft would accelerate this cost into the present — without addressing a statistically significant security gap in short-haul operations.

Therefore, excluding these aircraft — based on seat count or average block time — ensures a rulemaking approach that is risk-informed, economically sustainable, and technically justified.

B. Flexibility in implementation, design, and operation requirements

Recommendation 6.

The FAA should allow flexibility in the installation of secondary barriers for aircraft manufactured on or before August 25, 2025.

Recommendation Summary

The FAA should allow flexibility in the installation of secondary barriers for aircraft manufactured on or before August 25, 2025. The requirement should focus on the core security objective: to delay unauthorized access to the flight deck by at least 5 seconds during door transitions, without requiring full compliance with the six performance criteria outlined in § 25.795(a)(4) of amendment 25-150.

Justification and Development

The objective of ensuring a minimum five-second delay during cockpit door transitions is recognized as the central element of protection provided by the secondary barrier. Although there is no established method yet for demonstrating compliance with this requirement in retrofit

[46] Oliver Wyman, "Global Fleet and MRO Forecast."
[47] U.S. Department of Transportation, "Accessible Lavatories on Single-Aisle Aircraft."
[48] Congress.gov. "Secondary Cockpit Barriers for Airline Aircraft." August 1, 2024. https://www.congress.gov/crs-product/IF12435

configurations, it is reasonable to prioritize this criterion as the focus for regulatory conformity. A performance-based approach enables industry to progress in the search for feasible solutions.

A review of current aircraft configurations highlights the following retrofit challenges:

- Space constraints: The area between the cockpit door and adjacent cabin elements is often too limited to accommodate a secondary barrier without interference.
- Structural limitations: Monuments and attachment points were not originally designed to support the loads or integration of a secondary barrier, requiring reinforcements or structural modifications.
- Cabin layout impacts: In several aircraft, retrofit would necessitate removing revenue-generating seats or significantly altering lavatories, galleys, or stowages, resulting in economic penalties and prolonged aircraft downtime.[49]

These structural and operational modifications would not only require complex redesigns but could also render retrofitting these aircraft economically unfeasible. Preliminary estimates indicate that applying the full set of current design requirements to existing fleet aircraft may result in non-recurring costs up to 2.5 times higher than for line fit configurations.[50] This increase is driven by the high level of customization required, additional testing and certification, and, in some cases, major cabin layout changes.

Justification for not retaining § 25.795(a)(4) in retrofit applications

Implementing performance-based flexibility ensures that retrofit efforts focus on achieving the core security outcome: delaying unauthorized access to the flightdeck by at least five seconds during door transition events on aircraft manufactured on or prior to August 25, 2025. The principal function of the secondary barrier is to create a time buffer, enabling the flight crew to detect and respond to an attempted intrusion during in-flight door openings.

This approach promotes regulatory consistency, protects operators of existing fleets from undue retrofit burdens, and advances aviation security in a practical and scalable manner.

Retrofitting aircraft with full compliance to § 25.795(a)(4) Amendments 25-150 would require extensive modifications that are often impractical and economically disproportionate. As outlined above, preliminary cost impact estimates demonstrate the magnitude of this burden. Therefore, rather than duplicating technical requirements designed for forward-fit applications, a targeted approach focusing solely on intrusion delay allows operators to preserve cabin layouts and avoid unnecessary retrofits. This preserves operational flexibility while still achieving the intended security objective.

[49] These limitations were concluded from the Technical Working Group's Design Feasibility Assessment.
[50] This estimate was made by the companies that comprise the Technical Working Group. (Technical Working Group Internal Estimate, 2025.

Rationale for not retaining § 25.795(a)(4)(i) and (ii) in retrofit rulemaking

Title 14 CFR *25.795(a)(4)(i) and (ii)* require an IPSB to resist a static load of 250 pounds (1113 Newtons) in the direction of the passenger cabin, and 600 pounds (2669 Newtons) toward the flightdeck, applied at the most critical points of the installation on aircraft manufactured after August 25, 2025.

For retrofit applications, these specified static load requirements introduce structural integration challenges and increased system mass, without yielding commensurate gains in operational security. Accommodating such load paths typically necessitates reinforcement of existing monuments or encroachment into passenger-accessible volume, which may lead to cabin reconfiguration, reduced payload capacity, and extended out-of-service intervals, which carry significant economic and certification burdens.

The recommendation is to adopt a performance-based approach for retrofit by allowing alternative load criteria—based on human factors and threat-based data with safety margins—instead of the static loads in § 25.795(a)(4)(i) and (ii). Compliance would be shown through a realistic intrusion test, as detailed in Recommendation 7, confirming at least a five-second delay in access to the flight deck. This maintains the intended protective function while reducing retrofit burden.

The level of safety achieved through the retrofit rule is equivalent to that of production aircraft. This equivalency is established not by mirroring specific design solutions, but by ensuring that the required protective function — specifically, delaying unauthorized access to the flight deck for a minimum of five seconds — is consistently met across all applicable aircraft.

Rationale not to retain § 25.795(a)(4)(iv) and (v) in retrofit rulemaking

Certain aircraft have their forward entry doors located immediately behind the flight deck compartment, leaving minimal space for interior structural installations. The only viable solution to satisfy criteria (iv) and (v) would be to install an IPSB feature aft of the forward entry door. However, in some designs, passenger seating begins just aft of the forward entry door, necessitating either an IPSB that spans the full width of the fuselage or the removal of seats to permit interior structure installation on both sides of the passenger aisle. The latter option implies a significant redesign of the aircraft for retrofit purposes, reducing the aircraft's revenue-generating capacity due to the loss of premium cabin seats.

Given these constraints, compliance with paragraphs (iv) and (v) may be considered impractical for retrofit configurations due to physical space limitations between the forward seat row and the flight deck door.

Rationale not to retain § 25.795(a)(4)(vi) in retrofit rulemaking

The visibility of the deployed IPSB from the cabin is limited due to interference from complex monument arrangements located at the front of the aircraft. In certain cases, visibility through the IPSB can only be achieved while standing directly in front of it. This condition is not achievable

from typical cabin seating or aisle positions, and due to the variability of layout arrangements in retrofit applications, it is anticipated that compliance with the visibility requirement, as currently defined, would not be technically feasible across the fleet.

Given these integration constraints, any future interpretation of this requirement in retrofit contexts should consider performance-based flexibility, where applicable, rather than strict adherence to fixed visibility criteria.

Conclusion and Next Steps

Considering these factors, it is recommended that for aircraft manufactured on or before August 25, 2025, the regulatory requirement be limited to compliance with of § 25.795(a)(4)(iii): ensuring a minimum five-second delay during flight deck door transitions. Adopting this performance-based approach would preserve the intended security objective while acknowledging the technical, operational, and economic constraints of retroactive application. This guideline would enable manufacturers and operators to develop tailored compliance solutions that are proportional, feasible, and scalable.

C. *Dimensional requirements and performance standards for secondary barriers*

Recommendation 7.

The FAA should implement performance-based requirements centered on the protective function of the barrier, rather than fixed dimensional requirements.

Recommendation Summary

Establishing fixed dimensional requirements — such as width, height, or coverage area — for secondary barriers is considered impractical due to the wide variability in aircraft cabin configurations. A performance-based approach is recommended, centered on the protective function of the barrier: to delay unauthorized access to the flight deck by at least five seconds during door transitions, as required by § 25.795(a)(4)(iii) of Amendment 25-150.

This recommendation defines the functional objective as the basis for compliance, and proposes a basic, physical test as the standard means of demonstrating that objective. Other dimensional or structural criteria should only be applied insofar as they contribute to achieving the required delay.

Justification and Development

Fixed dimensional criteria (e.g., minimum width or height) are not practical for retrofit applications, given the wide diversity in aircraft types, cabin layouts, monument configurations, and aisle geometries across the Part 121 fleet. Imposing universal dimensions would likely require structural redesigns, relocation of lavatories or galleys, and other costly modifications, making implementation infeasible for many operators.

Instead, the focus should remain on achieving the intended security outcome: providing a delay of at least five seconds during cockpit door transitions. This delay gives the flight crew the necessary time to close the cockpit door in case of an attempted intrusion. The delay of access is the core protective function of the secondary barrier.

To support this, the Technical Working Group recommends a realistic, physical test that simulates a manual intrusion attempt, capturing the diversity of designs without enforcing a fixed shape or size. The proposed test is practical, repeatable, and adaptable, and reflects operational realities while maintaining the intent of the regulation.

Proposed Means of Compliance

To demonstrate compliance with the delay requirement defined in § 25.795(a)(4)(iii) of Amendment 25-150, the Technical Subgroup proposes a structured physical test based on realistic intrusion scenarios. This method provides a practical, repeatable, and technically justified reference to validate the effectiveness of the secondary barrier.

Test Objective

The objective is to directly measure the time it takes for an individual to bypass or breach the secondary barrier and physically reach the flight deck door, ensuring that the barrier delays access for no less than five seconds, as stipulated by the regulation.

Test Structure and Procedures

1. **Test Participants:**

   Individuals with practical experience in physical security or aeronautical operational procedures, capable of simulating plausible intrusion attempts within the cabin environment, including knowledge of the secondary barrier's normal and emergency operating modes.

   Test participants should include male individuals' representative of the 50th and 95th percentile body dimensions based on Henry Dreyfuss anthropometric data, reflecting realistic ranges of reach and upper-body strength.

   Where specific barrier geometries present potential vulnerabilities (e.g., narrow gaps, low clearances), additional test subjects — such as individuals' representative of the 5th percentile female — may be included to assess potential reach-through or bypass conditions.

   The selection of participants shall be made with the intent of validating the protective function of the barrier across credible intrusion scenarios and ensuring consistency of results across certification authorities.

2. **Intrusion Methods:**
   The test shall include multiple approaches, representing potential attack strategies:
   a. Forced push or maneuvers: attempting to physically push through, climb over, or bypass the barrier.
   b. Obstruction manipulation: for barriers with movable parts (e.g., curtains, straps), testers shall attempt to manipulate or remove such elements.
   c. Use of improvised tools: depending on threat assessment, simple tools compatible with items potentially accessible onboard (e.g., TSA list) may be used.
3. **Start Criterion:**
   Timing must commence precisely when the tester makes the first physical intentional contact with the barrier, indicating an active attempt to breach.
4. **End Criterion:**
   The test must conclude after 5 seconds or when the tester successfully physically touches the flight deck door.
5. **Number of Repetitions:**

   A minimum of three independent test runs must be conducted, each employing a distinct intrusion technique representative of plausible threat scenarios.

   These runs must be performed by at least two different test participants representing the anthropometric profiles defined in Item 1, ensuring diversity in reach, strength, and approach.

   The combination of varied participants and methods must be selected to explore different barrier vulnerabilities and confirm repeatability of the 5-second delay under realistic conditions.

6. **Documentation:**

   a. All tests must be video recorded with synchronized timestamps to ensure traceability and objective verification.
   b. If necessary, use multiple cameras from different angles to ensure clear visibility of test start and end points.

7. **Pass/fail Criteria:**

   The test article shall be considered compliant (pass) if, in all test runs, the test subject is unable to make physical contact with the flight deck door within five (5) seconds from the moment of first intentional physical contact with the secondary barrier.

   The items below clarify how contact with the flight deck door should be assessed for pass/fail determination:

a. For the purpose of this test, physical contact is defined as a deliberate hand or body action resulting in grasping or touching any portion of the flight deck door surface or frame, including the door edge when open.

b. Incidental or glancing contact that does not result in grasping and does not obstruct, delay, or interfere with the normal closing or opening of the flight deck door shall not constitute a failure.

c. Intrusion is defined as a successful "grab" or reach of the flight deck door, indicating a compromise of the protective intent of the barrier.

Rationale and Technical Justification

This compliance method focuses on the functional performance of the secondary barrier—ensuring a minimum five-second delay in unauthorized access to the flight deck—without imposing fixed dimensional or structural requirements.

Benefits of the Proposed Method:

- **Regulatory alignment:** Meets § 25.795(a)(4)(iii) by providing essential time for crew response.
- **Flexibility:** Accommodates diverse aircraft cabin configurations.
- **Practicality:** Enables a simple and repeatable security validation process.

Conclusion and Next Steps

Given the technical and operational infeasibility of imposing fixed dimensional requirements for retrofitted secondary barriers, regulatory efforts should focus exclusively on performance criteria directly related to the barrier's protective function. The core requirement remains: the ability to delay access to the flight deck by at least five seconds during door transition events.

The recommended test method provides a practical and repeatable way to demonstrate this delay in a realistic context, without prescribing specific barrier shapes, dimensions, or materials. This performance-based approach supports broad applicability across diverse aircraft configurations, while preserving the intended security objective of the regulation.

Next Steps:

1. Include the proposed method in Recommendation 7 and Recommendation 10 of this report, to establish it as a recognized means of compliance for retrofit applications.
2. Support future updates to AC 120-110A, enabling FAA guidance to reflect performance-based solutions for retrofit aircraft.

3. Enable operators and manufacturers to adopt flexible, feasible compliance strategies, reducing design burden while maintaining security intent.

D. *Applicability to Part 129*

Recommendation 8.

The FAA should not implement the requirement to install secondary cockpit barriers on aircraft operating under 14 CFR part 129.

Recommendation Summary

This recommendation is based on the fact that part 129 applies to foreign operators, including flights conducted with U.S.-registered aircraft outside the United States or entering the country from international airports. The regulatory and operational context of these flights is distinct, and their inclusion in the rule would introduce unnecessary technical, logistical, and diplomatic burdens.

Furthermore, there is no international support for such a mandate. Neither foreign civil aviation authorities nor the International Civil Aviation Organization (ICAO) currently consider the installation of physical secondary barriers to be a regulatory priority. A unilateral requirement by the FAA would create a misalignment with international standards, negatively impacting interoperability for foreign carriers and introducing disproportionate barriers to efficient global operations.[51]

From a security standpoint, it is important to note that the U.S. government has implemented robust screening measures at Last Point of Departure airports for inbound flights to the United States. These protocols significantly reduce the risk of cockpit intrusion attempts on international routes.[52]

Therefore, extending the requirement to part 129 aircraft would not provide proportional safety benefits when weighed against the cost and regulatory complexity involved. The recommendation is to maintain the scope of the regulation limited to part 121, as originally defined by Congress and reaffirmed through the FAA's recent regulatory actions.[53]

Supporting Regulatory References – Part 129 Scope

- **14 CFR Part 129 – Operations: Foreign Air Carriers and Foreign Operators of U.S.-Registered Aircraft Engaged in Common Carriage**

[51] "Installation and Operation of Flightdeck Installed Physical Secondary Barriers on Transport Category Airplanes in Part 121 Service," Federal Register, June 26, 2023, https://www.federalregister.gov/documents/2023/06/26/2023-13071/installation-and-operation-of-flightdeck-installed-physical-secondary-barriers-on-transport-category.
[52] "Flightdeck Secondary Barrier Working Group Recommendation Report," Recommendation 13.
[53] FAA Reauthorization Act of 2018, Pub. L. No. 115-254 (2018), https://www.congress.gov/115/plaws/publ254/PLAW-115publ254.pdf; FAA Reauthorization Act of 2024, Pub. L. No. 118-63 (2024), https://www.govinfo.gov/content/pkg/BILLS-118hr3935enr/pdf/BILLS-118hr3935enr.pdf; "Installation and Operation of Flightdeck Installed Physical Secondary Barriers on Transport Category Airplanes in Part 121 Service."

Defines the regulatory framework and operational requirements applicable to foreign air carriers operating to, from, or within the United States.

- **Recommendation Report to ARAC (2020) – Recommendation 13[54]**

  Part 129 exclusion justified due to lack of international harmonization and the presence of robust security protocols at foreign departure points.

- **FAA Installation and Operation of Flightdeck Installed Physical Secondary Barriers on Transport Category Airplanes in Part 121 Service Final Rule (88 FR 41295, June 26, 2023)**

  Official FAA rule confirming that extending the requirement to part 129 is not feasible without international consensus.

E. *Consideration of compliance time for aircraft manufactured on or before August 25, 2025*

Recommendation 9.

The FAA should implement an eight-year compliance timeline after retrofit rules are published to allow sufficient time for the industry and the FAA to develop, certify, and deploy retrofit solutions that meet the rule's intent without introducing disproportionate burdens or operational disruption.

Intent

This recommendation addresses the timeline necessary to implement the retrofit requirement introduced by § 121.313(l) for aircraft manufactured on or before August 25, 2025. The Technical Working Group suggests that a compliance window of minimum eight years after retrofit rules are published would allow sufficient time for the industry and FAA to develop, certify, and deploy retrofit solutions that meet the rule's intent without introducing disproportionate burden or operational disruption.

Rationale

Retrofit aircraft present distinct challenges compared to new production airplanes. Many affected models are no longer in production, and their cabin interiors were not originally designed to accommodate secondary cockpit barriers. As such, each retrofit solution will likely require unique design adaptations, engineering analysis, and in some cases, structural modifications.

[54] Recommendation Report to Aviation Rulemaking Advisory Committee for Implementation of Section 336 of P.L. 115-25, Recommendation 13 (2020).

Furthermore, the methods of compliance—such as the five-second delay demonstration described previously—may still require validation across diverse aircraft types and interior configurations. Operators and manufacturers will need time to:

- Finalize applicable design concepts and trainings;
- Coordinate with the FAA on acceptance and approvals;
- Align installations with existing maintenance cycles to minimize operational impact.

It is important to highlight that, within the ARAC IPSB process, a period of three years was requested to develop a single solution applicable to new production aircraft.[55] In contrast, the retrofit of the existing fleet introduces an additional layer of complexity: the presence of multiple configurations necessitating multiple technical solutions, distinct design adaptations, varied implementation strategies, and corresponding crew training for each specific case. Consequently, whereas a single solution justified a three-year timeline, the breadth and variability inherent to retrofit operations require a substantially longer period to ensure effective and consistent implementation across the entire fleet.

A phased timeline of minimum 8 years also reflects precedent in other retrofit-related regulations and allows smaller operators with limited engineering resources to comply in a sustainable way.

Notably, the FAA has previously authorized retrofit implementation timelines of this magnitude. For example, in the Flammability Reduction Means (FRM) regulation, operators were granted up to eight years to retrofit affected aircraft, recognizing the significant technical challenges and the need to coordinate installations with maintenance cycles.[56] Such precedents demonstrate that extended compliance periods are both feasible and appropriate when addressing complex fleet-wide retrofits, as is the case with secondary cockpit barriers.

Approach

If adopted by the FAA, the final rule should define this timeline as a phased compliance schedule, starting from the rule's effective date. Additional flexibility may be warranted for aircraft nearing retirement or with operational exemptions, subject to FAA review.

[55] Recommendation Report to Aviation Rulemaking Advisory Committee for Implementation of Section 336 of P.L. 115-25.
[56] Federal Aviation Administration. *InFO 14004: Compliance Plans for Retrofit of Flammability Reduction Means (FRM) to Transport Airplane Fuel Tanks*. March 10, 2014. https://www.faa.gov/other_visit/aviation_industry/airline_operators/airline_safety/info.

F. *Implementation Guidance in FAA Materials*

Recommendation 10.

The FAA should revise 14 CFR 121.313(l), AC 120-110A, and AC 25.795-10 to implement the retrofit requirements for aircraft manufactured on or before August 25, 2025, in alignment with the Technical Working Group's recommendations.

Approach

The current regulations (14 CFR part 121) and guidance materials (AC 120-110A and AC 25.795-10) do not address aircraft manufactured on or before August 25, 2025.

Pursuant to the charter's tasks (a) and (d), the Technical Working Group recommends amending § 121.313(l) (amendment 121-389), as well as AC 120-110A and AC 25.795-10, in accordance with Recommendations 5, 6, 7, and 9 of this report.

Amendment to 14 CFR Part 121

The ARC recommends amending 14 CFR 121.313(l) (Amendment 121-389) to read as follows.

§ 121.313 Miscellaneous equipment

(l) For airplanes required by paragraph (f) of this section to have a door between the passenger and pilot or crew rest compartments, and for passenger-carrying transport category airplanes that have a door installed between the pilot compartment and any other occupied compartment:

(1) that were manufactured after August 25, 2025, an installed physical secondary barrier (IPSB) that meets the requirements of *§ 25.795(a)(4), as amended on August 25, 2023*.

(2) that were manufactured on or before August 25, 2025, and with *a FAA-certificated Maximum Passenger Seating Capacity (MPSC)* of 125 or more, an installed physical secondary barrier (IPSB) that meets the requirements of *§ 25.795(a)(4)(iii), as amended on August 25, 2023*.

(m) Compliance Time. The installation required by paragraph (l)(2) of this section must be accomplished not later than *[DATE – Minimum eight years after the effective date of the final rule]*.

Amendment to AC 120-110A

8 BACKGROUND.

8.3 The FAA Reauthorization Act of 2018 required the installation of IPSBs on newly manufactured passenger aircraft operating under part 121. The FAA adopted Amendment 25-150 and Amendment 121-389, with § 121.313(l) requiring the installation of IPSBs and § 121.584(a)(3) requiring the use of them in flight when opening the flightdeck door. This AC

outlines acceptable means of compliance with § 121.584, regardless of whether IPSBs are required or not.

8.4 The FAA Reauthorization Act of 2024 required the installation of secondary cockpit barrier on some commercial passenger aircraft operating under part 121, specifically for aircraft manufactured before 25-Aug-2025. The FAA adopted Amendment 121-XXX (final amendment number to be assigned by FAA), with § 121.313(l)(2) and § 21.313(m). This amendment does not affect § 121.584(a)(3) already requiring the use of IPSB in flight when opening the flightdeck door. This AC outlines acceptable means of compliance with § 121.313(l)(2) (and thus § 25.795(a)(4)(iii)).

9 - ACCEPTABLE METHODS OF COMPLIANCE WITH § 121.584.

9.1 Aircraft Not Required to Have an IPSB Installed in Accordance With § 121.313(l).

9.1.1 Determine the method of secondary flightdeck security you intend to use.

1. Use of IPSB. IPSB meets the requirements of § 25.795(a)(4) or has supplemental procedures in place as an equivalent level of safety.

2. Use of a galley cart and crewmember as an INSB.

3. Use of a human barrier as an INSB.

9.1.2 Establish procedures for the secondary flightdeck security method selected, to include required training of crewmembers.

9.1.3 Present the method and procedures to your FAA Principal Operations Inspector (POI) for approval.

9.2 Aircraft Required to Have an IPSB Installed in Accordance With § 121.313(l)(1).

9.2.1 Use of an IPSB that meets the requirements of § 25.795(a)(4).

9.2.2 Establish procedures of secondary flightdeck security using the IPSB, to include required training of crewmembers.

9.2.3 Present the procedures to your FAA POI for approval.

9.3 Aircraft Required to Have an IPSB Installed in Accordance With § 121.313(l)(2).

9.3.1 Use of an IPSB that meets the requirement of § 25.795(a)(4)(iii).

9.3.2 Establish procedures of secondary flightdeck security using the IPSB, to include required training of crewmembers.

9.3.3 Present the procedures to your FAA POI for approval.

9.4 Additional Crewmember Procedures and Training for All Aircraft.

9.4.1 Operator procedures generally require the flightdeck door to be opened for only a brief amount of time, in accordance with industry best practices.

9.4.2 Include crewmember procedures and training where an INSB must be used in the event an IPSB malfunction.

9.4.3 Include crewmember procedures and training where an INSB must be used in the event an IPSB is inoperative and the carrier has approved minimum equipment list (MEL) relief.

9.4.4 For air carriers that have a fleet in which some aircraft are required to have IPSBs installed and some are not, include crewmember procedures and training for IPSBs and INSBs.

9.5 Non-U.S. Air Carriers. This AC is not applicable to non-U.S. air carriers.

<u>Amendment to AC 25.795-10</u>

[5 BACKGROUND—IPSB.

[The Technical Working Group recommends amending Chapter 5 of this AC in accordance with Section 336 of The FAA Reauthorization Act of 2024].

8 INSTALLED PHYSICAL SECONDARY BARRIERS (IPSB).

8.1 General.

Section 25.795(a)(4) is intended to protect the flightdeck from unauthorized intrusion when the flightdeck door is open.

For aircraft required to have an IPSB Installed in Accordance With § 121.313(l)(2), refer to Appendix A.

9 TESTING

This section describes acceptable test methods for demonstrating compliance with the flightdeck door requirements of § 25.795(a)(4). Alternative methods may also be used if shown to satisfactorily demonstrate compliance with the requirements of § 25.795(a)(4). Any mandatory language, such as “must,” in this section is only to indicate a requirement to satisfy the means of compliance provided by this section, and section 10, of this AC.

For aircraft required to have an IPSB installed in accordance with § 121.313(l)(2), refer to Appendix A.

10 PASS/FAIL CRITERIA

10.1 The assembly fails a test if one or more of the following occurs:

10.1.1 The IPSB is opened during the push or pull test.

10.1.2 The IPSB fails in a manner that allows a person to touch the flightdeck door within 5 seconds from the time they make first contact with the IPSB. Such disqualifying entry may be through removable panels on the IPSB or gaps formed as a result of the loading.

10.1.3 The IPSB latching mechanism fails or reacts in a manner that enables the IPSB to be opened within 5 seconds from the time a person makes first contact with the IPSB, including failure resulting from the use of simple tools, such as pocketknives, nail files, or keys.

10.2 For aircraft required to have an IPSB installed in accordance with § 121.313(l)(2), refer to Appendix A.

APPENDIX A- Aircraft Required to Have an IPSB Installed in Accordance With § 121.313(l)(2)

[The Technical Working Group recommends creating a dedicated Appendix A by incorporating the test structure and procedures, and pass fail/criteria, proposed within Recommendation 7].

Other 14 CFR regulations

The regulations below have been reviewed and are considered adequate:

- 14 CFR 25.795(a)(4), Amendment 25-150;
- 14 CFR 121.584, Amendment 121-389 - Requirement to view the area outside the flightdeck door (as reference to § 121.313(l) remains valid within § 121.584(a)(3), based on the amendment proposed for § 121.313(l) Amendment 121-389);
- 14 CFR 121.587, initial amendment - Closing and locking of flight crew compartment door (as reference to § 121.313 remains valid)

G. *For aircraft manufactured after August 25, 2025*

Recommendation 11.

The FAA should improve AC 25.795-10 for aircraft manufactured after August 25, 2025.

Intent

The intent is to improve the FAA AC 25.795-10 guidance, for aircraft manufactured after August 25, 2025, based on the experience gathered in the IPSB installation projects developed to meet the requirements of § 121.313(l) Amendment 121-389.

Rationale

Although the ARC charter does not address design solutions for aircraft manufactured after August 25, 2025, task (d) asks to for the ARC to consider a review AC 25.795-10, Installation of Physical Secondary Barriers for Transport Category Airplanes, and AC 120-110A, Aircraft Secondary Barriers and Alternate Flightdeck Security Procedures, to determine if revisions are required as a result of the ARC proposals, and to provide these proposed changes.

As such, the Technical Working Group considers it worthwhile to provide recommendations to improve AC 25.795-10 for both retrofit (refer to Recommendation 10) and forward-fit solutions, based on the experience acquired through the forward fit projects. Where appropriate, the experience mentioned in this section needs to be capitalized to support the retrofit, considering that the retrofit requirements may be based on 14 CFR 25.795(a)(4).

Approach

As part of Recommendation 10, the Technical Working Group proposed to improve the existing content of AC 25.795-10, including additional guidance on the items below:

- The AC should clarify that the IPSB design should be evaluated considering that the attack to the flight deck is performed by one subject only.
- The push loads proposed to be applied on the IPSB should be reduced depending on the distance between the critical point locations and the cabin floor. The AC should consider optimized strength criteria derived from human factors and security data, eventually combined with an adequate safety margin, as an acceptable means of compliance.
- The AC should clarify that design features on the IPSB (e.g. gaps between the top of the IPSB and the cabin ceiling, or any other slots/openings) or in the IPSB surroundings (e.g. handholds) that may be grabbed and used as leverage means to load the IPSB should be eliminated; in case such design features are not eliminated, it should be demonstrated that the IPSB can withstand pull loads higher than the 250 lbs required by 14 CFR 25.795(a)(4)(i). The FAA may consider existing (human factors/security) standard as reference to define the pull load that should be applied on the IPSB, considering also the location and the geometry of the design feature(s).

- Additional criteria/minimum design standards for the determination of the line-of-sight visibility are needed (along with the corresponding additional test guidance), based on scenario that are envisaged by the TSA. The ARC recommends that visibility through the IPSB is evaluated considering the following guidelines:
    - Visibility from the cabin to flight deck: the presence of a subject standing between the IPSB and the flight deck door should be detectable by a 5^{th} percentile female subject, a 50^{th} percentile male subject and a 95^{th} percentile subjects, standing in front of the IPSB on the passenger cabin side. The evaluation should be conducted in all lighting conditions that could be selected by the crew during flight, including emergency lighting conditions.
    - Visibility from the flight deck to the cabin: the presence of subjects of different size (at least a 5^{th} percentile female subject, a 50^{th} percentile male subject and a 95^{th} percentile subject) standing in front of the IPSB on the passenger cabin side should be detectable from the flight deck before opening the flight deck door. The evaluation should be conducted in all lighting conditions that could be selected by the crew during flight, including emergency lighting conditions.
- Additional guidance for the ingress testing. The test should be performed by a volunteer with knowledge of the design of the IPSB. It should be ensured that the volunteer has access to the documents that define the design and operation of the IPSB and has sufficient time to identify the best attack strategy before the test is performed.
- Reachability of the flight deck door through the IPSB should be evaluated considering any gaps available when the IPSB is latched in the deployed position. The permanent deformation resulting from the application of the pull and push loads specified in 14 CFR 25.795(a)(4)(i) and (ii) should be considered in the demonstration of compliance with 14 CFR 25.795(a)(4)(iv). Elastic deformation generated under load does not need to be analyzed, provided that an analysis of the load vs deflection curve confirms that critical level of elastic deformation cannot be achieved by loading the IPSB with one hand only.
- In the ingress test, long objects (e.g. walking aids) should be used only to try to unlatch, load or damage the IPSB. Touching the flight deck door with a long object inserted through a gap available when the IPSB is deployed is not considered a test failure.

D. Cost-Benefit Working Group Report

I. Summary

A. Introduction

Previous cost and benefit analyses for the secondary cockpit barrier by Stuart and Mueller and the federal regulation on the installation and operation of flightdeck installed physical secondary barriers on transport category airplanes provide a single estimate for a cost breakeven point.[57] This does not consider the different classes of commercial aircraft, their characteristics, operational profile and likelihood to be a viable target for a terrorist attack. The Cost-Benefit Working Group reviewed the cost-benefit calculation, considering the characteristics of the three main categories of commercial aircraft as defined by the FAA (Widebody, Narrowbody and Regional Aircraft).[58] These categories are used to compare the cost and benefit for implementing an IPSB by retrofit on the in-service fleet of Part 121 Commercial Aircraft.

B. Benefit Analysis

Report No. 285.11.2019, titled Security Risk and Cost-Benefit Assessment of Secondary Flight Deck Barriers was submitted to the FAA's Office of Aviation Policy and Plans in November 2019. The report outlines the potential benefits of IPSBs and was intended to support the FAA's cost-benefit evaluation.[59]

The Cost-Benefit Working Group revisited this analysis for retrofit IPSB, incorporating several critical factors—including the actual cost of implementing IPSBs on retrofit aircraft. While Report No. 285.11.2019 assumes an installation cost of $10,000, the true cost is expected to be significantly higher due to the aircraft reconfiguration required for retrofit scenarios. Additionally, the estimated loss of $50 billion may not be applicable to smaller aircraft with lower passenger capacity, where the financial risk would be much lower.[60] The Cost-Benefit Working Group's updated assessment also considers variables, such as flight duration and seat count, to enable a more accurate and realistic breakeven analysis of costs versus benefits.

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[57] Stewart and Mueller, "Are We Safe Enough?" (2017); Mark G. Stewart and John Mueller, "Security Risk and Cost-Benefit Assessment of Secondary Flight Deck Barriers," Centre for Infrastructure Performance and Reliability, University of Newcastle, November 2019, https://figshare.com/articles/report/Security_risk_and_cost-benefit_assessment_of_secondary_flight_deck_barriers/28989728?file=54369719; "Installation and Operation of Flightdeck Installed Physical Secondary Barriers on Transport Category Airplanes in Part 121 Service," June 26, 2023.

[58] Federal Aviation Administration, "Aircraft Capacity and Utilization Factors," *Federal Aviation Administration Report*, 2023, https://www.faa.gov/regulations_policies/policy_guidance/benefit_cost/econ-value-section-3-capacity.pdf.

[59] Stewart and Mueller, "Security Risk and Cost-Benefit Assessment of Secondary Flight Deck Barriers."

[60] *Id*.

In the United States, approximately one billion passengers are screened by TSA each year.[61] In response to the 9/11 attack, the Department of Homeland Security has implemented a robust safety system that employs multiple layers of security, both seen and unseen, including, but not limited to:

- The use of intelligence and analysis,
- Cross-checking passenger manifests against relevant databases,
- Thorough screening at checkpoints,
- Random canine-team screening at airports,
- Reinforced cockpit doors,
- Federal air marshals,
- Armed pilots, and
- A vigilant public.[62]

This has been an effective deterrent with no terrorist attacks attempted on aviation in the United States post 9/11. Terrorist bombings attempted outside the U.S., such as the shoe bomber and underwear bomber, were foiled before they could detonate their devices. Stewart and Mueller estimate the chance of being killed by a terrorist on a plane is 1 in 110 million (9.09x10-9).[63]

Because there has not been a terrorist attempt on aviation in the U.S. since 9/11, the Cost-Benefit Working Group used the industry standard SAE Continuous Airworthiness methodology for estimating the probability of extremely rare events.[64] This uses a factor of 0.693 over the total flight hours (2 billion) to establish the probability of an incident rate of 3.465x10-9.

Valuation of a Statistical Life (VSL)

The benefit of preventing a fatality is measured by what is conventionally called the Value of a Statistical Life (VSL), defined as the additional cost that individuals would be willing to bear for improvements in safety (reductions in risks) that, in the aggregate, reduce the expected number of fatalities by one. The willingness to pay to avoid the risk of a fatal injury increases proportionately with growing risk. For example, when an individual is willing to pay $1,000 to reduce the annual

[61] Federal Aviation Administration. (2023). Aircraft capacity and utilization factors. In Federal Aviation Administration Report. https://www.faa.gov/regulations_policies/policy_guidance/benefit_cost/econ-value-section-3-capacity.pdf
[62] U.S. Department of Homeland Security (n.d.) Aviation Security. https://www.dhs.gov/aviation-security
[63] Stewart and Mueller, "Security Risk and Cost-Benefit Assessment of Secondary Flight Deck Barriers."
[64] ARP5150A: Safety Assessment of Transport airplanes in Commercial service - SAE International. (n.d.). https://www.sae.org/standards/content/arp5150a/

risk of death by one in 10,000, she is said to have a VSL of $10 million.[65] The most recent VSL used by the Department of Transportation for the calculation of risk, is $13.7 million.[66]

As described above, commercial aviation is extremely safe with a very low probability of a terrorist attack in the U.S. The SAE methodology can be restated as a probability of 1 in 280,000,000. Using the VSL calculation, a willingness to pay of only $0.05 (five cents) to reduce the likelihood of a death by terrorist attack of one per year is inferred.

Value of losses sustained in a successful attack

Stewart and Mueller calculate the potential losses of a single attack to be $50 billion by using the 9/11 attacks as a reference.[67] The direct loss of human life and injury is estimated using a VSL of $7.5 million, plus property damage and indirect costs such as the impact on tourism and business. However, Stewart and Mueller also acknowledge that "the degree of destruction on 9/11 was extreme in the history of terrorism, so, possibly, is the extent of the reaction by airline passengers."[68]

In the NPRM for the Installation and Operation of an IPSB, the FAA also uses the 9/11 attack as a reference to calculate the potential losses at $35.7 billion while using an older VSL of $11.8 million.[69] The Cost-Benefit Working Group updated the loss calculation to account for the latest VSL recommended by the Department of Transportation ($13.7 million) to estimate the passenger losses by aircraft type. For total losses, the Cost-Benefit Working Group doubled the passenger losses to account for both the direct and indirect losses. When considering the different passenger capacities of the FAA aircraft categories, the Cost-Benefit Working Group observed a six-fold difference in loss provision between a small Regional Jet and a large Widebody aircraft (Table 3).

[65] Department of Transportation. (2021). Departmental guidance Treatment of the value of preventing fatalities and injuries in preparing economic analyses. In Department of Transportation. https://www.transportation.gov/sites/dot.gov/files/2021-03/DOT%20VSL%20Guidance%20-%202021%20Update.pdf

[66] Departmental Guidance on Valuation of a Statistical Life in Economic Analysis. (n.d.). US Department of Transportation. https://www.transportation.gov/office-policy/transportation-policy/revised-departmental-guidance-on-valuation-of-a-statistical-life-in-economic-analysis

[67] Stewart and Mueller, "Are We Safe Enough?" (2017).

[68] *Id*.

[69] "Installation and Operation of Flightdeck Installed Physical Secondary Barriers on Transport Category Airplanes in Part 121 Service," June 26, 2023.

Table 3. VSL Losses for different categories of commercial aircraft

Aircraft Category	Passenger Capacity	Passenger Losses ($ million)	Total Losses ($ million)
Widebody 580k lbs or more MTOW	301	$4,124	$8,247
Widebody less than 580k lbs MTOW	250	$3,425	$6,850
Narrowbody 165k lbs or more MTOW	177	$2,425	$4,850
Narrowbody less than 165k lbs MTOW	133	$1,822	$3,644
Regional jet 61-99 seats	74	$1,014	$2,028
Regional jet less than 61 seats	48	$658	$1,315
Turboprop more than 60 seats	39	$534	$1,069
Turboprop 20-60 seats	12	$164	$329

*MTOW = maximum takeoff weight

Fatalities on the Ground

As mentioned previously, the destruction that occurred from the 9/11 attack was exceptional, never seen before or since for a terrorist attack of any kind. The Cost-Benefit Working Group reviewed other examples of aircraft that have crashed into populated cities to add some perspective to the scale of damage typically caused on the ground (Table 4).

Table 4. Examples of aircraft crashes into populated areas

City	Year	Aircraft	Description	Fatalities on ground
New York, NY	1945	B-25	Crash into Empire State Building	11
Lockerbie, Scotland	1988	B747	Bomb exploded above populated area	11
Paris, France	2000	Concorde	Crash into hotel on departure	4
Queens, NY	2001	A300	Crash into densely populated residential area	5
Tehran, Iran	2005	C-130	Crash into apartment building	12
Buffalo, NY	2009	DH8-4	Crash into densely populated residential area	1
Karachi, Pakistan	2020	A320	Crash into row of houses	1
Philadelphia, PA	2025	Learjet 55	Crash into populated residential area	2

Consideration of Aircraft Size

The Cost-Benefit Working Group noted that most aircraft crashes in populated areas have thankfully led to relatively few fatalities on the ground. The Cost-Benefit Working Group inferred that the amount of physical damage should be correlated to the energy of the impact, which itself is related to the size of the aircraft. In 1945, a B-25 bomber (MTOW of 35,000 lbs) crashed into the Empire State Building, killing 11 people in the building and inflicting $17 million (scaled for inflation to the standard in 2024) in damage to the building.[70] However, the building's structural integrity was not compromised.[71] When considering the FAA categories of aircraft, the Cost-Benefit Working Group noted that there is a 10 to 20-fold difference in MTOW and Fuel Capacity between a small Regional Aircraft and a large Widebody aircraft (Table 5) with a corresponding effect on impact energy.

[70] "News and Update: Empire State Building Withstood Airplane Impact," 2001, https://www.tms.org/pubs/journals/JOM/0112/News/News8-0112.html.
[71] *Id.*

Table 5. Maximum Takeoff Weight for categories of Commercial Aircraft

Aircraft Category	**MTOW (lbs)**	**Fuel Capacity (gal.)**
Widebody (Large)	580k or more	45,ooo
Widebody	Less than 580k	37,000
Narrowbody (Large)	165k or more	8,000
Narrowbody	Less than 165k	8,000
Regional Aircraft (Large)	Less than 86k	3,000
Regional Aircraft	Less than 65k	2,000

Reduction in Vulnerability due to IPSB

The fundamental premise of the IPSB is that it impedes access to the cockpit when the reinforced cockpit door is opened during flight for lavatory breaks, meal service, or crew changes. At other times, the IPSB should remain stowed and does not provide additional safety or security for the flight deck. In other words, if the cockpit door remains closed during a flight, the IPSB does not provide any additional benefit.

The likelihood that a pilot will require a lavatory break or meal service is dependent on the length of the flight. Regional Jets generally have shorter flight times than Narrowbody or Widebody aircraft (Table 6). Although the FAA database lacks data on how often the cockpit door is opened during a flight, the Cost-Benefit Working Group applied a methodology similar to that used by Stewart and Mueller to estimate the frequency of Federal Air Marshal Service presence on a flight.[72] The Cost-Benefit Working Group assumed that Widebody aircraft with an average flight time of 7.5 to 8 hours have a 100% probability that the cockpit door is opened in flight, whereas Regional Jets, with an average flight time of 1 hour, have a 20% probability.

[72] Stewart and Mueller, "Security Risk and Cost-Benefit Assessment of Secondary Flight Deck Barriers."

Table 6. Aircraft Flight Profiles

Aircraft Category	Aircraft Types	Average Flight Profiles (minutes)						Average Flight Time (hours)	Probability Cockpit Door Opened in Flight
		Taxi out & Takeoff	Climb	Cruise	Descent and Landing	Taxi In	Total		
Widebody 580k lbs or more MTOW	B777-200	NC*	20	401	24	NC*	445	7.5-8 hrs	100%
Widebody less than 580k lbs MTOW	A330-200	12	14	437	22	5	490		
Narrowbody 165k lbs or more MTOW	A320, A321, B737-800W	12	18	112	19	5	167	2-2.5 hrs	50%
Narrowbody less than 165k lbs MTOW	E190, A319, B737-300, B737-700W	12	20	65	19	5	120		
Regional jet 61-99 seats	CRJ700, CRJ900, E175, E175 E2	12	20	21	17	5	74	1 hr	20%
Regional jet less than 61 seats	CRJ200	12	23	19	16	5	74		

*NC = not calculated

Summary of Proposed Benefits by Aircraft Category

To simplify the number of aircraft categories, the Cost-Benefit Working Group took the Total Losses from the largest of each of the three main categories only (Widebody, Narrowbody and Regional Aircraft). To assess the actual contribution of the IPSB for those flights where the cockpit door is opened, the Cost-Benefit Working Group multiplied the Total Losses (from Table 3) by the probability of the cockpit door being opened in flight (from Table 6). This Net Benefit more accurately reflects the realistic benefit for each category of aircraft that can be achieved from the IPSB by preventing a terrorist from gaining access to the flight deck and deliberately crashing the aircraft.

Table 7. Net Benefit from IPSB by Aircraft Category

Aircraft Category	Total Losses ($ million)	Probability Cockpit Door Opened in Flight	Net Benefit ($ million)
Widebody	$8,247	100%	$8,247
Narrowbody	$4,850	50%	$2,425
Regional Aircraft	$2,028	20%	$406

C. Cost Analysis

The proposed rule is expected to incur costs related to engineering, production, weight impact, training, and maintenance compliance—specifically for retrofitting Part 25 aircraft currently in service under Part 121 operations.

The following table outlines the potential cost categories, associated estimates, and explanatory notes, including whether costs are non-recurring (one-time), per-aircraft, or hourly in nature. Data sources include Original Equipment Manufacturers (OEMs) and airline operators, as cited in the Notes section of Table 8.

The retrofit cost for installing an IPSB on an in-service aircraft is modeled as $87,500 per aircraft, representing a combination of factored non-recurring engineering (NRE), recurring costs & other costs mentioned above. This value is approximately 2.5 times higher than the estimate used in the FAA's IPSB rule for new production aircraft, aligning with assessments made by the Technical Working Group.[73]

To determine the total cost impact, the Cost-Benefit Working Group considered a wide range of one-time and recurring costs. Table 8 summarizes these inputs, reflecting data sourced from OEMs and operators.

[73] Installation and Operation of Flightdeck Installed Physical Secondary Barriers on Transport Category Airplanes in Part 121 Service, 88 FR 41295, June 26, 2023.

Table 8. Cost estimates for retrofit installation of IPSB

Cost Category	Cost Estimate	Notes
Non-Recurring Engineering	$200,000 – $10 million (one-time per aircraft model)	Covers initial engineering and certification for: • Component-level development • Aircraft interior reconfiguration • Provisions on the aircraft side for IPSB installation Includes: • Design, certification, structural engineering • Project management • Testing, prototype and test article development Estimate derived from four independent data sources. **Higher-end estimates reflect OEM input under three retrofit scenarios:** 1. **Standard Install:** IPSB device installed between existing left- and right-hand furnishings (e.g., closet, galley), requiring floor and ceiling attachments. Includes FAA certification via OEM SB or third-party MRO. 2. **One-sided Furnishing Missing:** Adds the cost of installing a missing furnishing on either the left or right side, in addition to the standard install. 3. **Both Sides Missing:** Includes the cost of adding furnishing on both sides of the aisle, on top of the standard install. **Note:** For twin-aisle aircraft, IPSB installation just aft of the flight deck is typically possible under scenario 1, as both side furnishings are usually present. This estimate assumes the IPSB solution is applicable to all LOPA configurations of the aircraft model. However, this may not hold true for many small aircraft. A case-by-case evaluation may be required.
Recurring Production (IPSB unit + installation hardware)	$75,000 – $500,000 per aircraft	Reflects unit cost of IPSB and required installation hardware. Based on four data sources.

Cost Category	Cost Estimate	Notes
Non-recurring Aircraft Manual / Instructions for Continued Airworthiness (ICA)	N/A	Expected to be minimal; cost is included in the engineering estimate.
Non-Recurring: Training Development	$43,500 per operator	Applies to pilot and flight attendant training development. Includes: • $33,500 in materials/equipment • 10 hours of labor at $100/hr (blended rate of instructional/technical developers) Estimate is based on a single data source and assumed a basic training setup. Further validation is required, especially if a functional training unit is needed for hands-on instruction or if multiple IPSB configurations exist within the fleet. Actual costs may vary depending on program requirements.
Pilot & Flight Attendant Training	40 min initial 30 min recurrent	Online: 30 mins per pilot/FA Hands-on: 10 mins per pilot/FA Based on one data source.
Maintenance Training	N/A	Not anticipated due to system simplicity and inclusion of clear ICA. No dedicated training expected if assumptions hold.
Supply Chain/Spares	$1000 per unit	Covers spares recommended by the OEM for forecasting and stocking. Based on ARAC report data.
Maintenance	Routine: $170 (2 hrs) Non-Routine: $680 (8 hrs)	Based on OEM planning data. Labor rate of $85/hr reflects average for A&P mechanics and avionics techs. Maintenance cost figures are derived from the ARAC report and assume approximately 2,000 flight cycles per year. Please refer to the ARAC report for further detail and context.
Weight Penalty	27 – 70 lbs.	Weight penalty will equate to added fuel burn requirements. Based on four data sources.

Cost Category	Cost Estimate	Notes
Estimated Downtime (Hours)	50 – 144 hours	Reflects aircraft ground time needed for IPSB installation. Estimate from three data sources.

Background

The FAA estimates that the cost for installing an IPSB is $35,000 based on their evaluation of a line-fit installation on a new build aircraft. This is then amortized over the 25-year lifespan of the aircraft to generate a total annualized cost of $20.3 million (7% discount rate) or $29 million (3% discount rate).[74] This estimate will be much higher for an in-service regional aircraft requiring an IPSB retrofit for the following reasons:

1. The cabin for the in-service aircraft was not designed to accommodate an IPSB and may require substantial modifications to achieve the required performance criteria.
2. There are many different cabin configurations in service with different operators that may require unique IPSB solutions to be engineered and certificated for each customer. The associated development costs on a per unit basis would be higher given the much smaller amortization.
3. The remaining lifespan over which to amortize the development and installation cost could be substantially less than 25 years as many of these aircraft have already been in service for many years.
4. It is far less efficient to remove or modify existing cabin monuments to accommodate the IPSB in service than to install the components on the assembly line for a new-build aircraft.

The actual cost of installing an IPSB in a retrofit configuration is likely 2.5 times as much or more than for a line-fit new production aircraft. The Cost-Benefit Working Group estimates $87,500 per aircraft, thus doubling the equivalent program cost from $236.5 million to $591 million.

Simplified Cost Comparison

A simple way to compare the cost impact on the various categories of aircraft is by looking at the cost per seat. This reflects the burden that each passenger will need to bear for the cost of installing the IPSB. The retrofit installation of an IPSB puts a greater burden on the smaller aircraft in three ways:

[74] *Id.*

1. The cost of the IPSB needs to be spread across a smaller number of seats driving a higher cost per seat.
2. Small aircraft are used on shorter routes with lower fares than the larger aircraft such that the cost has a proportionately larger impact on the fare. This is particularly significant for Essential Air Service routes where the government subsidizes access to smaller communities.
3. Many of the small aircraft models are no longer in production; therefore, they cannot benefit from the existing development and certification investments made for the line-fit solutions of in-production models, as is the case for retrofit solutions on larger aircraft models.

The retrofit installation of an IPSB has a 10-fold higher cost impact per seat on Regional Aircraft compared with mainline aircraft, placing a much higher cost burden on their operations (Table 9).

Table 9. Impact of IPSB cost on different aircraft categories

Aircraft Category	Number of Aircraft	Passenger Capacity	Total Passengers"	Cost of IPSB Retrofit*	Cost of IPSB per Fleet	Cost of IPSB per Seat	
Widebody 580k lbs or more MTOW	198	301	59598	$35,000	$6,930,000	$116	**Mainline**
Widebody less than 580k lbs MTOW	341	250	85250	$35,000	$11,935,000	$140	
Narrowbody 165k lbs or more MTOW	2,955	177	523035	$35,000	$103,425,000	$198	
Narrowbody less than 165k lbs MTOW	1,056	133	140448	$35,000	$36,960,000	$263	
Regional jet 61-99 seats	1,304	74	96496	$87,500	$114,100,000	$1,182	**Regional**
Regional jet less than 61 seats	503	48	24144	$87,500	$44,012,500	$1,823	
Turboprop more than 60 seats	17	39	663	$87,500	$1,487,500	$2,244	
Turboprop 20-60 seats	7	12	84	$87,500	$612,500	$7,292	

*Retrofit cost for Regional Aircraft estimated at 2.5 times the line-fit cost

D. Cost and Benefit Calculation by Aircraft Category

In the line-fit scenario, the values used by the FAA in the NPRM for the installation and operation of an IPSB indicate that the rule breaks even under the assumption that the probability of an attempted attack is 0.66%, and that the rule will be 100% effective in thwarting the attack.[75]

When looking at the retrofit scenario using the revised assumptions that account for the characteristics of the 3 categories of aircraft (Table 10) the Cost-benefit Working Group observed a much different outcome. There needs to be more than 1 attempted attack per year on a regional

[75] *Id.*

aircraft in which the IPSB prevents the attacker from gaining access to the cockpit before the rule breaks even. The hurdle rate is 200 times higher for the regional aircraft retrofit scenario than estimated with the reference calculation for line-fit aircraft.

Table 10. Cost and Benefit Calculation for different aircraft categories

Aircraft Category	**Total Cost ($ million)**	**Net Benefit ($ million)**	**Cost Benefit**
Widebody	$236	$8,247	3%
Narrowbody	$236	$2,425	10%
Regional Aircraft	$591	$406	146%

II. Recommendation

A. Cost-benefit Analysis

Recommendation 12.

The FAA should consider each aircraft category separately to assess the cost benefit ratio of an Installed Secondary Barriers (IPSB) with Regional Aircraft not reaching the required threshold.

Cost Benefit Assessment by Aircraft Category

- Widebody aircraft are used primarily for long-haul international flights with average flight times of 7.5-8 hours. On these longer flights the reinforced cockpit door will be opened during the flight and a secondary barrier will provide additional security against forced entry into the cockpit. With a capacity of more than 250 passengers, there is a net benefit of $8.247 billion with a total retrofit cost estimated to be $236 million. Under these conditions, the probability of an attempted attack must be 3% with the IPSB being 100% effective in thwarting the attack for the rule to break even. The equivalent of 1 attack every 33 years.

- Narrowbody aircraft are the most common aircraft type for domestic flights with an average flight time of 2-2.5 hours. It is likely that on many of these flights the cockpit door will be opened and that the IPSB would provide additional security against forced entry into the cockpit. With a typical capacity of 125-200 passengers, there is a net benefit of $2.425 billion with a total retrofit cost estimated at $236 million. Under these conditions, the probability of an attempted attack must be 10% with the IPSB being 100% effective in thwarting the attack for the rule to break even. The equivalent of 1 attack every 10 years.

- Regional aircraft are typically used to feed airport hubs or serve low-density routes including providing access to small communities through the Essential Air Services (EAS) program. Because regional aircraft are used on short flights with an average flight time of less than 1 hour, the cockpit door remains closed on the majority of the flights. Consequently, the IPSB only provides additional protection on approximately 20% of the flights. With a typical capacity of 76 or less passengers, the net benefit is $406 million. Due to several factors listed below, the retrofit cost for regional aircraft is estimated to be $591 million, roughly 2.5 times greater than the larger aircraft types. Under these conditions, the probability of an attempted attack must be 146% with the IPSB being 100% effective in thwarting the attack for the rule to break even. The equivalent of approximately 1.5 attacks per year.

Recommendation Against Retrofitting Regional Aircraft

Disproportionately High Cost:

- The estimated retrofit cost for Regional Aircraft is $591 million, over 2.5 times the cost assumed for larger aircraft. This is due to increased complexity of the retrofit design, reduced fleet commonality, and shortened aircraft service life.

Minimal Risk Reduction:

- Regional Aircraft have shorter flight durations and only a 20% probability of the cockpit door being opened during the flight.
- The calculated net benefit is just $406 million, resulting in a cost-benefit ratio of 146%, which fails to meet breakeven criteria.

High Per-Seat Burden:

- The IPSB retrofit cost on a per-seat basis is 10 times higher than for a mainline aircraft. This disproportionately impacts routes with lower fare margins, particularly those supported by the Essential Air Service program.

Conclusion

When considering the cost-benefit analysis by aircraft segment, it is clear that not all aircraft types will benefit equally by the installation of an IPSB. Given the excessive cost burden with marginal benefit for Regional Aircraft, the Cost-Benefit Working Group recommends that Regional Aircraft should be excluded from the IPSB retrofit requirement to ensure regulatory effectiveness and economic viability.

V. Appendices

Appendix A – ARC Members & Participants

FAA & Industry Co-Chair	**Organization**
Nilesh Borade, Industry Co-Chair	Jamco America, Inc.
Brandon Lucero, FAA Co-Chair	FAA
Voting Members	**Organization**
Dragos Budeanu	International Air Transport Association (IATA)
Brad Christensen	Safran
Steve Curry	The Air Line Pilots Association (ALPA)
Christopher Dillon	Frontier Airlines
Robert Ireland	Airlines for America (A4A)
Emad Kiriakos	The Boeing Company
Philippe Lepert	ATR
Jean-François Leroux	Mitsubishi Heavy Industries Group (MHIRJ)
Marie-Laure Moulard	Airbus
George Paul	National Air Carrier Association (NACA)
Ronda Ruderman	The Association of Flight Attendants-CWA (AFA-CWA)
Cesar Alberto Silva	Embraer
Erik Strickland	Regional Airline Association (RAA)

Other Participants/Observers	Organization
Daniel Jacquet	FAA
Bill Petrak	FAA
Michael Thompson	FAA
Marcelo Soares Amorim	National Civil Aviation Agency of Brazil (ANAC)
Keith Ayre	Transport Canada
Camille Bentz	ATR
Chris Brown	National Air Carrier Association (NACA)
Enzo Canari	European Union Aviation Safety Agency (EASA)
Paul Etzkorn	The Boeing Company
Mariele Cristina De Oliveira Faria	Embraer
Xylene Gonzalez-Pelayo	The Air Line Pilots Association (ALPA)
Eduardo Shiguetoshi Iramina	Embraer
Jonathan Jasper	International Air Transport Association (IATA)
Stephen Kalhok	Mitsubishi Heavy Industries Group (MHIRJ)
Wolfgang Koch	The Air Line Pilots Association (ALPA)
Joao Maria Antunes Leite	National Civil Aviation Agency of Brazil (ANAC)
Justin Madden	Airlines for America (A4A)
Dinkar Mokadam	The Association of Flight Attendants-CWA (AFA-CWA)
Kazuharu Sano	Japanese Civil Aviation Bureau (JCAB)
Ellen Saracini	
Tim Scott	Regional Airline Association (RAA)
Steven Vincent	The Association of Flight Attendants-CWA (AFA-CWA)

Appendix B - Voting Responses and Ballots

The ARC believes that this report fulfills the tasks in the mission of the Charter. The recommendations contained in this report were robustly debated and each recommendation was voted on by every voting member of the ARC prior to submission to the FAA.

In support of a transparent ARC process, members voted electronically on each recommendation. They were permitted to either concur as written, concur with comment, concur with exception, abstain, or not concur with each recommendation. Members were also offered the opportunity to include comments with each recommendation. All submissions are included in this report.

The ARC completed its deliberations and report drafting on July 24, 2025. Voting ballots were distributed to the voting ARC members on July 24, 2025. The tallies are as follows:

Recommendation 1—The FAA should develop regulations and advisory guidance to ensure crewmember operational procedures incorporate situational awareness and consistent application of Common Strategy principles:

Concur as Written	8
Concur with Comment	3
Concur with Exception	1
Abstain	1
Non-Concur	1

Recommendation 2—The FAA should define appropriate design and performance standards to account for crewmember operational complexities and human factors considerations:

Concur as Written	5
Concur with Comment	3
Concur with Exception	6
Abstain	0
Non-Concur	0

Recommendation 3—The FAA should specify consistent, minimum industry training standards to ensure all crewmembers are familiar with the basic design, operational, and airworthiness concepts, and are able to properly utilize the equipment under all normal and emergency conditions:

Concur as Written	10
Concur with Comment	1
Concur with Exception	1
Abstain	1
Non-Concur	1

Recommendation 4—The FAA should amend AC 120-110A to ensure that guidance for use of secondary barrier systems by airlines operating under part 121 is consistent with recommended regulatory changes:

Concur as Written	7
Concur with Comment	4
Concur with Exception	2
Abstain	1
Non-Concur	0

Recommendation 5—The FAA should limit the installation of secondary flightdeck barriers on existing part 121 aircraft based on flight duration, with cost-benefit considerations providing additional justification for this approach:

Concur as Written	8
Concur with Comment	2
Concur with Exception	2
Abstain	0
Non-Concur	2

Recommendation 6—The FAA should allow flexibility in the installation of secondary barriers for aircraft manufactured on or before August 25, 2025:

Concur as Written	12
Concur with Comment	0
Concur with Exception	0
Abstain	0
Non-Concur	2

Recommendation 7—The FAA should implement performance-based requirements centered on the protective function of the barrier, rather than fixed dimensional requirements:

Concur as Written	9
Concur with Comment	3
Concur with Exception	0
Abstain	0
Non-Concur	2

Recommendation 8—The FAA should not implement the requirement to install secondary cockpit barriers on aircraft operating under 14 CFR part 129:

Concur as Written	12
Concur with Comment	0
Concur with Exception	0
Abstain	0
Non-Concur	2

Recommendation 9—The FAA should implement an eight-year compliance timeline after retrofit rules are published to allow sufficient time for the industry and the FAA to develop, certify, and deploy retrofit solutions that meet the rule's intent without introducing disproportionate burdens or operational disruption:

Concur as Written	12
Concur with Comment	0
Concur with Exception	0
Abstain	0
Non-Concur	2

Recommendation 10—The FAA should revise 14 CFR 121.313(l), AC 120-110A, and AC 25.795-10 to implement the retrofit requirements for aircraft manufactured on or before August 25, 2025, in alignment with the Technical Working Group's recommendations:

Concur as Written	9
Concur with Comment	2
Concur with Exception	1
Abstain	0
Non-Concur	2

Recommendation 11—The FAA should improve AC 25.795-10 for aircraft manufactured after August 25, 2025:

Concur as Written	12
Concur with Comment	0
Concur with Exception	0
Abstain	0
Non-Concur	2

Recommendation 12— The FAA should consider each aircraft category separately to assess the cost benefit ratio of an Installed Secondary Barriers (IPSB) with Regional Aircraft not reaching the required threshold:

Concur as Written	8
Concur with Comment	4
Concur with Exception	0
Abstain	0
Non-Concur	2

Secondary Flightdeck Barrier on Commercial Passenger Aircraft

Aviation Rulemaking Committee

ARC Member Ballot

1. What is your name and organization? (First Last, Organization Name) *

Nilesh Borade, Jamco America Inc.

2. Recommendation 1: The FAA should develop regulations and advisory guidance to ensure crewmember operational procedures incorporate situational awareness and consistent application of Common Strategy principles. *

- (●) Concur.
- ( ) Concur, with comment.
- ( ) Concur, with exception.
- ( ) Non-Concur.
- ( ) Abstain.

3. Recommendation 1: If you chose "Concur, with exception," "Non-Concur," "Abstain," or "Concur with comment," please include your comments or dissent.

4. Recommendation 2: The FAA should define appropriate design and performance standards to account for crewmember operational complexities and human factors considerations. *

- (●) Concur.
- ( ) Concur, with comment.
- ( ) Concur, with exception.
- ( ) Non-Concur.
- ( ) Abstain.

5. Recommendation 2: If you chose "Concur, with exception," "Non-Concur," "Abstain," or "Concur with comment," please include your comments or dissent.

6. Recommendation 3: The FAA should specify consistent, minimum industry training standards to ensure all crewmembers are familiar with the basic design, operational, and airworthiness concepts, and are able to properly utilize the equipment under all normal and emergency conditions. *

- (●) Concur.
- ( ) Concur, with comment.
- ( ) Concur, with exception.
- ( ) Non-Concur.
- ( ) Abstain.

7. Recommendation 3: If you chose "Concur, with exception," "Non-Concur," "Abstain," or "Concur with comment," please include your comments or dissent.

8. Recommendation 4: The FAA should amend AC 120-110A to ensure that guidance for use of secondary barrier systems by airlines operating under part 121 is consistent with recommended regulatory changes. *

- (●) Concur.
- ( ) Concur, with comment.
- ( ) Concur, with exception.
- ( ) Non-Concur.
- ( ) Abstain.

9. Recommendation 4: If you chose "Concur, with exception," "Non-Concur," "Abstain," or "Concur with comment," please include your comments or dissent.

10. Recommendation 5: The FAA should limit the installation of secondary flightdeck barriers on existing part 121 aircraft based on flight duration, with cost-benefit considerations providing additional justification for this approach. *

- (●) Concur.
- ( ) Concur, with comment.
- ( ) Concur, with exception.
- ( ) Non-Concur.
- ( ) Abstain.

11. Recommendation 5: If you chose "Concur, with exception," "Non-Concur," "Abstain," or "Concur with comment," please include your comments or dissent.

12. Recommendation 6: The FAA should allow flexibility in the installation of secondary barriers for aircraft manufactured on or before August 25, 2025. *

- (●) Concur.
- ( ) Concur, with comment.
- ( ) Concur, with exception.
- ( ) Non-Concur.
- ( ) Abstain.

13. Recommendation 6: If you chose "Concur, with exception," "Non-Concur," "Abstain," or "Concur with comment," please include your comments or dissent.

14. Recommendation 7: The FAA should implement performance-based requirements centered on the protective function of the barrier, rather than fixed dimensional requirements. *

- (●) Concur.
- ( ) Concur, with comment.
- ( ) Concur, with exception.
- ( ) Non-Concur.
- ( ) Abstain.

15. Recommendation 7: If you chose "Concur, with exception," "Non-Concur," "Abstain," or "Concur with comment," please include your comments or dissent.

16. Recommendation 8: The FAA should not implement the requirement to install secondary cockpit barriers on aircraft operating under 14 CFR part 129. *

- (●) Concur.
- ( ) Concur, with comment.
- ( ) Concur, with exception.
- ( ) Non-Concur.
- ( ) Abstain.

17. Recommendation 8: If you chose "Concur, with exception," "Non-Concur," "Abstain," or "Concur with comment," please include your comments or dissent.

18. Recommendation 9: The FAA should implement an eight-year compliance timeline after retrofit rules are published to allow sufficient time for the industry and the FAA to develop, certify, and deploy retrofit solutions that meet the rule's intent without introducing disproportionate burdens or operational disruption. *

- (●) Concur.
- ( ) Concur, with comment.
- ( ) Concur, with exception.
- ( ) Non-Concur.
- ( ) Abstain.

19. Recommendation 9: If you chose "Concur, with exception," "Non-Concur," "Abstain," or "Concur with comment," please include your comments or dissent.

20. Recommendation 10: The FAA should revise 14 CFR 121.313(l), AC 120-110A, and AC 25.795-10 to implement the retrofit requirements for aircraft manufactured on or before August 25, 2025, in alignment with the Technical Working Group's recommendations. *

- (●) Concur.
- ( ) Concur, with comment.
- ( ) Concur, with exception.
- ( ) Non-Concur.
- ( ) Abstain.

21. Recommendation 10: If you chose "Concur, with exception," "Non-Concur," "Abstain," or "Concur with comment," please include your comments or dissent.

22. Recommendation 11: The FAA should improve AC 25.795-10 for aircraft manufactured after August 25, 2025. *

- (●) Concur.
- ( ) Concur, with comment.
- ( ) Concur, with Exception.
- ( ) Non-Concur.
- ( ) Abstain.

23. Recommendation 11: If you chose "Concur, with exception," "Non-Concur," "Abstain," or "Concur with comment," please include your comments or dissent.

24. Recommendation 12: The FAA should consider each aircraft category separately to assess the cost benefit ratio of an Installed Secondary Barriers (IPSB) with Regional Aircraft not reaching the required threshold. *

- (●) Concur.
- ( ) Concur, with comment.
- ( ) Concur, with exception.
- ( ) Non-Concur.
- ( ) Abstain.

25. Recommendation 12: If you chose "Concur, with exception," "Non-Concur," "Abstain," or "Concur with comment," please include your comments or dissent.

[ ]

26. **As a voting member and full participant of the Secondary Flightdeck Barrier on Commercial Passenger Aircraft Aviation Rulemaking Committee, I hereby acknowledge that I have reviewed the Final Report and recommendations herein and my responses are recorded within this ballot. Below is my virtual signature (Please type your full name):** *

[Nilesh Borade]

Secondary Flightdeck Barrier on Commercial Passenger Aircraft

Aviation Rulemaking Committee

ARC Member Ballot

1. What is your name and organization? (First Last, Organization Name) *

Dragos Budeanu, International Air Transport Association - IATA

2. Recommendation 1: The FAA should develop regulations and advisory guidance to ensure crewmember operational procedures incorporate situational awareness and consistent application of Common Strategy principles. *

- ○ Concur.
- ◉ Concur, with comment.
- ○ Concur, with exception.
- ○ Non-Concur.
- ○ Abstain.

3. Recommendation 1: If you chose "Concur, with exception," "Non-Concur," "Abstain," or "Concur with comment," please include your comments or dissent.

While this recommendation makes reference to “Common Strategy principles”, there was no relevant document presented to the Working Group to detail/discuss the said strategy and principles.

4. Recommendation 2: The FAA should define appropriate design and performance standards to account for crewmember operational complexities and human factors considerations. *

- (●) Concur.
- ( ) Concur, with comment.
- ( ) Concur, with exception.
- ( ) Non-Concur.
- ( ) Abstain.

5. Recommendation 2: If you chose "Concur, with exception," "Non-Concur," "Abstain," or "Concur with comment," please include your comments or dissent.

6. Recommendation 3: The FAA should specify consistent, minimum industry training standards to ensure all crewmembers are familiar with the basic design, operational, and airworthiness concepts, and are able to properly utilize the equipment under all normal and emergency conditions. *

- (●) Concur.
- ( ) Concur, with comment.
- ( ) Concur, with exception.
- ( ) Non-Concur.
- ( ) Abstain.

7. Recommendation 3: If you chose "Concur, with exception," "Non-Concur," "Abstain," or "Concur with comment," please include your comments or dissent.

8. Recommendation 4: The FAA should amend AC 120-110A to ensure that guidance for use of secondary barrier systems by airlines operating under part 121 is consistent with recommended regulatory changes. *

- ( ) Concur.
- (●) Concur, with comment.
- ( ) Concur, with exception.
- ( ) Non-Concur.
- ( ) Abstain.

9. Recommendation 4: If you chose "Concur, with exception," "Non-Concur," "Abstain," or "Concur with comment," please include your comments or dissent.

The wording of this recommendation should be revised, as its intent is that AC120-110A must be consistent and aligned with the FAA adopted and implemented regulatory changes, rather than ARC recommended regulatory changes which FAA decides to not operationalize.

10. Recommendation 5: The FAA should limit the installation of secondary flightdeck barriers on existing part 121 aircraft based on flight duration, with cost-benefit considerations providing additional justification for this approach. *

- (●) Concur.
- ( ) Concur, with comment.
- ( ) Concur, with exception.
- ( ) Non-Concur.
- ( ) Abstain.

11. Recommendation 5: If you chose "Concur, with exception," "Non-Concur," "Abstain," or "Concur with comment," please include your comments or dissent.

12. Recommendation 6: The FAA should allow flexibility in the installation of secondary barriers for aircraft manufactured on or before August 25, 2025. *

- (●) Concur.
- ( ) Concur, with comment.
- ( ) Concur, with exception.
- ( ) Non-Concur.
- ( ) Abstain.

13. Recommendation 6: If you chose "Concur, with exception," "Non-Concur," "Abstain," or "Concur with comment," please include your comments or dissent.

14. Recommendation 7: The FAA should implement performance-based requirements centered on the protective function of the barrier, rather than fixed dimensional requirements. *

- (●) Concur.
- ( ) Concur, with comment.
- ( ) Concur, with exception.
- ( ) Non-Concur.
- ( ) Abstain.

15. Recommendation 7: If you chose "Concur, with exception," "Non-Concur," "Abstain," or "Concur with comment," please include your comments or dissent.

16. Recommendation 8: The FAA should not implement the requirement to install secondary cockpit barriers on aircraft operating under 14 CFR part 129. *

- (●) Concur.
- ( ) Concur, with comment.
- ( ) Concur, with exception.
- ( ) Non-Concur.
- ( ) Abstain.

17. Recommendation 8: If you chose "Concur, with exception," "Non-Concur," "Abstain," or "Concur with comment," please include your comments or dissent.

18. Recommendation 9: The FAA should implement an eight-year compliance timeline after retrofit rules are published to allow sufficient time for the industry and the FAA to develop, certify, and deploy retrofit solutions that meet the rule's intent without introducing disproportionate burdens or operational disruption. *

- (●) Concur.
- ( ) Concur, with comment.
- ( ) Concur, with exception.
- ( ) Non-Concur.
- ( ) Abstain.

19. Recommendation 9: If you chose "Concur, with exception," "Non-Concur," "Abstain," or "Concur with comment," please include your comments or dissent.

20. Recommendation 10: The FAA should revise 14 CFR 121.313(l), AC 120-110A, and AC 25.795-10 to implement the retrofit requirements for aircraft manufactured on or before August 25, 2025, in alignment with the Technical Working Group's recommendations. *

- ( ) Concur.
- (●) Concur, with comment.
- ( ) Concur, with exception.
- ( ) Non-Concur.
- ( ) Abstain.

21. Recommendation 10: If you chose "Concur, with exception," "Non-Concur," "Abstain," or "Concur with comment," please include your comments or dissent.

The wording of this recommendation should be revised to indicate and acknowledge that the ARC formed three working groups and all three formulated recommendations in their corresponding area of expertise: the Operations and Training Working Group, the Technical Working Group, and the Cost-Benefit Working Group. The Report specified list of recommendations is the sum of the recommendations developed by each of the three working groups and does not constitute only the Technical Working Group's recommendations.

22. Recommendation 11: The FAA should improve AC 25.795-10 for aircraft manufactured after August 25, 2025. *

- (●) Concur.
- ( ) Concur, with comment.
- ( ) Concur, with Exception.
- ( ) Non-Concur.
- ( ) Abstain.

23. Recommendation 11: If you chose "Concur, with exception," "Non-Concur," "Abstain," or "Concur with comment," please include your comments or dissent.

24. Recommendation 12: The FAA should consider each aircraft category separately to assess the cost benefit ratio of an Installed Secondary Barriers (IPSB) with Regional Aircraft not reaching the required threshold. *

- ( ) Concur.
- (•) Concur, with comment.
- ( ) Concur, with exception.
- ( ) Non-Concur.
- ( ) Abstain.

25. Recommendation 12: If you chose "Concur, with exception," "Non-Concur," "Abstain," or "Concur with comment," please include your comments or dissent.

The wording of this recommendation should be revised for clarity and state its intent that "Regional Aircraft do not meet the cost - benefit ratio to justify the requirement to be equipped with IPSB".

26. **As a voting member and full participant of the Secondary Flightdeck Barrier on Commercial Passenger Aircraft Aviation Rulemaking Committee, I hereby acknowledge that I have reviewed the Final Report and recommendations herein and my responses are recorded within this ballot. Below is my virtual signature (Please type your full name):** *

Dragos Budeanu

Unrestricted

Nilesh Borade
Director, Engineering, Jamco America Inc.
ARC Chair

Date 12 August 2025

Ref IATA comments to SFB – ARC Report

Dear Mr. Borade,

Subject: Report of Aviation Rulemaking Committee for retrofit rule on secondary flight deck barriers, SFB-ARC

The final report of the SFB-ARC you are chairing and which IATA is a member of [redacted] he Secondary Flightdeck Barriers ARC SharePoint site link [redacted] on 2025-07-24.

While we have completed the voting ballot by voting on each recommendation separately and submitted the vote with the applicable per- recommendation comment prior to the indicated deadline (i.e. Thursday, August 7th, 2025, 5 p.m. ET.), IATA has some additional comments regarding the final report document.
We hereby submit to your attention the additional comments for their inclusion in the final document in accordance with the agreed procedure:

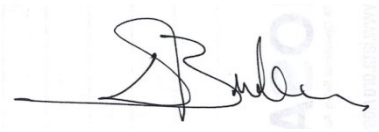
1. Recommendation 8 of the SFB ARC Report proposes that "The FAA should not implement the requirement to install secondary cockpit barriers on aircraft operating under 14 CFR part 129". IATA concurs with this recommendation as written and is entirely supportive of the rationale presented in the Report. In addition to the rationale leading to this recommended course of action, we emphasize that consistency in type of aircraft operations applicability of SFB forward-fit (i.e. Recommendation 13 of ARAC Report dated March 2020) and, respectively, retro-fit (i.e. Recommendation 8 of ARC Report dated August 2025) is needed and would represent a significant regulatory accomplishment benefiting all aviation stakeholders.

2. The SFB ARC Report recommendations follow the scope of work defined by the FAA for the SFB-ARC, which clearly and repeatedly specifies "commercial passenger aircraft," thereby implicitly excluding cargo aircraft. While the ARC Report dated August 2025 does not include a specific recommendation to exclude all cargo carriers (as formulated in Recommendation 14 of the ARAC Report dated March 2020), it was made clear during the

ARC proceedings that this exclusion is a near-unanimous view among ARC members. IATA strongly supports maintaining the focus of the recommendations on commercial passenger aircraft and acknowledges the value of avoiding scope creep. This approach contributes to the desired regulatory consistency between retro-fit and forward-fit applicability of SFB.

3. The SFB ARC Report should use consistent wording whenever referring to individual recommendations among the twelve (12) presented to the FAA. This consistency should be maintained across all sections of the Report. Currently, this is not always achieved (e.g., compare the wording of Recommendation 12 on page 54 and page B-3). We highlight the need to preserve uniform language for ensuring clarity and coherence throughout the document. *Note: IATA was subsequently informed (during the week of August 11th) that the ARC Report document was edited after the ballot to ensure wording consistency. Provided that this outcome was achieved, this third comment paragraph should be considered addressed and resolved.*

Yours sincerely,



Dragos Budeanu
Senior Manager, Engineering and Maintenance, IATA
ARC Member

cc: Douglas Lavin, Vice President Member & External Relations North America, IATA
Stuart Fox, Director Flight & Technical Operations, IATA
Chad Heflin, Assistant Director Member & External Relations North America, IATA
Jonathan Jasper, Senior Manager Cabin Safety, IATA

Secondary Flightdeck Barrier on Commercial Passenger Aircraft

Aviation Rulemaking Committee

ARC Member Ballot

1. What is your name and organization? (First Last, Organization Name) *

Brad Christensen, Safran Cabin

2. Recommendation 1: The FAA should develop regulations and advisory guidance to ensure crewmember operational procedures incorporate situational awareness and consistent application of Common Strategy principles. *

- (●) Concur.
- ( ) Concur, with comment.
- ( ) Concur, with exception.
- ( ) Non-Concur.
- ( ) Abstain.

3. Recommendation 1: If you chose "Concur, with exception," "Non-Concur," "Abstain," or "Concur with comment," please include your comments or dissent.

4. Recommendation 2: The FAA should define appropriate design and performance standards to account for crewmember operational complexities and human factors considerations. *

- ( ) Concur.
- (•) Concur, with comment.
- ( ) Concur, with exception.
- ( ) Non-Concur.
- ( ) Abstain.

5. Recommendation 2: If you chose "Concur, with exception," "Non-Concur," "Abstain," or "Concur with comment," please include your comments or dissent.

I concur with the recommendation statement. However, I do not concur with some of the additional information contained in this section of the report.

6. Recommendation 3: The FAA should specify consistent, minimum industry training standards to ensure all crewmembers are familiar with the basic design, operational, and airworthiness concepts, and are able to properly utilize the equipment under all normal and emergency conditions. *

- (●) Concur.
- ( ) Concur, with comment.
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- ( ) Non-Concur.
- ( ) Abstain.

7. Recommendation 3: If you chose "Concur, with exception," "Non-Concur," "Abstain," or "Concur with comment," please include your comments or dissent.

8. Recommendation 4: The FAA should amend AC 120-110A to ensure that guidance for use of secondary barrier systems by airlines operating under part 121 is consistent with recommended regulatory changes. *

- (●) Concur.
- ( ) Concur, with comment.
- ( ) Concur, with exception.
- ( ) Non-Concur.
- ( ) Abstain.

9. Recommendation 4: If you chose "Concur, with exception," "Non-Concur," "Abstain," or "Concur with comment," please include your comments or dissent.

10. Recommendation 5: The FAA should limit the installation of secondary flightdeck barriers on existing part 121 aircraft based on flight duration, with cost-benefit considerations providing additional justification for this approach. *

- (●) Concur.
- ( ) Concur, with comment.
- ( ) Concur, with exception.
- ( ) Non-Concur.
- ( ) Abstain.

11. Recommendation 5: If you chose "Concur, with exception," "Non-Concur," "Abstain," or "Concur with comment," please include your comments or dissent.

12. Recommendation 6: The FAA should allow flexibility in the installation of secondary barriers for aircraft manufactured on or before August 25, 2025. *

- (●) Concur.
- ( ) Concur, with comment.
- ( ) Concur, with exception.
- ( ) Non-Concur.
- ( ) Abstain.

13. Recommendation 6: If you chose "Concur, with exception," "Non-Concur," "Abstain," or "Concur with comment," please include your comments or dissent.

14. Recommendation 7: The FAA should implement performance-based requirements centered on the protective function of the barrier, rather than fixed dimensional requirements. *

- (●) Concur.
- ( ) Concur, with comment.
- ( ) Concur, with exception.
- ( ) Non-Concur.
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15. Recommendation 7: If you chose "Concur, with exception," "Non-Concur," "Abstain," or "Concur with comment," please include your comments or dissent.

16. Recommendation 8: The FAA should not implement the requirement to install secondary cockpit barriers on aircraft operating under 14 CFR part 129. *

- (●) Concur.
- ( ) Concur, with comment.
- ( ) Concur, with exception.
- ( ) Non-Concur.
- ( ) Abstain.

17. Recommendation 8: If you chose "Concur, with exception," "Non-Concur," "Abstain," or "Concur with comment," please include your comments or dissent.

18. Recommendation 9: The FAA should implement an eight-year compliance timeline after retrofit rules are published to allow sufficient time for the industry and the FAA to develop, certify, and deploy retrofit solutions that meet the rule's intent without introducing disproportionate burdens or operational disruption. *

- (●) Concur.
- ( ) Concur, with comment.
- ( ) Concur, with exception.
- ( ) Non-Concur.
- ( ) Abstain.

19. Recommendation 9: If you chose "Concur, with exception," "Non-Concur," "Abstain," or "Concur with comment," please include your comments or dissent.

20. Recommendation 10: The FAA should revise 14 CFR 121.313(l), AC 120-110A, and AC 25.795-10 to implement the retrofit requirements for aircraft manufactured on or before August 25, 2025, in alignment with the Technical Working Group's recommendations. *

- (●) Concur.
- ( ) Concur, with comment.
- ( ) Concur, with exception.
- ( ) Non-Concur.
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21. Recommendation 10: If you chose "Concur, with exception," "Non-Concur," "Abstain," or "Concur with comment," please include your comments or dissent.

22. Recommendation 11: The FAA should improve AC 25.795-10 for aircraft manufactured after August 25, 2025. *

- (●) Concur.
- ( ) Concur, with comment.
- ( ) Concur, with Exception.
- ( ) Non-Concur.
- ( ) Abstain.

23. Recommendation 11: If you chose "Concur, with exception," "Non-Concur," "Abstain," or "Concur with comment," please include your comments or dissent.

24. Recommendation 12: The FAA should consider each aircraft category separately to assess the cost benefit ratio of an Installed Secondary Barriers (IPSB) with Regional Aircraft not reaching the required threshold. *

- (●) Concur.
- ( ) Concur, with comment.
- ( ) Concur, with exception.
- ( ) Non-Concur.
- ( ) Abstain.

25. Recommendation 12: If you chose "Concur, with exception," "Non-Concur," "Abstain," or "Concur with comment," please include your comments or dissent.

26. **As a voting member and full participant of the Secondary Flightdeck Barrier on Commercial Passenger Aircraft Aviation Rulemaking Committee, I hereby acknowledge that I have reviewed the Final Report and recommendations herein and my responses are recorded within this ballot. Below is my virtual signature (Please type your full name):** *

Brad G. Christensen

Secondary Flightdeck Barrier on Commercial Passenger Aircraft
Aviation Rulemaking Committee

ARC Member Ballot

1. What is your name and organization? (First Last, Organization Name) *

Steve Curry, Air Line Pilots Association

2. Recommendation 1: The FAA should develop regulations and advisory guidance to ensure crewmember operational procedures incorporate situational awareness and consistent application of Common Strategy principles. *

- (●) Concur.
- ( ) Concur, with comment.
- ( ) Concur, with exception.
- ( ) Non-Concur.
- ( ) Abstain.

3. Recommendation 1: If you chose "Concur, with exception," "Non-Concur," "Abstain," or "Concur with comment," please include your comments or dissent.

4. Recommendation 2: The FAA should define appropriate design and performance standards to account for crewmember operational complexities and human factors considerations. *

- (●) Concur.
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5. Recommendation 2: If you chose "Concur, with exception," "Non-Concur," "Abstain," or "Concur with comment," please include your comments or dissent.

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7. Recommendation 3: If you chose "Concur, with exception," "Non-Concur," "Abstain," or "Concur with comment," please include your comments or dissent.

8. Recommendation 4: The FAA should amend AC 120-110A to ensure that guidance for use of secondary barrier systems by airlines operating under part 121 is consistent with recommended regulatory changes. *

- (●) Concur.
- ( ) Concur, with comment.
- ( ) Concur, with exception.
- ( ) Non-Concur.
- ( ) Abstain.

9. Recommendation 4: If you chose "Concur, with exception," "Non-Concur," "Abstain," or "Concur with comment," please include your comments or dissent.

10. Recommendation 5: The FAA should limit the installation of secondary flightdeck barriers on existing part 121 aircraft based on flight duration, with cost-benefit considerations providing additional justification for this approach. *

- ( ) Concur.
- ( ) Concur, with comment.
- ( ) Concur, with exception.
- (•) Non-Concur.
- ( ) Abstain.

11. Recommendation 5: If you chose "Concur, with exception," "Non-Concur," "Abstain," or "Concur with comment," please include your comments or dissent.

Data shows that currently operating regional aircraft, typically below 125 seats, cover a large percentage of flights within the United States. Leaving those aircraft unprotected and vulnerable by not requiring that they be equipped with secondary barriers would be a severe intentional degradation of national security. According to the Regional Airline Association (RAA), 41% of all scheduled passenger departures in 2021 were operated by regional airlines. Per the Department of Transportation, there were 6.2 million scheduled departures in the U.S. in 2021. This means that approximately 2.5 million of those scheduled departures were operated by regional airlines. Per Recommendation 5, that would indicate that approximately 2.5 million flights operated on currently flying aircraft, per year, would not be equipped with secondary barriers. 2021 was a low-operation year due to the pandemic. To provide current operational data, according to the FAA, there were 9.8 million commercial flights in the nation's airspace in 2024. Considering a similar percentage of 41% of flights being operated by regional airlines in 2024, the total number of potentially purposefully unprotected flights on currently operating aircraft for 2024 would be 4 million flights. Additionally, per RAA, their operators are the only passenger air service providers to 67% of U.S. airports. This would indicate that for 67% of all U.S. airports, 100% of all commercial flights operating out of those airports would be unprotected and vulnerable. Should the FAA consider any portion of Recommendation 5, the FAA would be supporting the continued purposeful oversight in aviation security until all currently flying aircraft are eventually removed from service.

ALPA has been focused on one level of safety and security for Part 121 operations and was instrumental in advocating for the inclusion of regional operations into Part 121 operations back in 1995. Aircraft operated under Part 121, despite how many seats they have installed, are not tied to routes and can experience varied flight durations. The Working Group states that there is less likelihood that the flight deck door will be opened on aircraft with less than 125 seats, however, there are many arguments as to why this is incorrect and misleading. Regional aircraft being operated today are certified to operate both short and long duration flights and must have the same security protections as narrow-body and widebody aircraft. As discussed in the Operations and Training Working Group recommendations, the duration of the flight needs to consider taxi, ground delays, holding, and weather delays enroute. Turn times for passenger aircraft with fewer than 125 seats are regularly shorter than the turn time of aircraft with 125+ seats; often scheduled as short as 25 minutes, not allowing the pilots breaks for multiple legs. This condenses the time available to manage the same workload. Additionally, pilots operating regional flights will regularly fly more consecutive stage segments during their duty period. This and on-time performance pressures lead to compression of pilot duties in shorter time periods and lower likelihood for pilots to take lavatory and food breaks while on the ground. Pilots will often take necessary lavatory inflight once outside of critical phases of flight. With more flight segments comes an increased likelihood of having to perform contamination checks, times in which the flight deck door could be opened in-flight. Removing these aircraft from the scope of applicability by duration or size does not account for the security threat that presents itself to Part 121 operations.

12. Recommendation 6: The FAA should allow flexibility in the installation of secondary barriers for aircraft manufactured on or before August 25, 2025. *

- ○ Concur.
- ○ Concur, with comment.
- ○ Concur, with exception.
- ◉ Non-Concur.
- ○ Abstain.

13. Recommendation 6: If you chose "Concur, with exception," "Non-Concur," "Abstain," or "Concur with comment," please include your comments or dissent.

ALPA is strongly opposed to any changes to Installed Physical Secondary Barriers performance requirements for Part 121 aircraft. The performance requirements for secondary barriers on currently flying aircraft must be the same as required by the final rule, "Installation and Operation of Flightdeck Installed Physical Secondary Barriers on Transport Category Airplanes in Part 121 Service," and as outlined in 14 CFR 25.795. The recommendation states, "…a performance-based approach enables industry to progress in the search for feasible solutions," however, this idea undermines decades of industry work to develop a feasible solution for an effective Installed Physical Secondary Barriers through RTCA DO-329 in 2011 and the work of the ARAC in 2019. All requirements under 14 CFR 25.795 must be upheld as the FAA works to issue a final rule requiring installation of a secondary cockpit barrier on each commercial passenger aircraft operated under the provisions of part 121 of title 14, Code of Federal Regulations. This recommendation aims to weaken security by removing essential components of an effective Installed Physical Secondary Barriers and goes against the Tasks and Objectives of the ARC Charter.

Section 350 (e) of the FAA reauthorization specifically indicates that the mandate shall apply to "each" aircraft, it states that the FAA shall, "issue a final rule requiring installation of a secondary cockpit barrier on each commercial passenger aircraft operated under the provisions of part 121 of title 14, Code of Federal Regulations." While there is language in section (e) that says to take the ARC recommendations into consideration, the language is clear that each aircraft should be mandated. Therefore, their recommendation is not consistent with the law and appears to be outside the scope of the ARC. The FAA must not apply a threshold based on the FAA-certified maximum seating capacity; they also must not account for flight duration considerations. The FAA should uphold the 2024 FAA Reauthorization Act Section 350 and issue a final rule requiring installation of a secondary cockpit barrier on each commercial passenger aircraft operated under the provisions of part 121 of title 14, Code of Federal Regulations. ALPA is strongly opposed to any carveout of Installed Physical Secondary Barriers installations for Part 121 aircraft. We completely disagree that any exceptions to the law would maintain a security equivalence; in fact, any aircraft without an Installed Physical Secondary Barrier will still have a security vulnerability. That vulnerability will increase to a higher risk as those aircraft will become of greater interest to those who wish to do harm to the United States (U.S.). The addition of the Installed Physical Secondary Barriers is a cost-efficient, proven mitigation that eliminates that vulnerability; however, it is clear that the technical working group and their recommendations are laser-focused on costs instead of ensuring the security of our skies. In their recommendations, they state, "Retrofit cost per seat for these aircraft is up to ten times higher than for widebodies, with estimated cost per life saved exceeding $100 million, far above accepted regulatory benchmarks." The manufacturers involved in this ARC did not develop or present potential Installed Physical Secondary Barrier designs for the ARC to review. Their estimated retrofit costs are unjustified and aim to undermine the decades of work completed prior to this ARC. The applicability and performance requirements for secondary barriers must be the same as those required by the newly manufactured final rule.

14. Recommendation 7: The FAA should implement performance-based requirements centered on the protective function of the barrier, rather than fixed dimensional requirements. *

- ( ) Concur.
- ( ) Concur, with comment.
- ( ) Concur, with exception.
- (•) Non-Concur.
- ( ) Abstain.

15. Recommendation 7: If you chose "Concur, with exception," "Non-Concur," "Abstain," or "Concur with comment," please include your comments or dissent.

ALPA is strongly opposed to any changes to Installed Physical Secondary Barriers performance requirements for Part 121 aircraft. The performance requirements for secondary barriers must be the same as those required by the newly manufactured Final Rule. This idea undermines decades of industry work to develop a feasible solution for an effective Installed Physical Secondary Barriers through RTCA DO-329 in 2011 and the work of the ARAC in 2019. All requirements under 14 CFR 25.795 must be upheld as the FAA works to issue a final rule requiring installation of a secondary cockpit barrier on each commercial passenger aircraft operated under the provisions of part 121 of title 14, Code of Federal Regulations. This recommendation aims to weaken security by removing essential components of an effective Installed Physical Secondary Barriers and goes against the Tasks and Objectives of the Charter.

16. Recommendation 8: The FAA should not implement the requirement to install secondary cockpit barriers on aircraft operating under 14 CFR part 129. *

- ( ) Concur.
- ( ) Concur, with comment.
- ( ) Concur, with exception.
- (•) Non-Concur.
- ( ) Abstain.

17. Recommendation 8: If you chose "Concur, with exception," "Non-Concur," "Abstain," or "Concur with comment," please include your comments or dissent.

ALPA is supportive of the inclusion of Part 129 for Installed Physical Secondary Barriers. There is a significant security concern that the flight decks of foreign aircraft being operated into the United States under Part 129 could quickly become more attractive targets for terrorists or other bad actors if Installed Physical Secondary Barriers are not installed, as those aircraft could be deemed less secure because they do not possess the same level of flight deck security as Part 121 operators. The Office of Intelligence and Analysis (I&A) Homeland Threat Assessment of 2025 clearly spells out civil aviation concerns, "we continue to be concerned about adversary threats to the aviation and air cargo systems, including the potential use of the aviation domain to carry out terrorist plots and the potential use of the air cargo supply chain to ship concealed dangerous and potentially deadly items." We elaborate further on the threat of terrorism and unruly passengers in Recommendation 12. ALPA implores the FAA to work with the Office of Intelligence and Analysis to fully understand the threats to civil aviation and ensure that Installed Physical Secondary Barriers are installed on all part 121 aircraft and further extended to part 129 aircraft. These security concerns are similar to those considered when the FAA adopted the reinforced flight deck door requirements in Part 121 operations in 2002, which led to the FAA's adoption of 14 CFR 129.28 requiring hardened flight deck doors for foreign passenger airlines operating within the U.S. The FAA must review data on the number of Part 129 flights that would go unprotected if they are excluded from the Installed Physical Secondary Barriers requirement.

18. Recommendation 9: The FAA should implement an eight-year compliance timeline after retrofit rules are published to allow sufficient time for the industry and the FAA to develop, certify, and deploy retrofit solutions that meet the rule's intent without introducing disproportionate burdens or operational disruption. *

- ( ) Concur.
- ( ) Concur, with comment.
- ( ) Concur, with exception.
- (•) Non-Concur.
- ( ) Abstain.

19. Recommendation 9: If you chose "Concur, with exception," "Non-Concur," "Abstain," or "Concur with comment," please include your comments or dissent.

ALPA understands that the retrofit design and certification by manufacturers and supplemental type certificate holders would take additional time than the forward fit regulation, but the Technical Working Group's request for four times that provided in the newly manufactured aircraft Final Rule is another attempt to delay implementation of these security devices from Part 121 aircraft. ALPA would support an additional year provided to manufacturers to design and certify these devices, but the majority of manufacturers already have experience in certifying these designs following the 2023 newly manufactured Final Rule. It is not lost on ALPA that these same manufacturers that are asking for 8 years were able to certify and install hardened flight deck doors within 15 months of the FAA Final Rule following 9-11.
Analyzing the timeline for the requirement of secondary barriers, as of 2025, it has been 24 years since the vulnerability of an open flight deck door has been identified and not yet mitigated. Based on the expected work timeline, once the ARC submits its report, the FAA will have 36 months to issue a final rule. When the FAA issues a notice of proposed rulemaking, that could add significant more time until a final rule is issued. Further, with the request of eight years, currently flying aircraft would potentially begin using Installed Physical Secondary Barriers in 2036. That would be the industry accepting a known vulnerability for over 35 years after a catastrophic incident in which terrorists exploited the same vulnerability.

20. Recommendation 10: The FAA should revise 14 CFR 121.313(l), AC 120-110A, and AC 25.795-10 to implement the retrofit requirements for aircraft manufactured on or before August 25, 2025, in alignment with the Technical Working Group's recommendations. *

- ○ Concur.
- ○ Concur, with comment.
- ○ Concur, with exception.
- ◉ Non-Concur.
- ○ Abstain.

21. Recommendation 10: If you chose "Concur, with exception," "Non-Concur," "Abstain," or "Concur with comment," please include your comments or dissent.

The changes requested by the WG should not be incorporated into the NPRM, final rule, or guidance material. The 2024 FAA Reauthorization Act of 2024 states: "review and develop findings and recommendations to require installation of a secondary cockpit barrier on commercial passenger aircraft operated under the provisions of part 121 of Title 14, CFR, that are not captured under another regulation or proposed regulation." The Act did ask the ARC to consider a variety of areas, but the assertion by the WG that it only required IPSB installations on some Part 121 aircraft is inaccurate. The ARC was tasked to consider those areas but not exclude. Additionally, Congress and the FAA charter both did not provide in their considerations number of passenger seats.

There are many factors that can lead to a need to open a hardened flightdeck door at any time during a flight, no matter the duration of a flight or the size and capacity of an aircraft.In fact, a smaller airline aircraft may be at greater risk of a flightdeck breach during the opening/closing of the flightdeck door due to many reasons.As one example, a shorter "rush" distance in smaller aircraft could provide less time for a single flight attendant or the pilots to react.Any aircraft used for Part 121 passenger operations has the capability to fly at various stage lengths during its service life.The operational needs of an airline fluctuate, and an aircraft may be used for a short-duration flight one day and for a significantly longer-duration flight the next day or at another time during its service life.It is unjustified to exclude installation of IPSB on smaller aircraft.We are not aware of any information demonstrating that adversaries or persons with ill will or malicious intent can reliably be expected to discriminate based on airline aircraft type or flight duration.The WG argues that there have not been any terrorist attacks since 9/11.This statement is vague and misinterprets the current aviation security threat. We expand on the current terrorism threat under Recommendation 12.Further, the aviation environment has changed, and the WG does not recognize it. Per FAA and TSA data, the aviation ecosystem, in the past few years, has been susceptible to the highest levels of inflight security threats.These threats include attempted flight deck breaches, physical assault, sexual assault, bomb threats, attempted hijacking, attempted opening of cabin doors, stowaways, insider threat, human trafficking, and others.Any of these incidents could be a direct threat to the flight deck, and if they happen while the flight deck door is opened for any reason, the flight deck could be vulnerable.Having the IPSB installed and used for any of these instances would be a life-saving tool.All airline aircraft left without IPSB would be deemed a more attractive and vulnerable target for those who wish to do harm.The low-risk profile argument of the WG is also not justified.Aircraft, of all sizes, connect the world. They are not solely operating to smaller airports or cities where the "low risk" is perceived.Most regional aircraft fly to large hub airports, which have high risk profiles; some examples being DCA and IAD.Without IPSB, smaller aircraft will become higher risk, as bad actors will be attracted to them because they are an easier target.Excluding aircraft with less than 125 seats is specifically designed to exclude a considerable number of aircraft currently in operation.A flight duration exemption would NOT maintain the security intent of the rule while preventing cost and disruption.There are 737-500 aircraft under this limit operating at mainline carriers.Narrow-body and wide-body aircraft can also be configured to have under 125 seats.The absence of an IPSB on these aircraft would increase their profile as a potential terrorist target.The absence of certified retrofit IPSB designs makes the assertion of a 2.5 times higher cost than line fit an unquantified estimate.

22. Recommendation 11: The FAA should improve AC 25.795-10 for aircraft manufactured after August 25, 2025. *

- ( ) Concur.
- ( ) Concur, with comment.
- ( ) Concur, with Exception.
- (•) Non-Concur.
- ( ) Abstain.

23. Recommendation 11: If you chose "Concur, with exception," "Non-Concur," "Abstain," or "Concur with comment," please include your comments or dissent.

ALPA is strongly opposed to any changes to Installed Physical Secondary Barriers performance requirements for Part 121 aircraft. The performance requirements for secondary barriers must be the same as required by the newly manufactured final rule.
Improvements to aviation security that led to the development of the current AC were made through thousands of hours of advocacy and disagreements with similar "cost/benefit" arguments aimed to create carve-outs in security. ALPA has been a key player in holding the industry accountable and ensuring the United States aviation industry continues to uphold the highest levels of aviation security. Implementation for improvements we have made are still ongoing and need to be maintained, not degraded, especially as our threat environment evolves. It is imperative that we understand the deficiencies in the layers of aviation security as they currently stand and work to improve them. There are many U.S. Governmental Accountability Office (GAO) reports that clearly identify vulnerabilities in the aviation security system. In December 2019, GAO reported that the performance of technologies the TSA uses to screen passengers and baggage at airports can degrade over time, and the TSA does not ensure that such technologies continue to meet detection requirements after deployment to airports. Another GAO report found that the TSA's ability to run covert tests has improved, but a new process intended to address vulnerabilities found in testing has not been fully effective. The Security Operations division had not been able to ensure the quality of its covert test results, and GAO identified a number of factors that could be compromising the quality of these results. In June 2024, the DHS OIG identified that the TSA could not assess the operational impacts to its primary mission of safeguarding the Nation's transportation system while TSA deployed air marshals to assist CBP at the Southwest border. This occurred because TSA did not establish baseline quantifiable goals from which it could measure the effectiveness of its primary, day-to-day operations. Additionally, TSA did not perform a risk assessment to determine the operational impacts of air marshal border deployments on transportation security. Without establishing performance measures and assessing risks related to deploying air marshals, TSA cannot assure that deployments do not impact the Federal Air Marshal Service's mission to mitigate potential risks and threats to our Nation's transportation system.

24. Recommendation 12: The FAA should consider each aircraft category separately to assess the cost benefit ratio of an Installed Secondary Barriers (IPSB) with Regional Aircraft not reaching the required threshold. *

- ( ) Concur.
- ( ) Concur, with comment.
- ( ) Concur, with exception.
- (•) Non-Concur.
- ( ) Abstain.

25. Recommendation 12: If you chose "Concur, with exception," "Non-Concur," "Abstain," or "Concur with comment," please include your comments or dissent.

ALPA is strongly opposed to any carveout of IPSB installations for Part 121 aircraft. We disagree that a carveout would maintain a security equivalence; in fact, it provides a focal point to those who desire to do this nation harm. Page 46 of Table 6 demonstrates that aircraft category "Narrowbody less 165k lbs. MTWO include the EMB 190/A319/B737-300/B737-700" all have a 50% probability flight deck door opened in flight. However, they are to be excluded per the Technical Working Groups' recommendation, which is based on flight duration. It is unrealistic of the Cost-Benefit Working Group to assert that the "cockpit door" remains closed the majority of flights. The addition of the IPSBs is a cost-efficient, proven mitigation that eliminates the current inflight security vulnerability; however, it is clear that the recommendation is laser-focused on costs instead of ensuring the security of our skies. The reality of a high terrorism threat is supported by the Office of Intelligence and Analysis (I&A) Homeland Threat Assessment of 2025. Their analysis clearly outlines the current terrorism threat to aviation and the homeland. Specifically, the report states, "Over the next year, the terrorism threat environment in the Homeland will remain high. We are particularly concerned about a confluence of factors…that domestic and foreign violent extremists likely will use to justify or encourage attacks…foreign terrorist organizations (FTOs) and their supporters will maintain their enduring intent to conduct or inspire attacks in the Homeland." Further, they state that Al-Qa'ida remains committed to striking the Homeland and has reinvigorated its outreach to Western audiences. In a direct threat to aviation, in December 2023, al-Qa'ida's affiliate in Yemen released its first "Inspire" branded video and the first Inspire publication since 2021. The report states that the publication encouraged attacks against civil aviation and prominent individuals, urged retaliation against the West for supporting Israel, and provided bomb-making instructions that defeat current aviation security measures in the U.S. Per the report, al-Qa'ida and its affiliates have renewed calls for attacks against diplomatic facilities and the transportation sector, specifically civil aviation. Terrorists are laser focused on achieving their goals and aviation is still their prime target. The I&A clearly states, "… FTO-inspired or enabled insiders with access to critical infrastructure may seek ways to exploit potential vulnerabilities and increase their knowledge of security procedures for attack plotting." The FAA cannot continue to allow the known flight deck vulnerability to remain unmitigated and be at risk of being exploited. The I&A expands on further civil aviation concerns, "we continue to be concerned about adversary threats to the aviation and air cargo systems, including the potential use of the aviation domain to carry out terrorist plots and the potential use of the air cargo supply chain to ship concealed dangerous and potentially deadly items." Before the FAA issues a final rule on the retrofit of currently flying aircraft, ALPA implores the FAA to work with I&A to fully understand the threats to civil aviation and ensure that IPSBs are installed on all part 121 aircraft and further extended to Part 129 operations. Additionally, the aviation environment has changed, and the WG does not recognize it. Per FAA and TSA data, in the past few years, the aviation ecosystem has been susceptible to the highest levels of inflight security threats. The FAA reported 2,102 unruly passenger incidents in 2024. The TSA has data available to show that there have been over 150 level three threats in the past 10 years and over 40 level four threats in the same time period. As we get further away from the tragic 9-11 attacks, industry has forgotten why ALPA is so adamant that we implement these critical security devices; we truly must "Never Forget."

26. **As a voting member and full participant of the Secondary Flightdeck Barrier on Commercial Passenger Aircraft Aviation Rulemaking Committee, I hereby acknowledge that I have reviewed the Final Report and recommendations herein and my responses are recorded within this ballot. Below is my virtual signature (Please type your full name):** *

Steve Curry

AIR LINE PILOTS ASSOCIATION, INTERNATIONAL
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THE WORLD'S LARGEST PILOTS UNION | WWW.ALPA.ORG

August 7, 2025

Subject: Comments to Secondary Flightdeck Barrier on Commercial Passenger Aircraft Aviation Rulemaking Committee (ARC) Report

The Air Line Pilots Association, International (ALPA), representing the safety and security interests of more than 79,000 professional airline pilots flying for 42 airlines in the United States (U.S.) and Canada, has reviewed the subject Secondary Flightdeck Barrier on Commercial Passenger Aircraft Aviation Rulemaking Committee (ARC) Report.

As a member of the ARC, ALPA is very disappointed to see the industry work to undermine the important work that has been done on Secondary Barriers over the years, including Section 350 of the 2024 FAA Reauthorization. ALPA strongly encourages the FAA to ensure that all Part 121 aircraft are included in the applicability, that the performance regulations set forth by the forward fit Secondary Barrier Final Rule are not changed for retrofit installations, and that a reasonable compliance timeline (3 years) is included in the Notice of Proposed Rulemaking (NPRM).

Secondary Barrier Applicability Must Include All Part 121 Aircraft: Section 350 (e) of the FAA reauthorization specifically indicates that the mandate shall apply to "each" aircraft, it states that the FAA shall, "issue a final rule requiring installation of a secondary cockpit barrier on each commercial passenger aircraft operated under the provisions of part 121 of title 14, Code of Federal Regulations (CFR)." While there is language in section (e) that says to take the ARC recommendations into consideration, the language clearly mandates that each aircraft have secondary barriers. Therefore, this recommendation is not consistent with the law and appears to be outside the scope of the ARC. The FAA must not apply a threshold based on the FAA-certified maximum seating capacity; they also must not account for flight duration considerations. The FAA should uphold the 2024 FAA Reauthorization Act Section 350 and issue a final rule requiring installation of a secondary cockpit barrier on each commercial passenger aircraft operated under the provisions of part 121 of title 14, CFR. ALPA is strongly opposed to any carveout of Installed Physical Secondary Barriers (IPSB) installations for Part 121 aircraft. We completely disagree that any exceptions to the law would maintain a security equivalence; in fact, any aircraft without an IPSB will still have a security vulnerability. That vulnerability will increase to a higher risk as those aircraft will become of greater interest to those who wish to do harm to the U.S. The addition of the IPSB is a cost-efficient, proven mitigation that eliminates the vulnerability; however, it is clear that the Technical Working Group (WG) and its recommendations are laser-focused on costs instead of ensuring the security of our skies.

Aircraft operated under Part 121, despite how many seats they have installed, are not tied to routes and can experience varied flight durations. The WG states that there is less likelihood that the flight deck door will be opened on aircraft with fewer than 125 seats; however, there are many arguments as to why this is incorrect and misleading. Regional aircraft being operated today are certified to operate both short and long duration flights and must have the same security protections as narrow-body and widebody aircraft. As discussed in the Operations and Training WG recommendations, the duration of the flight must account for taxi, ground delays, holding, and weather delays enroute. Turn times for passenger aircraft with fewer than 125 seats are regularly shorter than the turn time of aircraft with 125+ seats; often scheduled as short as 25 minutes. This condenses the time available to manage the same workload. hindering the pilots from taking breaks for multiple legs. Pilots operating regional flights will regularly fly a higher number of consecutive stage segments during their duty period. This and on-time performance pressures lead to compression of pilot duties in shorter time periods and a lower likelihood for pilots to take lavatory and food breaks while on the ground. Pilots will often take necessary breaks inflight once outside of critical phases of flight. With more flight segments comes an increased likelihood of needing to perform contamination checks, times in which the flight deck door could be opened in-flight. Removing these aircraft from the scope of applicability by duration or size does not account for the security threat that presents itself to Part 121 operations.

Secondary Barrier Performance Regulations Must Remain The Same As Forward Fit Final Rule: ALPA is strongly opposed to any changes to IPSB performance requirements for Part 121 aircraft. The performance requirements for secondary barriers on currently flying aircraft must be the same as required by the final rule, "Installation and Operation of Flightdeck IPSB on Transport Category Airplanes in Part 121 Service," and as outlined in 14 CFR 25.795.

The recommendation states, "…a performance-based approach enables industry to progress in the search for feasible solutions," however, this idea undermines decades of industry work to develop a feasible solution for an effective IPSB

through RTCA DO-329 in 2011 and the work of the ARAC in 2019. All requirements under 14 CFR 25.795 must be upheld as the FAA works to issue a final rule requiring installation of a secondary cockpit barrier on each commercial passenger aircraft operated under the provisions of part 121 of title 14, CFR. This recommendation aims to weaken security by removing essential components of an effective IPSB and goes against the Tasks and Objectives of the ARC Charter.

ALPA Opposes An Eight Year Compliance Timeline: ALPA understands that the retrofit design and certification by manufacturers and supplemental type certificate holders would take additional time than the forward fit regulation, but the Technical WG's request for four times that provided in the newly manufactured aircraft Final Rule is another attempt to delay implementation of these security devices from Part 121 aircraft. ALPA would support an additional year provided to manufacturers to design and certify these devices, but the majority of manufacturers already have experience in certifying these designs following the 2023 newly manufactured Final Rule. It is not lost on ALPA that these same manufacturers that are asking for 8 years were able to certify and install hardened flight deck doors within 15 months of the FAA Final Rule following 9-11.

Analyzing the timeline for the requirement of secondary barriers, as of 2025, it has been 24 years since the vulnerability of an open flight deck door was identified and not yet mitigated. Based on the expected work timeline, once the ARC submits its report, the FAA will have 36 months to issue a final rule. When the FAA issues a notice of proposed rulemaking, that could add significant more time until a final rule is issued. Further, with the request of eight years, currently flying aircraft would potentially begin using IPSB in 2036. That would be the industry accepting a known vulnerability for over 35 years after a catastrophic incident in which terrorists exploited the same vulnerability.

Aviation Security Threat: Terrorists are still focused on the U.S. and civil aviation as their primary target. This is fully outlined in the Office of Intelligence and Analysis (I&A) Homeland Threat Assessment of 2025. ALPA implores the FAA to work with I&A to fully understand the threats to civil aviation and ensure that IPSBs are installed on all part 121 aircraft and further extended to Part 129 operations.

In addition to terrorism, the aviation environment has changed, and two of the ARC WGs do not recognize it. Analyzing FAA and TSA data, in the past few years, the aviation ecosystem has been susceptible to the highest levels of inflight security threats. The FAA reported 2,102 unruly passenger incidents in 2024. The TSA has data available to show that, based on the common strategy threat levels, there have been over 150 level three threats in the past 10 years and over 40 level four threats in the same time period. These threats include attempted flight deck breaches, physical assault, sexual assault, bomb threats, attempted hijacking, attempted opening of cabin doors, stowaways, insider threat, human trafficking, and others. Any of these incidents could be a direct threat to the flight deck. Having the IPSBs installed and used for any of these instances would be a lifesaving tool. All airline aircraft left without IPSBs would be deemed a more attractive and vulnerable target for those who wish to do harm.

The arguments made within the report, stating that we have made significant improvements on aviation security over the past 24 years, are true; however, those improvements were made through thousands of hours of advocacy and disagreements with similar "cost/benefit" arguments aimed to create carve-outs in security. ALPA has been a key player in holding the industry accountable and ensuring the United States aviation industry continues to uphold the highest levels of aviation security. Implementation for improvements we have made are still ongoing and need to be maintained, not degraded, especially as our threat environment evolves. It is imperative that we understand the deficiencies in the layers of aviation security as they currently stand and work to improve them. There are many U.S. Governmental Accountability Office reports that clearly identify vulnerabilities in the aviation security system.

As we get further away from the tragic 9-11 attacks, industry has forgotten why ALPA is so adamant that we implement these critical security devices; we truly must "Never Forget."

Conclusion: Once again, ALPA strongly encourages the FAA to ensure that all Part 121 aircraft are included in the applicability, the performance regulations set forth by the forward fit Secondary Barrier Final Rule are not changed for retrofit installations, a reasonable compliance timeline (3 years) is included in the NPRM, and that the FAA works with I&A to fully understand the threats to civil aviation and ensure that IPSBs are installed on all part 121 aircraft and further extended to Part 129 operations..

Sincerely,

Captain Wolfgang Koch
Aviation Security Chair
Air Line Pilots Association, International

Secondary Flightdeck Barrier on Commercial Passenger Aircraft Aviation Rulemaking Committee

ARC Member Ballot

1. What is your name and organization? (First Last, Organization Name) *

Christopher Dillon, Frontier Airlines

2. Recommendation 1: The FAA should develop regulations and advisory guidance to ensure crewmember operational procedures incorporate situational awareness and consistent application of Common Strategy principles. *

- ( ) Concur.
- ( ) Concur, with comment.
- (•) Concur, with exception.
- ( ) Non-Concur.
- ( ) Abstain.

3. Recommendation 1: If you chose "Concur, with exception," "Non-Concur," "Abstain," or "Concur with comment," please include your comments or dissent.

While Frontier Airlines concurs with the recommendation for situational awareness and consistent application of Common Strategy Principles, we do not concur with the recommendation to incorporate the barrier as a deployed safety enhancement during Threat Levels. This barrier is classified as intrusion-resistant and designed to delay unauthorized access for 5 seconds during cockpit door opening. Expanding the recommendation to include an extended deployment during Threat Level events is outside of scope in intent of the barrier and conflicts with the approved design of the barrier. Directing use of this barrier in this case would conflict with OEM guidance in current design of temporary deployment only for cockpit door opening. Additionally, this may result in increased risk of injury in the case of a decompression or potential evacuation impediment for crew if guidance during significant Threat Levels includes leaving the barrier installed until completion of flight. If this recommendation to include this as a procedure during Threat Level events, a design approval scope increase should follow for long-term deployment in these cases.

4. Recommendation 2: The FAA should define appropriate design and performance standards to account for crewmember operational complexities and human factors considerations. *

- ○ Concur.
- ○ Concur, with comment.
- ◉ Concur, with exception.
- ○ Non-Concur.
- ○ Abstain.

5. Recommendation 2: If you chose "Concur, with exception," "Non-Concur," "Abstain," or "Concur with comment," please include your comments or dissent.

While discussion of flight duration not being a consideration in barrier installation requirements is acceptable, recommendations for design consideration and operation while on ground (e.g., contamination checks or ground delay pilot physiological breaks) is outside the scope of requirements and regulation. Frontier does not concur with this and only remains with the requirements for deployment "if the airplane is in flight...," as specified in 121.584.
Frontier does not concur with the recommendation to have crew members preflight the barrier to include deployed and secured or other verification of function (e.g., ensuring the 5 second delayed release mechanism). Many components to not require this and are expected to be reliable. As stated earlier in the recommendation, this is more appropriate as a requirement of routine maintenance inspections. Even in the event of discrepancy discovered during operation, procedures must be in place for stowage or removal until completion of the flight. This would be in line with other non-critical safety of flight items where maintenance action or deferral can then occur at completion of the flight.

6. Recommendation 3: The FAA should specify consistent, minimum industry training standards to ensure all crewmembers are familiar with the basic design, operational, and airworthiness concepts, and are able to properly utilize the equipment under all normal and emergency conditions. *

- ○ Concur.
- ○ Concur, with comment.
- ◉ Concur, with exception.
- ○ Non-Concur.
- ○ Abstain.

7. Recommendation 3: If you chose "Concur, with exception," "Non-Concur," "Abstain," or "Concur with comment," please include your comments or dissent.

Above those exceptions Frontier already addressed in previous recommendations re-discussed in this section, Frontier does not concur with any requirement for hands-on training of this barrier. While different designs can be encountered between aircraft types, the requirement for simple function allows for reasoning that CBT or other textual/multi-media means is acceptable for use of this barrier. With the requirement for this not inclusive of the line-fit solution mandated August 25, 2025, and further not requiring this, there is no evidence a need for hands on would be necessary years later for a retrofit solution when many aircraft would already be introduced with this barrier successfully without the need of hands-on training. In addition to this, with the FAA Flight Standardization Board Reports not including this as a significant training item and discussions with OEMs of the same type of CBT/multi-media and manual update satisfactory, this barrier implementation should only be categorized as a Level B training at greatest. Finally, other components not requiring hands on training that are higher in safety criticality (e.g., flight deck door) not needing hands-on training, this is an unnecessary requirement that would not provide assurance of knowledge better than the Level B-type training discussed here.

8. Recommendation 4: The FAA should amend AC 120-110A to ensure that guidance for use of secondary barrier systems by airlines operating under part 121 is consistent with recommended regulatory changes. *

- ○ Concur.
- ○ Concur, with comment.
- ◉ Concur, with exception.
- ○ Non-Concur.
- ○ Abstain.

9. Recommendation 4: If you chose "Concur, with exception," "Non-Concur," "Abstain," or "Concur with comment," please include your comments or dissent.

In alignment with Frontier's disagreement in previous recommendations, Frontier takes exception to referenced appendix items 4.3 preflight requirements and 4.5 security threat level barrier inclusion. Additionally, Frontier does not agree with the final section of this recommendation for hands-on training for the barrier for reasons explained in the previous recommendation. The separation of only requiring Flight Attendants to complete this training also does not support the need for crew members to do this. All crew members will use this barrier at some point dependent on design. As such, the hands-on consideration is not evident of being required. Finally, Frontier does not agree with emphasis of maximum time allowances or timeliness in deploying the barrier described in the appendix 4.1 and 4.2. Timeliness is not seen as a critical component of deploying the barrier. Proper deployment and verification of lock engagement does. Emphasis on timeliness would only open unnecessary risk of deployment errors and unnecessary validation/testing concerns. The cockpit door cannot open until this barrier is deployed so timeliness is not identified as a factor in this system.

10. Recommendation 5: The FAA should limit the installation of secondary flightdeck barriers on existing part 121 aircraft based on flight duration, with cost-benefit considerations providing additional justification for this approach. *

- (●) Concur.
- ( ) Concur, with comment.
- ( ) Concur, with exception.
- ( ) Non-Concur.
- ( ) Abstain.

11. Recommendation 5: If you chose "Concur, with exception," "Non-Concur," "Abstain," or "Concur with comment," please include your comments or dissent.

12. Recommendation 6: The FAA should allow flexibility in the installation of secondary barriers for aircraft manufactured on or before August 25, 2025. *

- (●) Concur.
- ( ) Concur, with comment.
- ( ) Concur, with exception.
- ( ) Non-Concur.
- ( ) Abstain.

13. Recommendation 6: If you chose "Concur, with exception," "Non-Concur," "Abstain," or "Concur with comment," please include your comments or dissent.

14. Recommendation 7: The FAA should implement performance-based requirements centered on the protective function of the barrier, rather than fixed dimensional requirements. *

- (●) Concur.
- ( ) Concur, with comment.
- ( ) Concur, with exception.
- ( ) Non-Concur.
- ( ) Abstain.

15. Recommendation 7: If you chose "Concur, with exception," "Non-Concur," "Abstain," or "Concur with comment," please include your comments or dissent.

16. Recommendation 8: The FAA should not implement the requirement to install secondary cockpit barriers on aircraft operating under 14 CFR part 129. *

- (●) Concur.
- ( ) Concur, with comment.
- ( ) Concur, with exception.
- ( ) Non-Concur.
- ( ) Abstain.

17. Recommendation 8: If you chose "Concur, with exception," "Non-Concur," "Abstain," or "Concur with comment," please include your comments or dissent.

18. Recommendation 9: The FAA should implement an eight-year compliance timeline after retrofit rules are published to allow sufficient time for the industry and the FAA to develop, certify, and deploy retrofit solutions that meet the rule's intent without introducing disproportionate burdens or operational disruption. *

- (●) Concur.
- ( ) Concur, with comment.
- ( ) Concur, with exception.
- ( ) Non-Concur.
- ( ) Abstain.

19. Recommendation 9: If you chose "Concur, with exception," "Non-Concur," "Abstain," or "Concur with comment," please include your comments or dissent.

20. Recommendation 10: The FAA should revise 14 CFR 121.313(l), AC 120-110A, and AC 25.795-10 to implement the retrofit requirements for aircraft manufactured on or before August 25, 2025, in alignment with the Technical Working Group's recommendations. *

- (●) Concur.
- ( ) Concur, with comment.
- ( ) Concur, with exception.
- ( ) Non-Concur.
- ( ) Abstain.

21. Recommendation 10: If you chose "Concur, with exception," "Non-Concur," "Abstain," or "Concur with comment," please include your comments or dissent.

22. Recommendation 11: The FAA should improve AC 25.795-10 for aircraft manufactured after August 25, 2025. *

- (●) Concur.
- ( ) Concur, with comment.
- ( ) Concur, with Exception.
- ( ) Non-Concur.
- ( ) Abstain.

23. Recommendation 11: If you chose "Concur, with exception," "Non-Concur," "Abstain," or "Concur with comment," please include your comments or dissent.

24. Recommendation 12: The FAA should consider each aircraft category separately to assess the cost benefit ratio of an Installed Secondary Barriers (IPSB) with Regional Aircraft not reaching the required threshold. *

- ( ) Concur.
- (•) Concur, with comment.
- ( ) Concur, with exception.
- ( ) Non-Concur.
- ( ) Abstain.

25. Recommendation 12: If you chose "Concur, with exception," "Non-Concur," "Abstain," or "Concur with comment," please include your comments or dissent.

Frontier's comments in previous recommendations identifies exception to consideration for hands-on training. When looking at the estimated cost as applied from the line-fit solution was with a different const structure. When including the impact of retrofit challenges and potential increase in training requirements above what is currently specified for line-fit requirements, the cost estimate is believed to be estimated low.

26. **As a voting member and full participant of the Secondary Flightdeck Barrier on Commercial Passenger Aircraft Aviation Rulemaking Committee, I hereby acknowledge that I have reviewed the Final Report and recommendations herein and my responses are recorded within this ballot. Below is my virtual signature (Please type your full name):** *

Christopher William Dillon

Secondary Flightdeck Barrier on Commercial Passenger

Aircraft Aviation Rulemaking Committee

ARC Member Ballot

1. What is your name and organization? (First Last, Organization Name) *

Robert Ireland, Airlines for America

2. Recommendation 1: The FAA should develop regulations and advisory guidance to ensure crewmember operational procedures incorporate situational awareness and consistent application of Common Strategy principles. *

- ○ Concur.
- ○ Concur, with comment.
- ○ Concur, with exception.
- ◉ Non-Concur.
- ○ Abstain.

3. Recommendation 1: If you chose "Concur, with exception," "Non-Concur," "Abstain," or "Concur with comment," please include your comments or dissent.

This requirement already exists as 14 CFR § 121.401(a) requiring that certificate holders must define training to comply.
To wit:

(a) Each certificate holder shall:

(1) Establish and implement a training program that satisfies the requirements of this subpart and appendices E and F of this part and that ensures that each crewmember, aircraft dispatcher, flight instructor, check pilot, and check flight engineer is adequately trained to perform his or her assigned duties. Prior to implementation, the certificate holder must obtain initial and final FAA approval of the training program.

(2) Provide adequate ground and flight training facilities and properly qualified ground instructors for the training required by this subpart;

(3) Provide and keep current with respect to each airplane type and, if applicable, the particular variations within that airplane type, appropriate training material, examinations, forms, instructions, and procedures for use in conducting the training and checks required by this part; and

(4) Provide enough flight instructors and approved check pilots and check flight engineers to conduct the flight training and checks required under this part.

The FAA should NOT be expected to develop regulations or advisory guidance in this matter that is significantly different nor over-and-above such guidance, if existent, for the installation of IPSB on new aircraft. Each airline must develop training that meets 14 CFR § 121.401(a) and is approved by its POI to assure successful training on each type of aircraft. Further, FAA has recently issued Exemption FAA-2025-0934 specifically using its estimate of time required to develop appropriate CBT programs for IPSB as part of its determination. FAA does not expect nor specifically encourage hands-on training which would be expensive and duplicative. Table 1 in the Report must be amended to eliminate specific recommendations for "hands on", "classroom", or "CBT" to assure each airline has the latitude within its means to design and implement training approved by its respective POI.

4. Recommendation 2: The FAA should define appropriate design and performance standards to account for crewmember operational complexities and human factors considerations. *

- ( ) Concur.
- ( ) Concur, with comment.
- (•) Concur, with exception.
- ( ) Non-Concur.
- ( ) Abstain.

5. Recommendation 2: If you chose "Concur, with exception," "Non-Concur," "Abstain," or "Concur with comment," please include your comments or dissent.

The FAA should NOT define design and performance standards that differ materially from those currently established for new aircraft installations currently underway for aircraft manufactured after August 25, 2025, UNLESS older aircraft envisioned by this regulatory action present unique design challenges.

6. Recommendation 3: The FAA should specify consistent, minimum industry training standards to ensure all crewmembers are familiar with the basic design, operational, and airworthiness concepts, and are able to properly utilize the equipment under all normal and emergency conditions. *

- ( ) Concur.
- ( ) Concur, with comment.
- ( ) Concur, with exception.
- (•) Non-Concur.
- ( ) Abstain.

7. Recommendation 3: If you chose "Concur, with exception," "Non-Concur," "Abstain," or "Concur with comment," please include your comments or dissent.

See response to Recommendation 1

8. Recommendation 4: The FAA should amend AC 120-110A to ensure that guidance for use of secondary barrier systems by airlines operating under part 121 is consistent with recommended regulatory changes. *

- ( ) Concur.
- ( ) Concur, with comment.
- (•) Concur, with exception.
- ( ) Non-Concur.
- ( ) Abstain.

9. Recommendation 4: If you chose "Concur, with exception," "Non-Concur," "Abstain," or "Concur with comment," please include your comments or dissent.

Any recommended regulatory changes should be those necessitated by challenges presented within the covered aircraft population (older aircraft).

10. Recommendation 5: The FAA should limit the installation of secondary flightdeck barriers on existing part 121 aircraft based on flight duration, with cost-benefit considerations providing additional justification for this approach. *

- (●) Concur.
- ( ) Concur, with comment.
- ( ) Concur, with exception.
- ( ) Non-Concur.
- ( ) Abstain.

11. Recommendation 5: If you chose "Concur, with exception," "Non-Concur," "Abstain," or "Concur with comment," please include your comments or dissent.

12. Recommendation 6: The FAA should allow flexibility in the installation of secondary barriers for aircraft manufactured on or before August 25, 2025. *

- (●) Concur.
- ( ) Concur, with comment.
- ( ) Concur, with exception.
- ( ) Non-Concur.
- ( ) Abstain.

13. Recommendation 6: If you chose "Concur, with exception," "Non-Concur," "Abstain," or "Concur with comment," please include your comments or dissent.

14. Recommendation 7: The FAA should implement performance-based requirements centered on the protective function of the barrier, rather than fixed dimensional requirements. *

- (●) Concur.
- ( ) Concur, with comment.
- ( ) Concur, with exception.
- ( ) Non-Concur.
- ( ) Abstain.

15. Recommendation 7: If you chose "Concur, with exception," "Non-Concur," "Abstain," or "Concur with comment," please include your comments or dissent.

16. Recommendation 8: The FAA should not implement the requirement to install secondary cockpit barriers on aircraft operating under 14 CFR part 129. *

- (●) Concur.
- ( ) Concur, with comment.
- ( ) Concur, with exception.
- ( ) Non-Concur.
- ( ) Abstain.

17. Recommendation 8: If you chose "Concur, with exception," "Non-Concur," "Abstain," or "Concur with comment," please include your comments or dissent.

18. Recommendation 9: The FAA should implement an eight-year compliance timeline after retrofit rules are published to allow sufficient time for the industry and the FAA to develop, certify, and deploy retrofit solutions that meet the rule's intent without introducing disproportionate burdens or operational disruption. *

- (●) Concur.
- ( ) Concur, with comment.
- ( ) Concur, with exception.
- ( ) Non-Concur.
- ( ) Abstain.

19. Recommendation 9: If you chose "Concur, with exception," "Non-Concur," "Abstain," or "Concur with comment," please include your comments or dissent.

20. Recommendation 10: The FAA should revise 14 CFR 121.313(l), AC 120-110A, and AC 25.795-10 to implement the retrofit requirements for aircraft manufactured on or before August 25, 2025, in alignment with the Technical Working Group's recommendations. *

- (●) Concur.
- ( ) Concur, with comment.
- ( ) Concur, with exception.
- ( ) Non-Concur.
- ( ) Abstain.

21. Recommendation 10: If you chose "Concur, with exception," "Non-Concur," "Abstain," or "Concur with comment," please include your comments or dissent.

22. Recommendation 11: The FAA should improve AC 25.795-10 for aircraft manufactured after August 25, 2025. *

- (●) Concur.
- ( ) Concur, with comment.
- ( ) Concur, with Exception.
- ( ) Non-Concur.
- ( ) Abstain.

23. Recommendation 11: If you chose "Concur, with exception," "Non-Concur," "Abstain," or "Concur with comment," please include your comments or dissent.

24. Recommendation 12: The FAA should consider each aircraft category separately to assess the cost benefit ratio of an Installed Secondary Barriers (IPSB) with Regional Aircraft not reaching the required threshold. *

- (●) Concur.
- ( ) Concur, with comment.
- ( ) Concur, with exception.
- ( ) Non-Concur.
- ( ) Abstain.

25. Recommendation 12: If you chose "Concur, with exception," "Non-Concur," "Abstain," or "Concur with comment," please include your comments or dissent.

26. **As a voting member and full participant of the Secondary Flightdeck Barrier on Commercial Passenger Aircraft Aviation Rulemaking Committee, I hereby acknowledge that I have reviewed the Final Report and recommendations herein and my responses are recorded within this ballot. Below is my virtual signature (Please type your full name):** *

Robert Ireland

Secondary Flightdeck Barrier on Commercial Passenger Aircraft

Aviation Rulemaking Committee

ARC Member Ballot

1. What is your name and organization? (First Last, Organization Name) *

Emad Kiriakos, The Boeing Company

2. Recommendation 1: The FAA should develop regulations and advisory guidance to ensure crewmember operational procedures incorporate situational awareness and consistent application of Common Strategy principles. *

- (●) Concur.
- ( ) Concur, with comment.
- ( ) Concur, with exception.
- ( ) Non-Concur.
- ( ) Abstain.

3. Recommendation 1: If you chose "Concur, with exception," "Non-Concur," "Abstain," or "Concur with comment," please include your comments or dissent.

4. Recommendation 2: The FAA should define appropriate design and performance standards to account for crewmember operational complexities and human factors considerations. *

- (●) Concur.
- ( ) Concur, with comment.
- ( ) Concur, with exception.
- ( ) Non-Concur.
- ( ) Abstain.

5. Recommendation 2: If you chose "Concur, with exception," "Non-Concur," "Abstain," or "Concur with comment," please include your comments or dissent.

6. Recommendation 3: The FAA should specify consistent, minimum industry training standards to ensure all crewmembers are familiar with the basic design, operational, and airworthiness concepts, and are able to properly utilize the equipment under all normal and emergency conditions. *

- (●) Concur.
- ( ) Concur, with comment.
- ( ) Concur, with exception.
- ( ) Non-Concur.
- ( ) Abstain.

7. Recommendation 3: If you chose "Concur, with exception," "Non-Concur," "Abstain," or "Concur with comment," please include your comments or dissent.

8. Recommendation 4: The FAA should amend AC 120-110A to ensure that guidance for use of secondary barrier systems by airlines operating under part 121 is consistent with recommended regulatory changes. *

- (●) Concur.
- ( ) Concur, with comment.
- ( ) Concur, with exception.
- ( ) Non-Concur.
- ( ) Abstain.

9. Recommendation 4: If you chose "Concur, with exception," "Non-Concur," "Abstain," or "Concur with comment," please include your comments or dissent.

10. Recommendation 5: The FAA should limit the installation of secondary flightdeck barriers on existing part 121 aircraft based on flight duration, with cost-benefit considerations providing additional justification for this approach. *

- (●) Concur.
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- ( ) Non-Concur.
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12. Recommendation 6: The FAA should allow flexibility in the installation of secondary barriers for aircraft manufactured on or before August 25, 2025. *

- (●) Concur.
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- (●) Concur.
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15. Recommendation 7: If you chose "Concur, with exception," "Non-Concur," "Abstain," or "Concur with comment," please include your comments or dissent.

16. Recommendation 8: The FAA should not implement the requirement to install secondary cockpit barriers on aircraft operating under 14 CFR part 129. *

- (●) Concur.
- ( ) Concur, with comment.
- ( ) Concur, with exception.
- ( ) Non-Concur.
- ( ) Abstain.

17. Recommendation 8: If you chose "Concur, with exception," "Non-Concur," "Abstain," or "Concur with comment," please include your comments or dissent.

18. Recommendation 9: The FAA should implement an eight-year compliance timeline after retrofit rules are published to allow sufficient time for the industry and the FAA to develop, certify, and deploy retrofit solutions that meet the rule's intent without introducing disproportionate burdens or operational disruption. *

- (●) Concur.
- ( ) Concur, with comment.
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- ( ) Non-Concur.
- ( ) Abstain.

19. Recommendation 9: If you chose "Concur, with exception," "Non-Concur," "Abstain," or "Concur with comment," please include your comments or dissent.

20. Recommendation 10: The FAA should revise 14 CFR 121.313(l), AC 120-110A, and AC 25.795-10 to implement the retrofit requirements for aircraft manufactured on or before August 25, 2025, in alignment with the Technical Working Group's recommendations. *

- (●) Concur.
- ( ) Concur, with comment.
- ( ) Concur, with exception.
- ( ) Non-Concur.
- ( ) Abstain.

21. Recommendation 10: If you chose "Concur, with exception," "Non-Concur," "Abstain," or "Concur with comment," please include your comments or dissent.

22. Recommendation 11: The FAA should improve AC 25.795-10 for aircraft manufactured after August 25, 2025. *

- (●) Concur.
- ( ) Concur, with comment.
- ( ) Concur, with Exception.
- ( ) Non-Concur.
- ( ) Abstain.

23. Recommendation 11: If you chose "Concur, with exception," "Non-Concur," "Abstain," or "Concur with comment," please include your comments or dissent.

24. Recommendation 12: The FAA should consider each aircraft category separately to assess the cost benefit ratio of an Installed Secondary Barriers (IPSB) with Regional Aircraft not reaching the required threshold. *

- (●) Concur.
- ( ) Concur, with comment.
- ( ) Concur, with exception.
- ( ) Non-Concur.
- ( ) Abstain.

25. Recommendation 12: If you chose "Concur, with exception," "Non-Concur," "Abstain," or "Concur with comment," please include your comments or dissent.

26. **As a voting member and full participant of the Secondary Flightdeck Barrier on Commercial Passenger Aircraft Aviation Rulemaking Committee, I hereby acknowledge that I have reviewed the Final Report and recommendations herein and my responses are recorded within this ballot. Below is my virtual signature (Please type your full name):** *

Emad Kiriakos

Secondary Flightdeck Barrier on Commercial Passenger Aircraft

Aviation Rulemaking Committee

ARC Member Ballot

1. What is your name and organization? (First Last, Organization Name) *

Philippe LEPERT, ATR

2. Recommendation 1: The FAA should develop regulations and advisory guidance to ensure crewmember operational procedures incorporate situational awareness and consistent application of Common Strategy principles. *

- (●) Concur.
- ( ) Concur, with comment.
- ( ) Concur, with exception.
- ( ) Non-Concur.
- ( ) Abstain.

3. Recommendation 1: If you chose "Concur, with exception," "Non-Concur," "Abstain," or "Concur with comment," please include your comments or dissent.

4. Recommendation 2: The FAA should define appropriate design and performance standards to account for crewmember operational complexities and human factors considerations. *

- ( ) Concur.
- ( ) Concur, with comment.
- (•) Concur, with exception.
- ( ) Non-Concur.
- ( ) Abstain.

5. Recommendation 2: If you chose "Concur, with exception," "Non-Concur," "Abstain," or "Concur with comment," please include your comments or dissent.

- The statement " Installation of IPSB should allow for sufficient space forward of the barrier [xxx]" is in contradiction with the request to install the IPSB on all aircraft type as it is not physically possible depending of cabin layout.
- Recommendation 2 addresses the appropriate design and performance standards to account for crewmember operational complexities and human factors considerations. Therefore, flight duration considerations are irrelevant.
- Furthermore, the statement "On short flights, there are various reasons a flightdeck occupant may be required to enter the cabin while the
airplane is on the ground and in sterile flight operations mode." is in contradiction with §121.584 (a)(3) : "(a) A person authorized to be on the flightdeck uses an approved audio procedure and an approved visual device to verify that: (3) If the airplane is in flight, any installed physical secondary barrier (IPSB) required by § 121.313(l) has been deployed;"

6. Recommendation 3: The FAA should specify consistent, minimum industry training standards to ensure all crewmembers are familiar with the basic design, operational, and airworthiness concepts, and are able to properly utilize the equipment under all normal and emergency conditions. *

- (●) Concur.
- ( ) Concur, with comment.
- ( ) Concur, with exception.
- ( ) Non-Concur.
- ( ) Abstain.

7. Recommendation 3: If you chose "Concur, with exception," "Non-Concur," "Abstain," or "Concur with comment," please include your comments or dissent.

8. Recommendation 4: The FAA should amend AC 120-110A to ensure that guidance for use of secondary barrier systems by airlines operating under part 121 is consistent with recommended regulatory changes. *

- (●) Concur.
- ( ) Concur, with comment.
- ( ) Concur, with exception.
- ( ) Non-Concur.
- ( ) Abstain.

9. Recommendation 4: If you chose "Concur, with exception," "Non-Concur," "Abstain," or "Concur with comment," please include your comments or dissent.

10. Recommendation 5: The FAA should limit the installation of secondary flightdeck barriers on existing part 121 aircraft based on flight duration, with cost-benefit considerations providing additional justification for this approach. *

- ( ) Concur.
- ( ) Concur, with comment.
- (•) Concur, with exception.
- ( ) Non-Concur.
- ( ) Abstain.

11. Recommendation 5: If you chose "Concur, with exception," "Non-Concur," "Abstain," or "Concur with comment," please include your comments or dissent.

- The title of the recommendation is not aligned with the conclusion regarding the "flight duration " and the "Certificated Maximum Passenger Seating Capacity of up to 125 seats"
- The recommendation 5 should be based on the regional aircraft category instead of the MPSC of 125 seats, to be in line with the recommendation 12.

12. Recommendation 6: The FAA should allow flexibility in the installation of secondary barriers for aircraft manufactured on or before August 25, 2025. *

- (●) Concur.
- ( ) Concur, with comment.
- ( ) Concur, with exception.
- ( ) Non-Concur.
- ( ) Abstain.

13. Recommendation 6: If you chose "Concur, with exception," "Non-Concur," "Abstain," or "Concur with comment," please include your comments or dissent.

14. Recommendation 7: The FAA should implement performance-based requirements centered on the protective function of the barrier, rather than fixed dimensional requirements. *

- ( ) Concur.
- (●) Concur, with comment.
- ( ) Concur, with exception.
- ( ) Non-Concur.
- ( ) Abstain.

15. Recommendation 7: If you chose "Concur, with exception," "Non-Concur," "Abstain," or "Concur with comment," please include your comments or dissent.

The AC 25.795-10 should be considered in the next steps as reported in recommendation 10.

16. Recommendation 8: The FAA should not implement the requirement to install secondary cockpit barriers on aircraft operating under 14 CFR part 129. *

- (●) Concur.
- ( ) Concur, with comment.
- ( ) Concur, with exception.
- ( ) Non-Concur.
- ( ) Abstain.

17. Recommendation 8: If you chose "Concur, with exception," "Non-Concur," "Abstain," or "Concur with comment," please include your comments or dissent.

18. Recommendation 9: The FAA should implement an eight-year compliance timeline after retrofit rules are published to allow sufficient time for the industry and the FAA to develop, certify, and deploy retrofit solutions that meet the rule's intent without introducing disproportionate burdens or operational disruption. *

- (●) Concur.
- ( ) Concur, with comment.
- ( ) Concur, with exception.
- ( ) Non-Concur.
- ( ) Abstain.

19. Recommendation 9: If you chose "Concur, with exception," "Non-Concur," "Abstain," or "Concur with comment," please include your comments or dissent.

20. Recommendation 10: The FAA should revise 14 CFR 121.313(l), AC 120-110A, and AC 25.795-10 to implement the retrofit requirements for aircraft manufactured on or before August 25, 2025, in alignment with the Technical Working Group's recommendations. *

- ( ) Concur.
- (●) Concur, with comment.
- ( ) Concur, with exception.
- ( ) Non-Concur.
- ( ) Abstain.

21. Recommendation 10: If you chose "Concur, with exception," "Non-Concur," "Abstain," or "Concur with comment," please include your comments or dissent.

For the addition proposal of the §121.313 (l)(2), the "Maximum Takeoff Weight of 86k lbs or more" should replace the "MPSC of 125 or more", in accordance with the recommendation 12.

22. Recommendation 11: The FAA should improve AC 25.795-10 for aircraft manufactured after August 25, 2025. *

- (●) Concur.
- ( ) Concur, with comment.
- ( ) Concur, with Exception.
- ( ) Non-Concur.
- ( ) Abstain.

23. Recommendation 11: If you chose "Concur, with exception," "Non-Concur," "Abstain," or "Concur with comment," please include your comments or dissent.

24. Recommendation 12: The FAA should consider each aircraft category separately to assess the cost benefit ratio of an Installed Secondary Barriers (IPSB) with Regional Aircraft not reaching the required threshold. *

- (●) Concur.
- ( ) Concur, with comment.
- ( ) Concur, with exception.
- ( ) Non-Concur.
- ( ) Abstain.

25. Recommendation 12: If you chose "Concur, with exception," "Non-Concur," "Abstain," or "Concur with comment," please include your comments or dissent.

26. **As a voting member and full participant of the Secondary Flightdeck Barrier on Commercial Passenger Aircraft Aviation Rulemaking Committee, I hereby acknowledge that I have reviewed the Final Report and recommendations herein and my responses are recorded within this ballot. Below is my virtual signature (Please type your full name):** *

Philippe Lepert

Secondary Flightdeck Barrier on Commercial Passenger Aircraft

Aviation Rulemaking Committee

ARC Member Ballot

1. What is your name and organization? (First Last, Organization Name) *

Jean-Francois Leroux, MHI RJ Aviation ULC

2. Recommendation 1: The FAA should develop regulations and advisory guidance to ensure crewmember operational procedures incorporate situational awareness and consistent application of Common Strategy principles. *

- ○ Concur.
- ○ Concur, with comment.
- ○ Concur, with exception.
- ○ Non-Concur.
- ◉ Abstain.

3. Recommendation 1: If you chose "Concur, with exception," "Non-Concur," "Abstain," or "Concur with comment," please include your comments or dissent.

MHIRJ has limited involvement in Flight Attendant operational procedures

4. Recommendation 2: The FAA should define appropriate design and performance standards to account for crewmember operational complexities and human factors considerations. *

- ( ) Concur.
- ( ) Concur, with comment.
- (•) Concur, with exception.
- ( ) Non-Concur.
- ( ) Abstain.

5. Recommendation 2: If you chose "Concur, with exception," "Non-Concur," "Abstain," or "Concur with comment," please include your comments or dissent.

References to ground situations where the IPSB has to be deployed shall be removed from this recommendation, as it is misleading because regulation 121.584(a)(3) and AC 120-110A stipulates to only deploy the IPSB in flight. This is also further justified by the fact that it could created a safety hazard. In the event of an emergency on ground where an emergency evacuation would be required, the deployed IPSB could block or significantly delay access to some emergency evacuation doors.

6. Recommendation 3: The FAA should specify consistent, minimum industry training standards to ensure all crewmembers are familiar with the basic design, operational, and airworthiness concepts, and are able to properly utilize the equipment under all normal and emergency conditions. *

- ( ) Concur.
- ( ) Concur, with comment.
- ( ) Concur, with exception.
- ( ) Non-Concur.
- (•) Abstain.

7. Recommendation 3: If you chose "Concur, with exception," "Non-Concur," "Abstain," or "Concur with comment," please include your comments or dissent.

MHIRJ has limited involvement in Flight Crew and Flight Attendant training

8. Recommendation 4: The FAA should amend AC 120-110A to ensure that guidance for use of secondary barrier systems by airlines operating under part 121 is consistent with recommended regulatory changes. *

- ( ) Concur.
- ( ) Concur, with comment.
- ( ) Concur, with exception.
- ( ) Non-Concur.
- (•) Abstain.

9. Recommendation 4: If you chose "Concur, with exception," "Non-Concur," "Abstain," or "Concur with comment," please include your comments or dissent.

MHIRJ has limited involvement in Flight Crew and Flight Attendant training

10. Recommendation 5: The FAA should limit the installation of secondary flightdeck barriers on existing part 121 aircraft based on flight duration, with cost-benefit considerations providing additional justification for this approach. *

- ○ Concur.
- ◉ Concur, with comment.
- ○ Concur, with exception.
- ○ Non-Concur.
- ○ Abstain.

11. Recommendation 5: If you chose "Concur, with exception," "Non-Concur," "Abstain," or "Concur with comment," please include your comments or dissent.

The recommendation title should align with the conclusion of the recommendation. Reference to "Flight duration" should be converted toward aircraft with more than 125 passengers or to aircraft category other then “Regional Aircraft”, as stipulated in Recommendation 12.

12. Recommendation 6: The FAA should allow flexibility in the installation of secondary barriers for aircraft manufactured on or before August 25, 2025. *

- (●) Concur.
- ( ) Concur, with comment.
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- ( ) Non-Concur.
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16. Recommendation 8: The FAA should not implement the requirement to install secondary cockpit barriers on aircraft operating under 14 CFR part 129. *

- (●) Concur.
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17. Recommendation 8: If you chose "Concur, with exception," "Non-Concur," "Abstain," or "Concur with comment," please include your comments or dissent.

18. Recommendation 9: The FAA should implement an eight-year compliance timeline after retrofit rules are published to allow sufficient time for the industry and the FAA to develop, certify, and deploy retrofit solutions that meet the rule's intent without introducing disproportionate burdens or operational disruption. *

- (●) Concur.
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19. Recommendation 9: If you chose "Concur, with exception," "Non-Concur," "Abstain," or "Concur with comment," please include your comments or dissent.

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- (●) Concur.
- ( ) Concur, with comment.
- ( ) Concur, with exception.
- ( ) Non-Concur.
- ( ) Abstain.

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22. Recommendation 11: The FAA should improve AC 25.795-10 for aircraft manufactured after August 25, 2025. *

- (●) Concur.
- ( ) Concur, with comment.
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- ( ) Concur, with exception.
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26. **As a voting member and full participant of the Secondary Flightdeck Barrier on Commercial Passenger Aircraft Aviation Rulemaking Committee, I hereby acknowledge that I have reviewed the Final Report and recommendations herein and my responses are recorded within this ballot. Below is my virtual signature (Please type your full name):** *

Jean-Francois Leroux

Secondary Flightdeck Barrier on Commercial Passenger

Aircraft Aviation Rulemaking Committee

ARC Member Ballot

1. What is your name and organization? (First Last, Organization Name) *

Marie-Laure Moulard Airbus

2. Recommendation 1: The FAA should develop regulations and advisory guidance to ensure crewmember operational procedures incorporate situational awareness and consistent application of Common Strategy principles. *

- (●) Concur.
- ( ) Concur, with comment.
- ( ) Concur, with exception.
- ( ) Non-Concur.
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3. Recommendation 1: If you chose "Concur, with exception," "Non-Concur," "Abstain," or "Concur with comment," please include your comments or dissent.

4. Recommendation 2: The FAA should define appropriate design and performance standards to account for crewmember operational complexities and human factors considerations. *

- ( ) Concur.
- ( ) Concur, with comment.
- (•) Concur, with exception.
- ( ) Non-Concur.
- ( ) Abstain.

5. Recommendation 2: If you chose "Concur, with exception," "Non-Concur," "Abstain," or "Concur with comment," please include your comments or dissent.

P.11" Design of a secondary barrier system should consider flight attendant anthropometrics, from a 95th percentile male to a 5th percentile female. Location and accessibility of any latching device, grip location, or other design features should accommodate these size ranges. Installation of IPSB should allow for sufficient space forward of the barrier, with the flightdeck door closed, for at least two people to exchange places, as well as for a flight attendant with two meal trays in hand."
This paragraph is in contradiction with the possibility to install an IPSB on any aircraft and on any layout in retrofit. The installation of the IPSB in retrofit will require a lot of flexibility, which can only be provided while considering simple certification objective (delay for 5 seconds) and means of compliance.
P.12 - 13 " From the crewmember operational perspective, flight duration in relation to the use of and need for secondary barrier is not considered relevant.[...] newer pilots to continue flying longer into their pregnancies"
These considerations are outside the scope of this recommendation and should be removed from this recommendation.

And the use of the IPSB is prohibited for taxi, take-off and landing - the deployment of the IPSB during these phases is not authorized as it may conflict with the emergency evacuation capability of the aircraft.

6. Recommendation 3: The FAA should specify consistent, minimum industry training standards to ensure all crewmembers are familiar with the basic design, operational, and airworthiness concepts, and are able to properly utilize the equipment under all normal and emergency conditions. *

- (●) Concur.
- ( ) Concur, with comment.
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- ( ) Abstain.

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- ( ) Concur, with exception.
- ( ) Non-Concur.
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- ( ) Concur.
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- ( ) Non-Concur.
- ( ) Abstain.

11. Recommendation 5: If you chose "Concur, with exception," "Non-Concur," "Abstain," or "Concur with comment," please include your comments or dissent.

The title:
"The FAA should limit the installation of secondary flightdeck barriers on existing part 121 aircraft based on flight duration, with cost-benefit considerations providing additional justification for this approach" is not matching with the conclusion of the recommendation which is based on the MPSC and not on the flight durtaion.

Although it is agreed that a limitation based on the MSPC should be defined and not based on the flight duration, the arguments that are proposed to conclude that 125 passengers is the right limit are not appropriate. The decision for the accurate MPSC has to be based on the cost /safety benefit figures that are provided in the recommendation 12, and let to the decision of the FAA.

12. Recommendation 6: The FAA should allow flexibility in the installation of secondary barriers for aircraft manufactured on or before August 25, 2025. *

- (●) Concur.
- ( ) Concur, with comment.
- ( ) Concur, with exception.
- ( ) Non-Concur.
- ( ) Abstain.

13. Recommendation 6: If you chose "Concur, with exception," "Non-Concur," "Abstain," or "Concur with comment," please include your comments or dissent.

14. Recommendation 7: The FAA should implement performance-based requirements centered on the protective function of the barrier, rather than fixed dimensional requirements. *

- ( ) Concur.
- (●) Concur, with comment.
- ( ) Concur, with exception.
- ( ) Non-Concur.
- ( ) Abstain.

15. Recommendation 7: If you chose "Concur, with exception," "Non-Concur," "Abstain," or "Concur with comment," please include your comments or dissent.

Page 32 The 'next steps' "§2. Support future updates to AC 120-110A, enabling FAA guidance to reflect performance based solutions for retrofit aircraft. "
This sentence is incomplete and should refer also to the update of the AC 25.795 -10, as proposed in the recommendation 10 (creation of a new appendix).

16. Recommendation 8: The FAA should not implement the requirement to install secondary cockpit barriers on aircraft operating under 14 CFR part 129. *

- (●) Concur.
- ( ) Concur, with comment.
- ( ) Concur, with exception.
- ( ) Non-Concur.
- ( ) Abstain.

17. Recommendation 8: If you chose "Concur, with exception," "Non-Concur," "Abstain," or "Concur with comment," please include your comments or dissent.

18. Recommendation 9: The FAA should implement an eight-year compliance timeline after retrofit rules are published to allow sufficient time for the industry and the FAA to develop, certify, and deploy retrofit solutions that meet the rule's intent without introducing disproportionate burdens or operational disruption. *

- (●) Concur.
- ( ) Concur, with comment.
- ( ) Concur, with exception.
- ( ) Non-Concur.
- ( ) Abstain.

19. Recommendation 9: If you chose "Concur, with exception," "Non-Concur," "Abstain," or "Concur with comment," please include your comments or dissent.

20. Recommendation 10: The FAA should revise 14 CFR 121.313(l), AC 120-110A, and AC 25.795-10 to implement the retrofit requirements for aircraft manufactured on or before August 25, 2025, in alignment with the Technical Working Group's recommendations. *

- ( ) Concur.
- ( ) Concur, with comment.
- (●) Concur, with exception.
- ( ) Non-Concur.
- ( ) Abstain.

21. Recommendation 10: If you chose "Concur, with exception," "Non-Concur," "Abstain," or "Concur with comment," please include your comments or dissent.

The text proposed for 121.313(l)(2) should not refer to the certificated Maximum Passenger Seating Capacity (MPSC) of 125 or more, but rather to the MPSC that will be decided by the FAA, based on the cost safety benefit figures.

22. Recommendation 11: The FAA should improve AC 25.795-10 for aircraft manufactured after August 25, 2025. *

- (●) Concur.
- ( ) Concur, with comment.
- ( ) Concur, with Exception.
- ( ) Non-Concur.
- ( ) Abstain.

23. Recommendation 11: If you chose "Concur, with exception," "Non-Concur," "Abstain," or "Concur with comment," please include your comments or dissent.

24. Recommendation 12: The FAA should consider each aircraft category separately to assess the cost benefit ratio of an Installed Secondary Barriers (IPSB) with Regional Aircraft not reaching the required threshold. *

- (●) Concur.
- ( ) Concur, with comment.
- ( ) Concur, with exception.
- ( ) Non-Concur.
- ( ) Abstain.

25. Recommendation 12: If you chose "Concur, with exception," "Non-Concur," "Abstain," or "Concur with comment," please include your comments or dissent.

26. **As a voting member and full participant of the Secondary Flightdeck Barrier on Commercial Passenger Aircraft Aviation Rulemaking Committee, I hereby acknowledge that I have reviewed the Final Report and recommendations herein and my responses are recorded within this ballot. Below is my virtual signature (Please type your full name):** *

Marie-Laure MOULARD

Secondary Flightdeck Barrier on Commercial Passenger Aircraft

Aviation Rulemaking Committee

ARC Member Ballot

1. What is your name and organization? (First Last, Organization Name) *

George Paul NACA

2. Recommendation 1: The FAA should develop regulations and advisory guidance to ensure crewmember operational procedures incorporate situational awareness and consistent application of Common Strategy principles. *

- (●) Concur.
- ( ) Concur, with comment.
- ( ) Concur, with exception.
- ( ) Non-Concur.
- ( ) Abstain.

3. Recommendation 1: If you chose "Concur, with exception," "Non-Concur," "Abstain," or "Concur with comment," please include your comments or dissent.

4. Recommendation 2: The FAA should define appropriate design and performance standards to account for crewmember operational complexities and human factors considerations. *

- (●) Concur.
- ( ) Concur, with comment.
- ( ) Concur, with exception.
- ( ) Non-Concur.
- ( ) Abstain.

5. Recommendation 2: If you chose "Concur, with exception," "Non-Concur," "Abstain," or "Concur with comment," please include your comments or dissent.

6. Recommendation 3: The FAA should specify consistent, minimum industry training standards to ensure all crewmembers are familiar with the basic design, operational, and airworthiness concepts, and are able to properly utilize the equipment under all normal and emergency conditions. *

- (●) Concur.
- ( ) Concur, with comment.
- ( ) Concur, with exception.
- ( ) Non-Concur.
- ( ) Abstain.

7. Recommendation 3: If you chose "Concur, with exception," "Non-Concur," "Abstain," or "Concur with comment," please include your comments or dissent.

8. Recommendation 4: The FAA should amend AC 120-110A to ensure that guidance for use of secondary barrier systems by airlines operating under part 121 is consistent with recommended regulatory changes. *

- (●) Concur.
- ( ) Concur, with comment.
- ( ) Concur, with exception.
- ( ) Non-Concur.
- ( ) Abstain.

9. Recommendation 4: If you chose "Concur, with exception," "Non-Concur," "Abstain," or "Concur with comment," please include your comments or dissent.

10. Recommendation 5: The FAA should limit the installation of secondary flightdeck barriers on existing part 121 aircraft based on flight duration, with cost-benefit considerations providing additional justification for this approach. *

- (●) Concur.
- ( ) Concur, with comment.
- ( ) Concur, with exception.
- ( ) Non-Concur.
- ( ) Abstain.

11. Recommendation 5: If you chose "Concur, with exception," "Non-Concur," "Abstain," or "Concur with comment," please include your comments or dissent.

12. Recommendation 6: The FAA should allow flexibility in the installation of secondary barriers for aircraft manufactured on or before August 25, 2025. *

- (●) Concur.
- ( ) Concur, with comment.
- ( ) Concur, with exception.
- ( ) Non-Concur.
- ( ) Abstain.

13. Recommendation 6: If you chose "Concur, with exception," "Non-Concur," "Abstain," or "Concur with comment," please include your comments or dissent.

14. Recommendation 7: The FAA should implement performance-based requirements centered on the protective function of the barrier, rather than fixed dimensional requirements. *

- (●) Concur.
- ( ) Concur, with comment.
- ( ) Concur, with exception.
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15. Recommendation 7: If you chose "Concur, with exception," "Non-Concur," "Abstain," or "Concur with comment," please include your comments or dissent.

16. Recommendation 8: The FAA should not implement the requirement to install secondary cockpit barriers on aircraft operating under 14 CFR part 129. *

- (●) Concur.
- ( ) Concur, with comment.
- ( ) Concur, with exception.
- ( ) Non-Concur.
- ( ) Abstain.

17. Recommendation 8: If you chose "Concur, with exception," "Non-Concur," "Abstain," or "Concur with comment," please include your comments or dissent.

18. Recommendation 9: The FAA should implement an eight-year compliance timeline after retrofit rules are published to allow sufficient time for the industry and the FAA to develop, certify, and deploy retrofit solutions that meet the rule's intent without introducing disproportionate burdens or operational disruption. *

- (●) Concur.
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19. Recommendation 9: If you chose "Concur, with exception," "Non-Concur," "Abstain," or "Concur with comment," please include your comments or dissent.

20. Recommendation 10: The FAA should revise 14 CFR 121.313(l), AC 120-110A, and AC 25.795-10 to implement the retrofit requirements for aircraft manufactured on or before August 25, 2025, in alignment with the Technical Working Group's recommendations. *

- (●) Concur.
- ( ) Concur, with comment.
- ( ) Concur, with exception.
- ( ) Non-Concur.
- ( ) Abstain.

21. Recommendation 10: If you chose "Concur, with exception," "Non-Concur," "Abstain," or "Concur with comment," please include your comments or dissent.

22. Recommendation 11: The FAA should improve AC 25.795-10 for aircraft manufactured after August 25, 2025. *

- (●) Concur.
- ( ) Concur, with comment.
- ( ) Concur, with Exception.
- ( ) Non-Concur.
- ( ) Abstain.

23. Recommendation 11: If you chose "Concur, with exception," "Non-Concur," "Abstain," or "Concur with comment," please include your comments or dissent.

24. Recommendation 12: The FAA should consider each aircraft category separately to assess the cost benefit ratio of an Installed Secondary Barriers (IPSB) with Regional Aircraft not reaching the required threshold. *

- (●) Concur.
- ( ) Concur, with comment.
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- ( ) Non-Concur.
- ( ) Abstain.

25. Recommendation 12: If you chose "Concur, with exception," "Non-Concur," "Abstain," or "Concur with comment," please include your comments or dissent.

26. **As a voting member and full participant of the Secondary Flightdeck Barrier on Commercial Passenger Aircraft Aviation Rulemaking Committee, I hereby acknowledge that I have reviewed the Final Report and recommendations herein and my responses are recorded within this ballot. Below is my virtual signature (Please type your full name):** *

George Raymond Paul

Secondary Flightdeck Barrier on Commercial Passenger Aircraft

Aviation Rulemaking Committee

ARC Member Ballot

1. What is your name and organization? (First Last, Organization Name) *

Ronda Ruderman
Association of Flight Attendants-CWA

2. Recommendation 1: The FAA should develop regulations and advisory guidance to ensure crewmember operational procedures incorporate situational awareness and consistent application of Common Strategy principles. *

- (●) Concur.
- ( ) Concur, with comment.
- ( ) Concur, with exception.
- ( ) Non-Concur.
- ( ) Abstain.

3. Recommendation 1: If you chose "Concur, with exception," "Non-Concur," "Abstain," or "Concur with comment," please include your comments or dissent.

4. Recommendation 2: The FAA should define appropriate design and performance standards to account for crewmember operational complexities and human factors considerations. *

- ( ) Concur.
- (•) Concur, with comment.
- ( ) Concur, with exception.
- ( ) Non-Concur.
- ( ) Abstain.

5. Recommendation 2: If you chose "Concur, with exception," "Non-Concur," "Abstain," or "Concur with comment," please include your comments or dissent.

There is a typographical error on Page 12, fourth paragraph, second sentence: Replace the second use of “without” with “with” as follows:

The threat risk to any aircraft operated under part 121 is significant regardless of flight duration and passenger capacity, and any aircraft without an IPSB would be at an increased risk in comparison to aircraft WITH an IPSB.

6. Recommendation 3: The FAA should specify consistent, minimum industry training standards to ensure all crewmembers are familiar with the basic design, operational, and airworthiness concepts, and are able to properly utilize the equipment under all normal and emergency conditions. *

- (●) Concur.
- ( ) Concur, with comment.
- ( ) Concur, with exception.
- ( ) Non-Concur.
- ( ) Abstain.

7. Recommendation 3: If you chose "Concur, with exception," "Non-Concur," "Abstain," or "Concur with comment," please include your comments or dissent.

8. Recommendation 4: The FAA should amend AC 120-110A to ensure that guidance for use of secondary barrier systems by airlines operating under part 121 is consistent with recommended regulatory changes. *

- ( ) Concur.
- (●) Concur, with comment.
- ( ) Concur, with exception.
- ( ) Non-Concur.
- ( ) Abstain.

9. Recommendation 4: If you chose "Concur, with exception," "Non-Concur," "Abstain," or "Concur with comment," please include your comments or dissent.

AFA concurs and comments that the recommended regulatory and guidance changes are those described under Recommendation 4 on pages 16-17 of the draft recommendation report.

10. Recommendation 5: The FAA should limit the installation of secondary flightdeck barriers on existing part 121 aircraft based on flight duration, with cost-benefit considerations providing additional justification for this approach. *

- ( ) Concur.
- ( ) Concur, with comment.
- ( ) Concur, with exception.
- (•) Non-Concur.
- ( ) Abstain.

11. Recommendation 5: If you chose "Concur, with exception," "Non-Concur," "Abstain," or "Concur with comment," please include your comments or dissent.

The blanket exemption to IPSB retrofit for all aircraft under 125 seats that is proposed in Recommendation #5 does not comply with the requirement in the FAA Reauthorization Act of 2024 Section 350 that all Part 121 aircraft have an IPSB. This recommendation and its supporting statements also misinterpret the ARC Charter in Paragraph 2. (e), which quotes Section 350 of the FAA Reauthorization Act of 2024: "INSTALLATION OF SECONDARY COCKPIT BARRIERS OF EXISTING AIRCRAFT.—Not later than 36 months after the date of the submission of the report under subsection (d), the Administrator shall, taking into consideration the final reported findings and recommendations of the aviation rulemaking committee, issue a final rule REQUIRING INSTALLATION of a secondary cockpit barrier on each commercial passenger aircraft operated under the provisions of part 121 of title 14, Code of Federal Regulations." [emphasis added]

Background statements for Recommendation #2 discuss in detail why flight duration is not relevant to the need for IPSB and directly contradict the purpose and intent of Recommendation #5. For example, lavatory access on the basis of disability is not relevant to a discussion of flight deck secondary barriers because it is not related to the security concerns of flight deck door opening and closing. In addition, on page 2 of the footnote 25 European Aviation Safety Agency document "eMCO-SiPO: Extended Minimum Crew Operations—Single Pilot Operations—Safety Risk Assessment Framework" (Horizon Europe projects, September 2022-April 2025. https://www.easa.europa.eu/en/research-projects/emco-sipo-extended-minimum-crew-operations-single-pilot-operations-safety-risk) it is noted that "several studies found that a strong urge to void may lead to cognitive impairments, such as a change in performance, and a deterioration in reaction time and working memory." Recommendation #5 asserts that "[o]perational needs, such as restroom use, meal service, or crew changes occur less frequently — or not at all — on flights under two to three hours." AFA believes that use of the lavatory by pilots would be prevented or discouraged on flights of less than 2 hours were wholesale exemptions to the law requiring installation of physical secondary barriers allowed. Clearly, this would not be in the safety and security interests of the aircraft occupants or the aviation system in general, and therefore not in the public interest

12. Recommendation 6: The FAA should allow flexibility in the installation of secondary barriers for aircraft manufactured on or before August 25, 2025. *

- ( ) Concur.
- ( ) Concur, with comment.
- ( ) Concur, with exception.
- (•) Non-Concur.
- ( ) Abstain.

13. Recommendation 6: If you chose "Concur, with exception," "Non-Concur," "Abstain," or "Concur with comment," please include your comments or dissent.

AFA does not concur with this recommendation. Although it is understood there may be flexibility in the design of IPSB, there are no proposals presented for installation or compliance with the existing rule (14 CFR 25.795(a)(4)). There are no specific details presented to achieve a 5-second delay. This recommendation appears solely intended to circumvent the mandate to install IPSB on all Part 121 aircraft, which is stated in Paragraph 2. (e) of the ARC Charter, quoting Section 350 of the FAA Reauthorization Act of 2024: "INSTALLATION OF SECONDARY COCKPIT BARRIERS OF EXISTING AIRCRAFT.—Not later than 36 months after the date of the submission of the report under subsection (d), the Administrator shall, taking into consideration the final reported findings and recommendations of the aviation rulemaking committee, issue a final rule REQUIRING INSTALLATION of a secondary cockpit barrier on each commercial passenger aircraft operated under the provisions of part 121 of title 14, Code of Federal Regulations." [emphasis added]

14. Recommendation 7: The FAA should implement performance-based requirements centered on the protective function of the barrier, rather than fixed dimensional requirements. *

- ( ) Concur.
- ( ) Concur, with comment.
- ( ) Concur, with exception.
- (•) Non-Concur.
- ( ) Abstain.

15. Recommendation 7: If you chose "Concur, with exception," "Non-Concur," "Abstain," or "Concur with comment," please include your comments or dissent.

AFA does not concur. Recommendation #7 provides no information on specific designs that would attain compliance with a proposed IPSB retrofit rule. In addition, performance-based criteria were already considered by the Aviation Rulemaking Advisory Committee in its 2020 report, ["Flightdeck Secondary Barrier Working Group Recommendation Report"], and the FAA previously addressed many of these arguments [(Amdt. 25-150, 88 FR 41308, June 26, 2023)]. The statutory mandate of the FAA Reauthorization Act of 2024 is to install IPSB on all aircraft, and the requirements for retrofit aircraft should be no different than those on line-fit aircraft. In particular, Recommendation #7 focuses exclusively on the 5 second delay requirement and ignores other design standards specified in 14 CFR 25.795(a)(4), such as the critical need for line-of-sight visibility between the flightdeck door and the cabin.

16. Recommendation 8: The FAA should not implement the requirement to install secondary cockpit barriers on aircraft operating under 14 CFR part 129. *

- ○ Concur.
- ○ Concur, with comment.
- ○ Concur, with exception.
- ◉ Non-Concur.
- ○ Abstain.

17. Recommendation 8: If you chose "Concur, with exception," "Non-Concur," "Abstain," or "Concur with comment," please include your comments or dissent.

AFA does not concur. Part 129 aircraft fly into and out of US airports, which means that a hijacking could occur on these aircraft threatening a crash into U.S. populated areas, buildings, etc. Similar to AFA position regarding Part 121 aircraft with under 125 seats, it does not make sense to leave Part 129 aircraft carrying US and foreign citizens without IPSB, which would make them a target for hijacking since Part 121 aircraft will have the IPSBs being deployed and Part 129 aircraft would not. The terrorist threat to the United States will continue, so Part 129 aircraft should be required to have IPSB. The cost is miniscule compared to the benefit of preventing a terrorist hijacking in the United States or near its border. Including IPSB for Part 129 operations will provide one level of safety and security for passenger aircraft operations in the United States. For operations of those aircraft between foreign destinations, although use of the IPSB would not be mandatory, it would provide a collateral security benefit to carriers and States in which such flights are to be conducted if the carrier chose to deploy the IPSB during flight deck door transitions.

Any ICAO member State may exceed ICAO Standards and Recommended Practices and regulatory minimums of fellow member States. For example, United States law and regulation on items prohibited from being carried into commercial passenger aircraft cabins exceed the ICAO standard and regulations of foreign civil aviation authorities. [https://www.tsa.gov/travel/security-screening/whatcanibring/all?combine=knives&field_item_category_value=All&page=0] It is well within the authority of the FAA Administrator to require Part 129 operations to install and deploy IPSB in order to prevent breach of the flight deck during flight deck door transitions; the US shall consider it in the public interest to assign and maintain safety as the highest priority in air commerce. [49 USC 40101(a)(1).] The catastrophic 9/11 hijackings were carried out in the United States which is intent upon preventing any such attack in the future, regardless of whether on a Part 121 or Part 129 carrier. The human losses and economic consequences of those aircraft used as weapons of mass destruction included foreign as well as US citizens and global aviation.

18. Recommendation 9: The FAA should implement an eight-year compliance timeline after retrofit rules are published to allow sufficient time for the industry and the FAA to develop, certify, and deploy retrofit solutions that meet the rule's intent without introducing disproportionate burdens or operational disruption. *

- ( ) Concur.
- ( ) Concur, with comment.
- ( ) Concur, with exception.
- (•) Non-Concur.
- ( ) Abstain.

19. Recommendation 9: If you chose "Concur, with exception," "Non-Concur," "Abstain," or "Concur with comment," please include your comments or dissent.

AFA does not concur. Recommendation #9 references the Flammability Reduction Means (FRM) regulation, which allowed eight years for compliance. The FRM regulation appears to present far greater technical, installation and approval challenges than an installed physical secondary barrier would. In 14 CFR 121.313(l), the FAA allows two years for compliance with the requirement to install IPSB on newly delivered aircraft. Currently there are existing IPSB designs available, and it is reasonable to expect that there will be more specific design variations available, not to mention experienced and knowledgeable installers, following the three years allowed for the FAA to promulgate a rule per the statutory requirement in Section 350 of the FAA Reauthorization Act of 2024. Accordingly, the rule for retrofit aircraft should allow airlines no more than a two year compliance period following the date of publication. Any period longer than two years would unacceptably delay IPSB on aircraft manufactured before August 2025 and result in additional security risks.

20. Recommendation 10: The FAA should revise 14 CFR 121.313(l), AC 120-110A, and AC 25.795-10 to implement the retrofit requirements for aircraft manufactured on or before August 25, 2025, in alignment with the Technical Working Group's recommendations. *

- ○ Concur.
- ○ Concur, with comment.
- ○ Concur, with exception.
- ◉ Non-Concur.
- ○ Abstain.

21. Recommendation 10: If you chose "Concur, with exception," "Non-Concur," "Abstain," or "Concur with comment," please include your comments or dissent.

AFA does not concur. Recommendation #10 relies on previous Technical Working Group recommendations that broadly conflict with the FAA Reauthorization Act of 2024 statutory mandate that all Part 121 aircraft have an IPSB: "...rule REQUIRING INSTALLATION of a secondary cockpit barrier on each commercial passenger aircraft operated under the provisions of part 121 of title 14,..." The regulations and guidance in 14 CFR 121.313(l), AC 120-110A, and AC 25.795-10 should not be compromised. The Operations and Training Working Group in Recommendation #4 above proposes revisions to AC 120-110A that support the statutory mandate by ensuring that FAA "guidance for use of secondary barrier systems by airlines operating under part 121 is consistent with recommended regulatory changes."

22. Recommendation 11: The FAA should improve AC 25.795-10 for aircraft manufactured after August 25, 2025. *

- ( ) Concur.
- ( ) Concur, with comment.
- ( ) Concur, with Exception.
- (•) Non-Concur.
- ( ) Abstain.

23. Recommendation 11: If you chose "Concur, with exception," "Non-Concur," "Abstain," or "Concur with comment," please include your comments or dissent.

AFA does not concur. The scope of this ARC does not apply to newly-delivered line fit aircraft. This Recommendation is out of scope. ARC Charter task a. states, "Review and develop findings and recommendations to require installation of a secondary flightdeck barrier on commercial passenger aircraft operated under the provisions of part 121 of title 14, Code of Federal Regulations (14 CFR),THAT ARE NOT CAPTURED UNDER ANOTHER REGULATION OR PROPOSED REGULATION." [emphasis added] ARC Charter task d. states, "Review Advisory Circular (AC) 25.795-10, Installation of Physical Secondary Barriers for Transport Category Airplanes, and AC 120-110A, Aircraft Secondary Barriers and Alternate Flightdeck Security Procedures, to determine if revisions ARE REQUIRED as a result of the ARC proposals. If so, provide proposed changes." [emphasis added] Task a. is limited to aircraft manufactured before August 25, 2025, and task d. is soliciting proposals to revise guidance, not regulation, and only as required. Neither task involves modifying guidance for aircraft newly manufactured after August 25, 2025; the review of AC 25.795 is only in the context of retrofit IPSB.

Recommendation #11 should not be considered in scope, but in the unlikely event this recommendation is somehow determined to be in scope, AFA would still not agree with this recommendation. The Technical Working Group offered this recommendation "based on the experience acquired through the forward fit projects." Right now, that experience is being gained narrowly by some regulatory authorities, manufacturers and airlines, but it will increase greatly and widely in the coming years. To update AC 25.795 in order to best take advantage of this new knowledge, the FAA should charter a group at the appropriate time that includes experts from a broad range of organizations including regulatory authorities, airlines, manufacturers, labor unions, and the public.

24. Recommendation 12: The FAA should consider each aircraft category separately to assess the cost benefit ratio of an Installed Secondary Barriers (IPSB) with Regional Aircraft not reaching the required threshold. *

- ○ Concur.
- ○ Concur, with comment.
- ○ Concur, with exception.
- ◉ Non-Concur.
- ○ Abstain.

25. Recommendation 12: If you chose "Concur, with exception," "Non-Concur," "Abstain," or "Concur with comment," please include your comments or dissent.

AFA does not concur. The FAA Reauthorization Act of 2024 requires that all part 121 aircraft have an IPSB: "Administrator shall … issue a final rule REQUIRING INSTALLATION of a secondary cockpit barrier on each commercial passenger aircraft operated under the provisions of part 121 of title 14, Code of Federal Regulations." [emphasis added] Any aircraft without the protection of an IPSB becomes an enhanced target for future hijacking attempts, and that additional vulnerability will have an effect on statistical threat assessments. The statements presented in Recommendation #12 regarding the frequency of opening the flight deck door, among other data considered, have no citation or documentation. For example, given a lack of data on how often the cockpit door is opened during a flight, it is simply assumed that regional jets with an average flight time of 1 hour will have a 20% probability of an open cockpit door, and narrowbodies with flight times of 2-2.5 hours will have a 50% probability. These probabilities lack sources. Furthermore, the assumption that average flight times are representative of operations flown by certain classes of aircraft from the security perspective is suspect – many regional jets fly far longer routes than 1 hour, many narrowbody aircraft fly transcontinental, transatlantic and transpacific routes, and any aircraft during its service life could fly long routes at some point.

In addition, the Operations and Training Working Group addressed length of flight in this Report's background statements to Recommendation #2: "From the crewmember operational perspective, flight duration in relation to the use of and need for a secondary barrier is not considered relevant. The threat risk to any aircraft operated under part 121 is significant regardless of flight duration and passenger capacity, and any aircraft without an IPSB would be at an increased risk in comparison to aircraft with an IPSB. On short flights, there are various reasons a flightdeck occupant may be required to enter the cabin while the airplane is on the ground and in sterile flight operations mode. For example, a flightdeck occupant may have to perform a contamination check of the wings. During a tarmac delay, a pilot may need to use the lavatory or become ill and require assistance outside of the flightdeck." The purpose of the statutory requirement in the FAA Reauthorization Act of 2024 is that all part 121 aircraft have IPSB to help mitigate a security threat across the scheduled passenger aviation system. Regardless of any conclusions that might be inferred from the analysis presented in Recommendation #12, cost/benefit data does not eliminate this legislative mandate meant to protect national security.

26. **As a voting member and full participant of the Secondary Flightdeck Barrier on Commercial Passenger Aircraft Aviation Rulemaking Committee, I hereby acknowledge that I have reviewed the Final Report and recommendations herein and my responses are recorded within this ballot. Below is my virtual signature (Please type your full name):** *

Ronda Ruderman

Secondary Flightdeck Barrier on Commercial Passenger

Aircraft Aviation Rulemaking Committee

ARC Member Ballot

1. What is your name and organization? (First Last, Organization Name) *

Cesar Alberto Silva - EMBRAER

2. Recommendation 1: The FAA should develop regulations and advisory guidance to ensure crewmember operational procedures incorporate situational awareness and consistent application of Common Strategy principles. *

- ○ Concur.
- ◉ Concur, with comment.
- ○ Concur, with exception.
- ○ Non-Concur.
- ○ Abstain.

3. Recommendation 1: If you chose "Concur, with exception," "Non-Concur," "Abstain," or "Concur with comment," please include your comments or dissent.

Cabin "light on", should be aligned with FAA, considering that situations awareness has been required to be evaluated under any cabin lighting conditions.

4. Recommendation 2: The FAA should define appropriate design and performance standards to account for crewmember operational complexities and human factors considerations. *

- ( ) Concur.
- (•) Concur, with comment.
- ( ) Concur, with exception.
- ( ) Non-Concur.
- ( ) Abstain.

5. Recommendation 2: If you chose "Concur, with exception," "Non-Concur," "Abstain," or "Concur with comment," please include your comments or dissent.

Comment 1: This requirement of... “as well as for a flight attendant with two meal trays in hand.” was not discussed during the ARC, technically for retrofit configurations may not be feasible.

Comment 2: If the 125-passenger limit is accepted, the review of the AC’s relevant to the barrier must consider this limitation. In addition, in the scenario that the limitation is accepted, operators must continue to observe current procedures for when the cockpit door is opened.

6. Recommendation 3: The FAA should specify consistent, minimum industry training standards to ensure all crewmembers are familiar with the basic design, operational, and airworthiness concepts, and are able to properly utilize the equipment under all normal and emergency conditions. *

- (●) Concur.
- ( ) Concur, with comment.
- ( ) Concur, with exception.
- ( ) Non-Concur.
- ( ) Abstain.

7. Recommendation 3: If you chose "Concur, with exception," "Non-Concur," "Abstain," or "Concur with comment," please include your comments or dissent.

8. Recommendation 4: The FAA should amend AC 120-110A to ensure that guidance for use of secondary barrier systems by airlines operating under part 121 is consistent with recommended regulatory changes. *

- ( ) Concur.
- (●) Concur, with comment.
- ( ) Concur, with exception.
- ( ) Non-Concur.
- ( ) Abstain.

9. Recommendation 4: If you chose "Concur, with exception," "Non-Concur," "Abstain," or "Concur with comment," please include your comments or dissent.

This recommendation should be aligned with the recommendations of the technical subgroup: recommendation number 5 (limitation of 125pax) and technical recommendation 10 (which recommends new text for ACs for airplanes manufactured before 08/25/2025). That is, if the limitation is accepted, it must be reflected in the review of the AC's.

10. Recommendation 5: The FAA should limit the installation of secondary flightdeck barriers on existing part 121 aircraft based on flight duration, with cost-benefit considerations providing additional justification for this approach. *

- (●) Concur.
- ( ) Concur, with comment.
- ( ) Concur, with exception.
- ( ) Non-Concur.
- ( ) Abstain.

11. Recommendation 5: If you chose "Concur, with exception," "Non-Concur," "Abstain," or "Concur with comment," please include your comments or dissent.

12. Recommendation 6: The FAA should allow flexibility in the installation of secondary barriers for aircraft manufactured on or before August 25, 2025. *

- (●) Concur.
- ( ) Concur, with comment.
- ( ) Concur, with exception.
- ( ) Non-Concur.
- ( ) Abstain.

13. Recommendation 6: If you chose "Concur, with exception," "Non-Concur," "Abstain," or "Concur with comment," please include your comments or dissent.

14. Recommendation 7: The FAA should implement performance-based requirements centered on the protective function of the barrier, rather than fixed dimensional requirements. *

- (●) Concur.
- ( ) Concur, with comment.
- ( ) Concur, with exception.
- ( ) Non-Concur.
- ( ) Abstain.

15. Recommendation 7: If you chose "Concur, with exception," "Non-Concur," "Abstain," or "Concur with comment," please include your comments or dissent.

16. Recommendation 8: The FAA should not implement the requirement to install secondary cockpit barriers on aircraft operating under 14 CFR part 129. *

- (●) Concur.
- ( ) Concur, with comment.
- ( ) Concur, with exception.
- ( ) Non-Concur.
- ( ) Abstain.

17. Recommendation 8: If you chose "Concur, with exception," "Non-Concur," "Abstain," or "Concur with comment," please include your comments or dissent.

18. Recommendation 9: The FAA should implement an eight-year compliance timeline after retrofit rules are published to allow sufficient time for the industry and the FAA to develop, certify, and deploy retrofit solutions that meet the rule's intent without introducing disproportionate burdens or operational disruption. *

- (●) Concur.
- ( ) Concur, with comment.
- ( ) Concur, with exception.
- ( ) Non-Concur.
- ( ) Abstain.

19. Recommendation 9: If you chose "Concur, with exception," "Non-Concur," "Abstain," or "Concur with comment," please include your comments or dissent.

20. Recommendation 10: The FAA should revise 14 CFR 121.313(l), AC 120-110A, and AC 25.795-10 to implement the retrofit requirements for aircraft manufactured on or before August 25, 2025, in alignment with the Technical Working Group's recommendations. *

- (●) Concur.
- ( ) Concur, with comment.
- ( ) Concur, with exception.
- ( ) Non-Concur.
- ( ) Abstain.

21. Recommendation 10: If you chose "Concur, with exception," "Non-Concur," "Abstain," or "Concur with comment," please include your comments or dissent.

22. Recommendation 11: The FAA should improve AC 25.795-10 for aircraft manufactured after August 25, 2025. *

- (●) Concur.
- ( ) Concur, with comment.
- ( ) Concur, with Exception.
- ( ) Non-Concur.
- ( ) Abstain.

23. Recommendation 11: If you chose "Concur, with exception," "Non-Concur," "Abstain," or "Concur with comment," please include your comments or dissent.

24. Recommendation 12: The FAA should consider each aircraft category separately to assess the cost benefit ratio of an Installed Secondary Barriers (IPSB) with Regional Aircraft not reaching the required threshold. *

- ( ) Concur.
- (•) Concur, with comment.
- ( ) Concur, with exception.
- ( ) Non-Concur.
- ( ) Abstain.

25. Recommendation 12: If you chose "Concur, with exception," "Non-Concur," "Abstain," or "Concur with comment," please include your comments or dissent.

The comment concerns an incorrect sentence about cost in the background of the general document, and this recommendation 12 contains the correct sentence, so I'm including the comment here: The sentence at the top of page 5: "The FAA estimates installation and training costs at approximately $35,000 per aircraft, a modest investment given the life-saving potential of these systems." This is incorrect: the $35,000 does not consider training costs. The correct sentence is on page 51: "The FAA estimates that the cost for installing an IPSB is $35,000 based on their evaluation of a line-fit installation on a new-build aircraft."

26. **As a voting member and full participant of the Secondary Flightdeck Barrier on Commercial Passenger Aircraft Aviation Rulemaking Committee, I hereby acknowledge that I have reviewed the Final Report and recommendations herein and my responses are recorded within this ballot. Below is my virtual signature (Please type your full name):** *

Cesar Alberto Silva

Secondary Flightdeck Barrier on Commercial Passenger Aircraft

Aviation Rulemaking Committee

ARC Member Ballot

1. What is your name and organization? (First Last, Organization Name) *

Erik Strickland, Regional Airline Association

2. Recommendation 1: The FAA should develop regulations and advisory guidance to ensure crewmember operational procedures incorporate situational awareness and consistent application of Common Strategy principles. *

- ○ Concur.
- ◉ Concur, with comment.
- ○ Concur, with exception.
- ○ Non-Concur.
- ○ Abstain.

3. Recommendation 1: If you chose "Concur, with exception," "Non-Concur," "Abstain," or "Concur with comment," please include your comments or dissent.

Any regulations and advisory guidance developed to meet the retrofit requirements should match or be as close as possible to the requirements forward fit aircraft are required to follow.

4. Recommendation 2: The FAA should define appropriate design and performance standards to account for crewmember operational complexities and human factors considerations. *

- ○ Concur.
- ○ Concur, with comment.
- ◉ Concur, with exception.
- ○ Non-Concur.
- ○ Abstain.

5. Recommendation 2: If you chose "Concur, with exception," "Non-Concur," "Abstain," or "Concur with comment," please include your comments or dissent.

While appropriate design and performance standards should take into account operational complexities and human factor issues, the issue of flight duration should not be discounted as an operational complexity. This complexity is also true for the location of monuments in the cabin. These are real operational considerations that should not be discounted.

6. Recommendation 3: The FAA should specify consistent, minimum industry training standards to ensure all crewmembers are familiar with the basic design, operational, and airworthiness concepts, and are able to properly utilize the equipment under all normal and emergency conditions. *

- ( ) Concur.
- (•) Concur, with comment.
- ( ) Concur, with exception.
- ( ) Non-Concur.
- ( ) Abstain.

7. Recommendation 3: If you chose "Concur, with exception," "Non-Concur," "Abstain," or "Concur with comment," please include your comments or dissent.

All FAA regulations and standards should be as consistent as possible regardless if it is a forward fit or retrofit.

8. Recommendation 4: The FAA should amend AC 120-110A to ensure that guidance for use of secondary barrier systems by airlines operating under part 121 is consistent with recommended regulatory changes. *

- ( ) Concur.
- (•) Concur, with comment.
- ( ) Concur, with exception.
- ( ) Non-Concur.
- ( ) Abstain.

9. Recommendation 4: If you chose "Concur, with exception," "Non-Concur," "Abstain," or "Concur with comment," please include your comments or dissent.

AC 120-110A should be amended to be consistent for all aircraft.

10. Recommendation 5: The FAA should limit the installation of secondary flightdeck barriers on existing part 121 aircraft based on flight duration, with cost-benefit considerations providing additional justification for this approach. *

- ○ Concur.
- ◉ Concur, with comment.
- ○ Concur, with exception.
- ○ Non-Concur.
- ○ Abstain.

11. Recommendation 5: If you chose "Concur, with exception," "Non-Concur," "Abstain," or "Concur with comment," please include your comments or dissent.

Based on scope clause limitations, regional jets are limited to operate aircraft with approximately 76 seats. The majority of these flights have a scheduled block time of 111 minutes, with the average actual block time of 90 minutes. These airframes that service these short flights maximize seating and often do not have monuments that readily support the installation of a secondary barrier. And given that many regional operations work with a number of partner airlines, there is no consistent cabin interior to allow for easy installation of the barrier on the airframes.

12. Recommendation 6: The FAA should allow flexibility in the installation of secondary barriers for aircraft manufactured on or before August 25, 2025. *

- (●) Concur.
- ( ) Concur, with comment.
- ( ) Concur, with exception.
- ( ) Non-Concur.
- ( ) Abstain.

13. Recommendation 6: If you chose "Concur, with exception," "Non-Concur," "Abstain," or "Concur with comment," please include your comments or dissent.

14. Recommendation 7: The FAA should implement performance-based requirements centered on the protective function of the barrier, rather than fixed dimensional requirements. *

- ( ) Concur.
- (●) Concur, with comment.
- ( ) Concur, with exception.
- ( ) Non-Concur.
- ( ) Abstain.

15. Recommendation 7: If you chose "Concur, with exception," "Non-Concur," "Abstain," or "Concur with comment," please include your comments or dissent.

The FAA should work with operators to find options that meet the functional requirements of the barrier without needing to modify the airframe or potentially lose seating in order to meet restrictive engineering requirements.

16. Recommendation 8: The FAA should not implement the requirement to install secondary cockpit barriers on aircraft operating under 14 CFR part 129. *

- (●) Concur.
- ( ) Concur, with comment.
- ( ) Concur, with exception.
- ( ) Non-Concur.
- ( ) Abstain.

17. Recommendation 8: If you chose "Concur, with exception," "Non-Concur," "Abstain," or "Concur with comment," please include your comments or dissent.

18. Recommendation 9: The FAA should implement an eight-year compliance timeline after retrofit rules are published to allow sufficient time for the industry and the FAA to develop, certify, and deploy retrofit solutions that meet the rule's intent without introducing disproportionate burdens or operational disruption. *

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20. Recommendation 10: The FAA should revise 14 CFR 121.313(l), AC 120-110A, and AC 25.795-10 to implement the retrofit requirements for aircraft manufactured on or before August 25, 2025, in alignment with the Technical Working Group's recommendations. *

- (●) Concur.
- ( ) Concur, with comment.
- ( ) Concur, with exception.
- ( ) Non-Concur.
- ( ) Abstain.

21. Recommendation 10: If you chose "Concur, with exception," "Non-Concur," "Abstain," or "Concur with comment," please include your comments or dissent.

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- (●) Concur.
- ( ) Concur, with comment.
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- ( ) Non-Concur.
- ( ) Abstain.

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- ○ Concur.
- ◉ Concur, with comment.
- ○ Concur, with exception.
- ○ Non-Concur.
- ○ Abstain.

25. Recommendation 12: If you chose "Concur, with exception," "Non-Concur," "Abstain," or "Concur with comment," please include your comments or dissent.

When previous cost estimates were performed, they were focused on forward fit options. The costs for a retrofit will be much higher as engineering assessments will need to take place and, in a majority of regional aircraft, a cabin redesign would need to occur in order to allow for the installation of any barrier. Current policies and procedures have proven to be sufficient at meeting the cockpit protection requirements and should be continued, or possibly enhanced, to continue to meet this need.

26. **As a voting member and full participant of the Secondary Flightdeck Barrier on Commercial Passenger Aircraft Aviation Rulemaking Committee, I hereby acknowledge that I have reviewed the Final Report and recommendations herein and my responses are recorded within this ballot. Below is my virtual signature (Please type your full name):** *

Erik Strickland