the index may be publicly available, such as information that is exempt from public disclosure.

Issued in Washington, DC, on August 7, 2014.

Kathleen B. Hogan,

Deputy Assistant Secretary for Energy Efficiency, Energy Efficiency and Renewable Energy.

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DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

14 CFR Parts 25, 121, and 129

[Docket No.: FAA–2014–0500; Notice No. 14–07]

RIN 2120–AK30

Fuel Tank Vent Fire Protection

AGENCY: Federal Aviation Administration (FAA), DOT.

ACTION: Notice of proposed rulemaking (NPRM).

SUMMARY: This action would amend certain airworthiness regulations for transport category airplanes to require fuel tank designs that prevent a fuel tank explosion caused by flame propagation through the fuel tank vents from external fires. This action would add a new requirement for fuel tank vent fire protection and would increase the time available for passenger evacuation and emergency response. This proposed amendment would apply to applications for new type certificates and certain applications for amended or supplemental type certificates. It would also require certain airplanes produced in the future and operated by air carriers to meet the new standards.

DATES: Send comments on or before November 13, 2014.

ADDRESSES: Send comments identified by docket number FAA–2014–0500 using any of the following methods:

- *Federal eRulemaking Portal:* Go to *http://www.regulations.gov* and follow the online instructions for sending your comments electronically.
- *Mail:* Send comments to Docket Operations, M–30; U.S. Department of Transportation (DOT), 1200 New Jersey Avenue SE., Room W12–140, West Building Ground Floor, Washington, DC 20590–0001.
- *Hand Delivery or Courier:* Take comments to Docket Operations in Room W12–140 of the West Building Ground Floor at 1200 New Jersey Avenue SE., Washington, DC, between 9 a.m. and 5 p.m., Monday through Friday, except Federal holidays.
- *Fax:* Fax comments to Docket Operations at 202–493–2251.

Privacy: The FAA will post all comments it receives, without change, to *http://www.regulations.gov,* including any personal information the commenter provides. Using the search function of the docket Web site, anyone can find and read the electronic form of all comments received into any FAA docket, including the name of the individual sending the comment (or signing the comment for an association, business, labor union, etc.). DOT's complete Privacy Act Statement can be found in the **Federal Register** published on April 11, 2000 (65 FR 19477–19478), as well as at *http://DocketsInfo.dot.gov.*

Docket: Background documents or comments received may be read at *http://www.regulations.gov* at any time. Follow the online instructions for accessing the docket or go to the Docket Operations in Room W12–140 of the West Building Ground Floor at 1200 New Jersey Avenue SE., Washington, DC, between 9 a.m. and 5 p.m., Monday through Friday, except federal holidays.

FOR FURTHER INFORMATION CONTACT: For technical questions concerning this action, contact Mike Dostert, Propulsion and Mechanical Systems Branch, ANM–112, Transport Airplane Directorate, Aircraft Certification Service, Federal Aviation Administration, 1601 Lind Ave. SW., Renton, WA 98057–3356; telephone (425) 227–2132; facsimile (425) 227–1149; email *Mike.Dostert@faa.gov.*

For legal questions concerning this action, contact Sean Howe, Office of the Regional Counsel, ANM–7, Federal Aviation Administration, 1601 Lind Avenue SW., Renton, Washington 98057–3356; telephone (425) 227–2591; facsimile (425) 227–1007; email *Sean.Howe@faa.gov.*

SUPPLEMENTARY INFORMATION:

Authority for this Rulemaking

The FAA's authority to issue rules on aviation safety is found in Title 49 of the United States Code. Subtitle I, Section 106 describes the authority of the FAA Administrator. Subtitle VII, Aviation Programs, describes in more detail the scope of the agency's authority.

This rulemaking is promulgated under the authority described in Subtitle VII, Part A, Subpart III, Section 44701, ''General Requirements.'' Under that section, the FAA is charged with promoting safe flight of civil aircraft in air commerce by prescribing regulations and minimum standards for the design and performance of aircraft that the Administrator finds necessary for safety in air commerce. This regulation is within the scope of that authority. It prescribes new safety standards for the design and operation of transport category airplanes.

I. Overview of Proposed Rule

A. General

This proposed rule would prevent fuel tank explosions caused by ignition (from potential external ignition sources) of fuel vapor present in or exiting through the fuel tank vent outlets. Ignition sources may include, but are not limited to, ground handling equipment, fuel fires that result from refueling spills, or ground fire that may be present following a survivable crash landing in which the fuel tank and the vent system remain intact. The FAA has determined that a means to prevent propagation of flame [1] from external sources into the tank through the fuel tank vents, such as flame arrestors or a means of inerting the fuel tanks, could be used to prevent or delay fuel tank explosions following certain accidents. This prevention or delay would provide time for the safe evacuation of passengers from the airplane.

This proposed rule would apply to applications for new type certificates and applications for amended or supplemental type certificates on significant product level change projects in which Title 14, Code of Federal Regulations (14 CFR) 25.975, *Fuel tank vents and carburetor vapor vents,* is applicable to a changed area. We are also proposing a new operating requirement applicable to newly produced airplanes that are issued an original airworthiness certificate after a specified date, per 14 CFR part 121, *Operating Requirements: Domestic, Flag, and Supplemental Operations,* and 14 CFR part 129, *Operations: Foreign Air Carriers and Foreign Operators of U.S.-Registered Aircraft Engaged in Common Carriage.* We do not propose to require retrofit of the existing fleet.

Currently, there is not an advisory circular (AC) that describes compliance means for protection of fuel tank vents from external ignition sources. We have provided compliance means information to applicants for type certificates through project-specific issue papers. These issue papers describe how to demonstrate that flame will not progress through the fuel tank vents into the fuel tank.

Concurrent with the publication of this proposal, we are also publishing for

[1] Flame propagation is defined as the spread of a flame in a combustible environment outward from the point at which the combustion started.

comment an associated draft AC 25.975–X that will provide applicants with one acceptable means of compliance for preventing propagation of flames through the fuel tank vents.

B. Total Costs and Benefits of This Proposed Rule

The FAA finds the proposed rule to be cost-beneficial because the costs of the rule are low enough that the expected benefits of preventing just two fatalities would outweigh the expected costs ($4.9 million in present value benefits versus $4.4 million in present value costs). If this action is not taken, a hazard would continue to exist even though effective and low-cost means are available to minimize or eliminate it.

II. Background

A. Statement of the Problem

Fires outside of the airplane fuel tanks can be caused by events such as fuel spilled during refueling, fuel and oil spillage following survivable accidents from engines that separate from the airplane, or leaking airplane fuel tanks. In some cases, external fires have ignited fuel vapors that exit the fuel tank vents, resulting in flames traveling through the vent lines into the fuel tank, causing fuel tank explosions. These explosions have caused fatalities to passengers and have prevented emergency personnel from assisting survivors.

During an industry review of potential post-crash survivability, the Special Aviation Fire and Explosion Reduction (SAFER) Advisory Committee [2] determined that four fuel tank explosions resulting from post-crash fires could have been avoided if flame arrestors or surge tank explosion suppression systems [3] had been installed in the airplane fuel tank vents [4]. The SAFER committee examined methods of preventing fuel tank explosions following impact survivable accidents. Options included controlling the fuel tank flammability using nitrogen inerting systems, using fire suppression systems, and installation of flame arrestors.

The SAFER committee determined the most practical means of preventing post-crash fuel tank explosions was the use of flame arrestors. Flame arrestors or suppression systems delay propagation of ground fires into the fuel tank and the subsequent explosions, providing additional time for the safe evacuation of passengers. Flame arrestors stop the flame from traveling through the fuel tank vents by quenching the flame. Flame arrestors are typically made of numerous small stainless steel passages that remove heat from the flame so it dies out before passing through the vent. Flame arrestors for a typical transport airplane range in weight from 2 to 4 pounds each.

The current airworthiness standards related to fuel system explosion prevention in 14 CFR 25.981 include requirements to prevent ignition inside the fuel tanks caused by system failures or external heating of the fuel tank walls. The fuel tank venting standards also include requirements to ensure fuel tank structural integrity following failures of the refueling system that could result in overfilling of the fuel tanks or clogging of the vents due to ice. Additionally, § 25.954, *Fuel system lightning protection,* requires fuel tank vents be designed and arranged to prevent the ignition of fuel vapor within the system by lightning strikes.

B. History

In 1995, based on the SAFER Committee report noted above, the FAA issued the notice of proposed rulemaking (NPRM) entitled, ''Fuel System Vent Fire Protection,'' (60 FR 6632), dated February 2, 1995. This notice proposed a requirement for fuel tank vent fire protection in new type design transport airplanes and retrofit of the existing fleet of transport category airplanes through an amendment of operating rules. Comments received in response to the notice questioned the accuracy of the FAA's economic analysis related to the proposed retrofit requirement. Comments also indicated that additional guidance, in the form of an AC, should be developed to provide an acceptable means to qualify flame arrestors to meet the proposed requirement.

To address these issues, the FAA obtained additional cost information from component suppliers and developed an AC that included means of compliance. In 2001, the FAA tasked the Aviation Rulemaking Advisory Committee (ARAC) to review the draft final rule, including the FAA's proposed disposition of public comments, and to review the draft AC. Due to the ARAC tasking, on August 23, 2002 the FAA published a notice in the **Federal Register** of withdrawal of the ''Fuel System Vent Protection'' NPRM published in 1995. As a result of industry resource issues and FAA rulemaking prioritization activities, no work was done on these ARAC taskings. The FAA published a withdrawal of the tasks on June 21, 2004.

As a result of limited ARAC resources, the FAA developed a strategy for a number of rulemaking projects that had been tasked to ARAC and issued a letter [5] dated June 14, 2005, to the head of the Transport Airplane and Engine Issues Group describing our intent to use the existing 14 CFR 21.21 (finding an ''unsafe design feature'') to address the need for flame arrestors in the fuel tank vents. Since 2005, this has resulted in new type certificated airplanes having flame arrestors.

Prior to issuance of the letter in 2005, following industry recommendations, many manufacturers voluntarily introduced flame arrestors into their new type designs. Currently, most new type designs and most newly produced transport category airplanes incorporate flame arrestors in the fuel tank vents. Additionally, several applicants have installed fuel tanks in the airplane fuselage that have vents located in areas prone to lightning strikes (defined as zone 2), such that flame arrestors were provided to prevent flame propagation into the fuel tanks to comply with § 25.954.

However, some models of newly manufactured airplanes produced under older type certificates, including business jets and smaller transport category airplanes, do not incorporate a means to prevent flame propagation through the fuel vent lines to the fuel tanks. Airplanes in 14 CFR part 121 operation that do not have such a means include older models like the DC–9, MD–80, as well as all past and currently produced DHC–8 turboprops, and Canadair Regional Jets.

As a result of the review of several fuel tank explosions on older designs, including a Philippine Airlines Boeing 737,[6] the FAA issued an airworthiness directive (AD) for Boeing Model 737 airplanes mandating incorporation of flame arrestors.[7] Early models of the 737 did not have means to prevent propagation of a flame from the fuel tank vent outlet into the fuel tanks. The Philippine explosion occurred while the airplane was parked at the gate. The ignition source that caused the explosion could not be determined.

[2] Special Aviation Fire and Explosion Reduction (SAFER) Advisory Committee final report, volume 1, FAA/AFS–80–4 dated June 26, 1973, through June 26, 1980.

[3] Surge tank explosion suppression systems were installed on some Boeing airplanes to prevent a lightning strike from igniting fuel vapor in the fuel tank vent system. These systems used light sensors that activated the discharge of fire suppression agent into the fuel tank vent surge tank to prevent the fire from traveling through the vents into the airplane fuel tanks.

[4] SAFER Report, page 49, Figure 3.

[5] Hickey, John. Letter to Craig Bolt. 14 June 2005.

[6] On May 11, 1990, a Philippine Airlines 737–300 was destroyed by a fuel tank explosion on the apron at Manila Ninoy Aquino International Airport.

[7] AD 99–03–04 BOEING: Amendment 39–11018; Docket 98–NM–50–AD; effective March 9, 1999.

However, external ignition sources such as ground handling equipment or hot surfaces on lighting located near the vent outlet were evaluated as the possible source of the ignition.

In addition to the 737 AD, we have issued other ADs to either require flame arrestors or verify their functionality on the Lockheed Model 1649A piston airplane,[8] Boeing Models 707 and 720,[9] the Beech Model 400A,[10] and the Lockheed Model 382.[11]

Since 2005, the FAA has also addressed the possibility of fuel tank ignition resulting from post-crash fire propagation through fuel vent lines with issue papers applied to specific certification projects.

However, the lack of a specific part 25 regulation has resulted in some manufacturers completing initial airplane designs and applying for a U.S. type certificate without considering the need to mitigate the risk of flame propagation through fuel vent lines. Some newly manufactured airplanes introduced into the U.S. fleet do not have flame arrestors in the fuel tank vents.[12]

III. Discussion of the Proposal

A. General

This proposal would establish a minimum time period for preventing a fuel tank explosion caused by flame propagation through the fuel tank vents of 2 minutes and 30 seconds, measured from the time a flame first impinges on any fuel tank vent. This capability would allow time to evacuate passengers and crew to a safe distance from the airplane and for emergency response to begin. The minimum performance standard in this proposal is based on a balance between the available technology, practicality considerations, and providing a satisfactory passenger evacuation safety standard.

The proposed regulatory text is intended to prevent, or at least delay, fuel tank explosions or fires caused by external fires that ignite fuel or vapor in the fuel tank. External fires may be caused by sources such as post-crash ground fires, fires resulting from fuel leakage during refueling, and ignition of fuel exiting the fuel vents. The proposal requires consideration of flames in the fuel tank vent outlets including propagation through the vent line, as well as ignition sources created by damage to the vent system caused by the external fire, such as burn-through of fuel tank vent system components or heating of the vent system components.

To limit propagation of external fires through the vent system, it is necessary to design a flame arrestor, a flame suppression device, or other system to prevent flame penetration and propagation through the airplane fuel tank vents. The minimum time period should be no less than the time required to evacuate the airplane. The FAA has previously established a performance standard that, under specified conditions, the airplane must be capable of being evacuated within 90 seconds (§ 25.803, *Emergency evacuation*). The conditions under which the airplane is evacuated assume availability of a minimum number of exits and all passengers are uninjured and physically capable of departing the airplane. This is not always the case.

In addition to time for evacuation of passengers, we have also established minimum standards for penetration of a fuel fire through the airplane fuselage to allow emergency crews time to arrive at an accident and to establish control of a fire (§ 25.856, *Thermal/Acoustic insulation materials*). Analysis of past accidents showed the greatest benefits when a minimum of 5 minutes is provided. This time includes 1 minute for a fire to penetrate the fuselage skin and an additional 4 minutes for the fire to burn through the insulation. The time of 5 minutes for penetration of a post-crash ground fire into the fuselage was based on research into studies of past accidents.[13] [14] As part of a project commissioned by the FAA, data have been gathered on the relative proportion of accidents that involve ground pooled fuel fires and statistical data on the following:

- Time to initiate an evacuation;
- Time to complete an evacuation;
- Time to arrival of fire-fighters; and
- Time for fire-fighters to establish control in a ground pool fire accident.

The data were extracted from accident reports and other information published by investigating and airworthiness authorities using the Cabin Safety Research Technical Group aircraft accident database.

Current technology flame arrestors installed in the transport fleet have been designed to have a capability to prevent flame propagation into the fuel tanks for up to 2 minutes and 30 seconds after flame enters the fuel tank vent and contacts the face of the flame arrestor.

The FAA is proposing a minimum standard of 2 minutes and 30 seconds. This time is greater than the 90 second evacuation time noted above and allows additional time for passengers to exit from the crash scene. No adverse service experience has occurred on airplanes equipped with flame arrestors that provide this amount of time. While this time is less than the 5 minute test standard required by § 25.856 for a ground fire to penetrate into the fuselage, the FAA has determined providing fuel tank vent protection in excess of 2 minutes and 30 seconds would not be practical. Comments received to the notice issued in 1995 indicated flame arrestors that meet a 5 minute standard would need to be significantly larger, weigh more, and would introduce significant pressure loss in the fuel system vent line, resulting in the need to increase the size of the vent line to meet airplane refueling performance requirements.

B. Potential for Blockage of Vents

During the approval process for the existing compliance means that use flame arrestors in the vent lines, several applicants expressed concerns that requiring flame arrestors may reduce the level of safety due to restrictions being introduced into the vents. The FAA acknowledges that introducing flame arrestors in the fuel tank vents may introduce the potential for clogging of the vent lines from ice and debris. This could result in adverse consequences like more severe tank pressures during fueling/over-fueling, greater differential pressures on the tank skins during emergency descent or defueling, reduced fuel jettison capability, and an increased risk of vent system blockage.

To address these design considerations, applicants have included positive and negative pressure relief provisions in their vent system designs. This has afforded an excellent safety record. Service experience of thousands of airplanes in the current fleet equipped with flame arrestors indicates that each of these concerns (and other such concerns not listed above) can be safely mitigated with proper design and certification of the fuel tank vent fire protection. Proposed

[8] AD 59–20–02 LOCKHEED: Effective October 15, 1959, for items (1) and (2) and December 1, 1959, for item (3).

[9] AD 67–23–02 BOEING: Amendment 39–462. Effective September 10, 1967.

[10] AD 92–16–14 BEECH: Amendment 39–8323; Docket No. 92–NM–95–AD; effective September 1, 1992.

[11] AD 2011–15–02 LOCKHEED: Amendment 39–16749; Docket No., FAA–2010–1305; effective August 19, 2011.

[12] Bombardier Q400 (Dash 8) and Canadair Regional Jets.

[13] DOT/FAA/AR–99/57, *Fuselage Burnthrough Protection for Increased Postcrash Occupant Survivability: Safety Benefit Analysis Based on Past Accidents,* September 1999.

[14] DOT/FAA/AR–09/18, *Determination of Evacuation and Firefighting Times Based on an Analysis of Aircraft Accident Fire Survivability Data,* May 2009.

[15] Details may not sum to totals due to rounding.

AC 25.975–X would provide the guidance necessary to address these issues.

C. Revise ''Fuel Tank Vents and Carburetor Vapor Vents'' (§ 25.975)

Section 25.975 currently prescribes standards for fuel tank vents but does not contain a standard for protecting the fuel tanks from external flame propagating into the tank. We propose to add a new paragraph, § 25.975(a)(7), to establish a requirement for a means to prevent the propagation of flames, for a limited time, from outside the fuel tank through the fuel tank vents that could cause a fuel tank explosion.

Means of compliance available today include incorporation of flame arrestors in the fuel system vent lines. Other means that might be available in the future include full time fuel tank inerting systems that prevent fuel tank explosions due to post-crash or other external fires.

We considered alternative technical solutions, such as mandating nitrogen inerting systems that would prevent a fuel tank explosions caused by external fires by eliminating fuel tank flammability. Current fuel tank flammability limits in § 25.981 have resulted in the use of nitrogen inerting systems in some or all fuel tanks. However, the fuel tanks become flammable during certain portions of airplane operations such as during fuel tank refueling and times when the inerting system cannot produce enough nitrogen to inert the fuel tanks. During these times, the tanks continue to be vulnerable to explosion from flame propagation through fuel system vent lines. The cost to incorporate full-time nitrogen inerting systems in all fuel tanks would be excessive.

Another alternative we considered was to continue using certification project-specific issue papers to address fuel tank vent fire protection. However, this alternative does not allow public review and comment and does not result in broad industry awareness of the need to incorporate vent system protection into new designs early in the airplane design process. In addition, this method is more costly and time consuming for both the FAA and applicants due to the need to process an issue paper identifying specific requirements for each project. Some applicants have objected to this approach, and it has proven more difficult to apply in a standardized manner.

After considering these alternatives, we have concluded that the most practical and cost effective method to address this safety issue is the incorporation of flame arrestors in the fuel system vent lines (as recommended in the SAFER committee report).

D. Newly Produced Airplanes

Parts 121 and 129 prescribe operating requirements for air carriers, including requirements for the airworthiness of each airplane. Part 121 applies to domestic operators and, for airworthiness requirements, part 129 applies to foreign operators operating U.S.-registered airplanes. We propose to add a new operating requirement that would apply to newly manufactured airplanes entering service 2 years after the effective date of this proposed regulation. This compliance time is based on the estimated time needed to design and develop a flame arrestor installation for existing airplanes. Flame arrestor technology is currently available, and adaptation of this technology to currently produced airplanes, certifying the design and incorporation of the design in production, should be achievable within the 2-year compliance time.

While this proposal does not require manufacturers of existing type designs to develop design features meeting the requirements, we anticipate operators of the affected airplane models will enter into business agreements with manufacturers to provide compliant designs that meet the proposed operating regulations. Newly manufactured airplanes that enter service typically have a minimum operating life of 20 years in passenger service. Therefore, the safety benefits of incorporating flame arrestors would be greatest in newly produced airplanes entering service.

We are not proposing a requirement to retrofit airplanes in the current fleet. This decision was based on the determination that many of the older airplane models that do not have flame arrestors are being retired. The cost to retrofit these airplanes for the safety improvement is not in the public interest.

IV. Regulatory Notices and Analyses

A. Regulatory Evaluation

Changes to Federal regulations must undergo several economic analyses. First, Executive Order 12866 and Executive Order 13563 direct that each Federal agency shall propose or adopt a regulation only upon a reasoned determination that the benefits of the intended regulation justify its costs. Second, the Regulatory Flexibility Act of 1980 (Pub. L. 96–354) requires agencies to analyze the economic impact of regulatory changes on small entities. Third, the Trade Agreements Act (Pub. L. 96–39) prohibits agencies from setting standards that create unnecessary obstacles to the foreign commerce of the United States. In developing U.S. standards, the Trade Act requires agencies to consider international standards and, where appropriate, that they be the basis of U.S. standards. Fourth, the Unfunded Mandates Reform Act of 1995 (Pub. L. 104–4) requires agencies to prepare a written assessment of the costs, benefits, and other effects of proposed or final rules that include a Federal mandate likely to result in the expenditure by state, local, or tribal governments, in the aggregate, or by the private sector, of $100 million or more annually (adjusted for inflation with base year of 1995). This portion of the preamble summarizes the FAA's analysis of the economic impacts of the proposed rule. We suggest readers seeking greater detail read the full regulatory evaluation, a copy of which we have placed in the docket for this rulemaking.

In conducting these analyses, FAA has determined that this proposed rule: (1) Has benefits that justify its costs; (2) is not an economically ''significant regulatory action'' as defined in section 3(f) of Executive Order 12866; (3) is not ''significant'' as defined in DOT's Regulatory Policies and Procedures; (4) would not have a significant economic impact on a substantial number of small entities; (5) would not create unnecessary obstacles to the foreign commerce of the United States; and (6) would not impose an unfunded mandate on state, local, or tribal governments, or on the private sector by exceeding the threshold identified above.

These analyses are summarized below.

Total Costs and Benefits of This Proposed Rule

The FAA finds the proposed rule to be cost-beneficial because the costs of the rule are low enough that the expected benefits of preventing just two fatalities would outweigh the expected costs ($4.9 million in present value benefits versus $4.4 million in present value costs). If this action is not taken, a hazard would continue to exist even though effective and low-cost means are available to minimize or eliminate it.

Who is potentially affected by this rule?

Manufacturers of newly certified part 25 airplanes and U.S. operators of these airplanes are affected by the rule as a result of its applicability to new certification part 25 airplanes. Manufacturers and operators of

currently produced part 25 airplanes (production cut-in) are affected by the rule as a result of its applicability to airplanes engaged in part 121 or 129 operations produced two years or more after the effective date of this rule.

Principal Assumptions and Sources of Information

- Discount rate is 7 percent (Office of Management & Budget, Circular A–94, ''Guidelines and Discount Rates for Benefit-Cost Analysis of Federal Programs,'' October 29, 1992, p. 8).
- Value of statistical life (VSL) begins at $9.1 million in 2012 and increases thereafter by an annual growth factor of 1.0107. Memorandum: *Guidance on Treatment of the Economic Value of a Statistical Life in Department Analyses.* [February 2013]. United States, Office of the Secretary of Transportation.
- For small part 25 manufacturers: Two U.S. airplane certifications in next 10-year period, twenty-one annual U.S. deliveries per U.S. certification; three foreign airplane certifications in next 10-year period, eleven annual U.S. deliveries per foreign certification, 15-year airplane production run; 30-year retirement age. Internal FAA study.
- Current airplane models that could be affected by production cut-in requirement (Bombardier Dash 8, CJ–700, and CJ–900): FAA 2013 Fleet Forecast, Fleet Forecast Sheet, ''FAA U.S. Airlines 2013–2013 1–18–2103,'' ''Totals & FAA Tables.''
- The period of analysis for new certifications is 45 years to account for a complete product life cycle determined by a 15-year production period and a 30-year service period.
- Certification cost estimates for part 25 airplanes—Survey of small U.S. part 25 airplane manufacturers.
- Maintenance cost per airplane (every four years) for Bombardier CJ–700/CJ–900 regional jets (subject to production cut-in)—$240. This estimate is much lower than the U.S. estimate because it is for passenger airplane models, while the U.S. estimate is for business jet models. Since business jets are more prone to sit for extended periods of time, their flame arrestors can more easily be clogged by ice, mud daubers, or other debris, thus requiring more frequent and longer maintenance.
- Minimal fuel costs as flame arrestors weigh between 2 and 4 pounds each.

Costs of This Proposed Rule

The costs of the proposed rule are engineering, production, and maintenance compliance costs for newly certificated part 25 airplanes and for new production of currently-produced part 25 airplanes used in part 121 operations (production cut-in). We first estimate compliances costs for new certifications and then for the production cut-in.

Compliance Costs of New Certification Airplanes to Manufacturers and Operators

For newly certificated airplanes, compliance costs consist of engineering and production costs of U.S. manufactured airplanes delivered to U.S. operators and maintenance costs of both U.S. and foreign airplanes delivered to U.S. operators. U.S. part 25 manufacturers directly incur the engineering and production costs while U.S. operators directly incur the maintenance costs. Engineering and production costs incurred by foreign manufacturers are not included in the costs of compliance, as costs directly attributable to foreign entities are not included in the cost and benefit analysis of proposed U.S. regulations.

To calculate the cost of new U.S. certifications, we assume that all new certifications will be approved one year after the effective date of the rule, with production beginning one year later. Using an airplane life cycle model, we estimate the economic impact for two new certificates, production of 21 airplanes/certificates/year, production runs of 15 years, and an airplane retirement age of 30 years. Compliance costs per year are calculated over an airplane life cycle of 45 years.

Industry cost estimates were solicited from small part 25 manufacturers because large airplane manufacturers (Boeing and Airbus) are already compliant with the proposed rule. These cost estimates are shown in the table below.

INDUSTRY COST ESTIMATES USING FLAME ARRESTORS TO COMPLY WITH PROPOSED RULE

Cost category	Cost	Notes
Nonrecurring Engineering Costs	$142,000	per model.
Production Costs (Hardware & Installation)	3,000	per airplane (two flame arrestors @$1,500 each).
Maintenance Costs (U.S. manufacturers)	415	per airplane annually.
Maintenance Costs (Bombardier)	240	per airplane every 4 years.

The industry cost estimates consist of nonrecurring (one-time) engineering costs, production costs for two flame arrestors per airplane (one per fuel tank), and maintenance costs per airplane per year. (The Bombardier maintenance cost estimate is used for estimating production cut-in costs of compliance.) Incorporating the industry cost estimates into the airplane life cycle model, we find total costs for new certification airplanes to be $16.2 million with present value of $4.2 million. $2.2 million of these costs (present value $1.2 million) are directly incurred by U.S. manufacturers and $14.0 million (present value $2.1 million) are directly incurred by U.S. operators.[15]

Compliance Costs of Production Cut-In

In addition to the requirement applying to new certifications, the proposed rule would also require a production cut-in for currently produced part 25 airplanes used in part 121 operations.[16] To calculate this cost, we first note that the only currently produced and U.S. operated airplane models not already in compliance are the Bombardier Dash 8 turboprops and Bombardier CJ–700/CJ–900 regional jets. The final rule would apply to these Bombardier models produced beginning in 2018. Since the FAA forecasts no Dash 8 deliveries to U.S. airline operators after 2017, we expect no Dash 8 compliance cost for these operators.

The FAA does forecast the delivery of 338 CRJ–700 and 161 CRJ–900 model airplanes to U.S. airline operators over the period 2018–2033. The engineering and production compliance costs for these airplanes are not included in our cost estimates because, as noted above, costs directly incurred by foreign entities are not included in the cost and

[15] Details may not sum to totals due to rounding.

[16] We do not estimate costs for the analogous part 129 requirement as these costs are directly incurred by foreign operators.

benefit analysis of proposed U.S. regulations. Accordingly, for these airplanes we assess the impact on U.S. operators only, using Bombardier's maintenance cost estimate of $240 every four years. Allocating this cost as $60 annually and assuming a production period of 16 years, we calculate the maintenance costs for these airplanes from the first year of service to the retirement year of the last airplanes produced, using a procedure analogous to that used for new certification airplanes. We find these costs to operators to be $898,200 with present value $178,439.

Production cut-in costs of $898,200 (present value $178,439) added to new certification airplane costs of $16.2 million (present value $4.2 million) yield total rule costs of $17.1 million (present value $4.4 million).

Benefits of This Proposed Rule

Notwithstanding the absence of post-crash fuel tank explosions in recent years and lacking other sufficient bases upon which to estimate future risks, the merits of the proposed rule can be assessed by considering the number of fatalities that would need to be prevented to offset the costs of the rule.

We estimate the breakeven benefits of the rule by estimating the number of averted fatalities necessary to offset the $4.4 million present value costs of the rule. We find that just two averted fatalities would offset these estimated costs.

B. Regulatory Flexibility Determination

The Regulatory Flexibility Act of 1980 (Pub. L. 96–354) (RFA) establishes ''as a principle of regulatory issuance that agencies shall endeavor, consistent with the objectives of the rule and of applicable statutes, to fit regulatory and informational requirements to the scale of the businesses, organizations, and governmental jurisdictions subject to regulation.'' To achieve this principle, agencies are required to solicit and consider flexible regulatory proposals and to explain the rationale for their actions to assure that such proposals are given serious consideration.'' The RFA covers a wide range of small entities, including small businesses, not-for-profit organizations, and small governmental jurisdictions. Agencies must perform a review to determine whether a rule will have a significant economic impact on a substantial number of small entities. If the agency determines that it will, the agency must prepare a regulatory flexibility analysis as described in the RFA.

However, if an agency determines that a rule is not expected to have a significant economic impact on a substantial number of small entities, section 605(b) of the RFA provides that the head of the agency may so certify and a regulatory flexibility analysis is not required. The certification must include a statement providing the factual basis for this determination, and the reasoning should be clear.

All small U.S. manufacturers affected by this rule are wholly owned subsidiaries of large companies, who have more than 1,500 employees (the small business criterion for aircraft manufacturing) and, therefore, are not classified as small entities by the Small Business Administration. Part 121 operators would be directly affected by the average $415 annual maintenance cost per airplane. These costs are minimal, especially compared to the high cost of new part 25 airplanes.

If an agency determines that a rulemaking will not result in a significant economic impact on a substantial number of small entities, the head of the agency may so certify under section 605(b) of the RFA. Therefore, as provided in section 605(b), the head of the FAA certifies that this rulemaking would not result in a significant economic impact on a substantial number of small entities.

The FAA solicits comments regarding this determination.

C. International Trade Impact Assessment

The Trade Agreements Act of 1979 (Public Law 96–39), as amended by the Uruguay Round Agreements Act (Public Law 103–465), prohibits Federal agencies from establishing standards or engaging in related activities that create unnecessary obstacles to the foreign commerce of the United States. Pursuant to these Acts, the establishment of standards is not considered an unnecessary obstacle to the foreign commerce of the United States, so long as the standard has a legitimate domestic objective, such as the protection of safety, and does not operate in a manner that excludes imports that meet this objective. The statute also requires consideration of international standards and, where appropriate, that they be the basis for U.S. standards.

This proposed rule would not create an unnecessary obstacle to foreign commerce as foreign and domestic manufacturers are equally affected and its effect on part 121 operators would be domestic only.

D. Unfunded Mandates Assessment

Title II of the Unfunded Mandates Reform Act of 1995 (Public Law 104–4) requires each Federal agency to prepare a written statement assessing the effects of any Federal mandate in a proposed or final agency rule that may result in an expenditure of $100 million or more (in 1995 dollars) in any one year by State, local, and tribal governments, in the aggregate, or by the private sector; such a mandate is deemed to be a ''significant regulatory action.'' The FAA currently uses an inflation-adjusted value of $151.0 million in lieu of $100 million. This proposed rule does not contain such a mandate; therefore, the requirements of Title II of the Act do not apply.

E. Paperwork Reduction Act

The Paperwork Reduction Act of 1995 (44 U.S.C. 3507(d)) requires that the FAA consider the impact of paperwork and other information collection burdens imposed on the public. The FAA has determined that there would be no new requirement for information collection associated with this proposed rule.

F. International Compatibility and Cooperation

In keeping with U.S. obligations under the Convention on International Civil Aviation, it is FAA policy to conform to International Civil Aviation Organization (ICAO) Standards and Recommended Practices to the maximum extent practicable. The FAA has determined that there are no ICAO Standards and Recommended Practices that correspond to these proposed regulations.

G. Environmental

FAA Order 1050.1E identifies FAA actions that are categorically excluded from preparation of an environmental assessment or environmental impact statement under the National Environmental Policy Act in the absence of extraordinary circumstances. The FAA has determined this rulemaking action qualifies for the categorical exclusion identified in paragraph 312f and involves no extraordinary circumstances.

V. Executive Order Determinations

A. Executive Order 13132, Federalism

The FAA has analyzed this proposed rule under the principles and criteria of Executive Order 13132, Federalism. The agency has determined that this action would not have a substantial direct effect on the States, or the relationship between the Federal Government and the States, or on the distribution of power and responsibilities among the various levels of government, and,

therefore, would not have Federalism implications.

B. Executive Order 13211, Regulations That Significantly Affect Energy Supply, Distribution, or Use

The FAA analyzed this proposed rule under Executive Order 13211, Actions Concerning Regulations that Significantly Affect Energy Supply, Distribution, or Use (May 18, 2001). The agency has determined that it would not be a ''significant energy action'' under the executive order and would not be likely to have a significant adverse effect on the supply, distribution, or use of energy.

VI. Additional Information

A. Comments Invited

The FAA invites interested persons to participate in this rulemaking by submitting written comments, data, or views. The agency also invites comments relating to the economic, environmental, energy, or federalism impacts that might result from adopting the proposals in this document. The most helpful comments reference a specific portion of the proposal, explain the reason for any recommended change, and include supporting data. To ensure the docket does not contain duplicate comments, commenters should send only one copy of written comments, or if comments are filed electronically, commenters should submit only one time.

The FAA will file in the docket all comments it receives, as well as a report summarizing each substantive public contact with FAA personnel concerning this proposed rulemaking. Before acting on this proposal, the FAA will consider all comments it receives on or before the closing date for comments. The FAA will consider comments filed after the comment period has closed if it is possible to do so without incurring expense or delay. The agency may change this proposal in light of the comments it receives.

Proprietary or Confidential Business Information: Commenters should not file proprietary or confidential business information in the docket. Such information must be sent or delivered directly to the person identified in the **FOR FURTHER INFORMATION CONTACT** section of this document, and marked as proprietary or confidential. If submitting information on a disk or CD ROM, mark the outside of the disk or CD ROM, and identify electronically within the disk or CD ROM the specific information that is proprietary or confidential.

Under 14 CFR 11.35(b), if the FAA is aware of proprietary information filed with a comment, the agency does not place it in the docket. It is held in a separate file to which the public does not have access, and the FAA places a note in the docket that it has received it. If the FAA receives a request to examine or copy this information, it treats it as any other request under the Freedom of Information Act (5 U.S.C. 552). The FAA processes such a request under Department of Transportation procedures found in 49 CFR part 7.

B. Availability of Rulemaking Documents

An electronic copy of rulemaking documents may be obtained from the Internet by:

1. Searching the Federal eRulemaking Portal (*http://www.regulations.gov*);

2. Visiting the FAA's Regulations and Policies Web page at *http://www.faa.gov/regulations_policies* or

3. Accessing the Government Printing Office's Web page at *http://www.gpo.gov/fdsys/.*

Copies may also be obtained by sending a request to the Federal Aviation Administration, Office of Rulemaking, ARM–1, 800 Independence Avenue SW., Washington, DC 20591, or by calling (202) 267–9680. Commenters must identify the docket or notice number of this rulemaking.

All documents the FAA considered in developing this proposed rule, including economic analyses and technical reports, may be accessed from the Internet through the Federal eRulemaking Portal referenced in item 1 above.

List of Subjects

14 CFR Part 25

Aircraft, Aviation safety, Life-limited parts, Reporting and recordkeeping requirements.

14 CFR Part 121

Air carriers, Aircraft, Aviation safety, Reporting and recordkeeping requirements, Safety, Transportation.

14 CFR Part 129

Air carriers, Aircraft, Aviation safety, Reporting and recordkeeping requirements.

The Proposed Amendment

In consideration of the foregoing, the Federal Aviation Administration proposes to amend chapter I of Title 14, Code of Federal Regulations as follows:

PART 25—AIRWORTHINESS STANDARDS: TRANSPORT CATEGORY AIRPLANES

■ 1. The authority citation for part 25 continues to read as follows:

Authority: 49 U.S.C. 106(g), 40113, 44701, 44702, and 44704.

■ 2. Amend § 25.975 by revising paragraphs (a)(5) and (a)(6), and adding a new paragraph (a)(7) to read as follows:

§ 25.975 Fuel tank vents and carburetor vapor vents.

(a) * * *

(5) There may be no point in any vent line where moisture can accumulate with the airplane in the ground attitude or the level flight attitude, unless drainage is provided;

(6) No vent or drainage provision may end at any point—

(i) Where the discharge of fuel from the vent outlet would constitute a fire hazard; or

(ii) From which fumes could enter personnel compartments; and

(7) Each fuel tank system must be designed to prevent explosions caused by propagation of flames from outside the tank through the fuel tank vents into fuel tank vapor spaces for a minimum of 2 minutes and 30 seconds of continuous exposure to flame impingement on any fuel tank vent.

* * * * *

PART 121—OPERATING REQUIREMENTS: DOMESTIC, FLAG, AND SUPPLEMENTAL OPERATIONS

■ 3. The authority citation for part 121 continues to read as follows:

Authority: 49 U.S.C. 106(g), 40113, 40119, 41706, 44101, 44701–44702, 44705, 44709–44711, 44713, 44716–44717, 44722, 46105.

■ 4. Add § 121.1119 to subpart AA to read as follows:

§ 121.1119 Fuel tank vent explosion protection.

(a) *Applicability.* This section applies to transport category, turbine-powered airplanes with a type certificate issued after January 1, 1958, that, as a result of original type certification or later increase in capacity, have:

(1) A maximum type-certificated passenger capacity of 30 or more, or

(2) A maximum payload capacity of 7,500 pounds or more.

(b) *New production airplanes.* No certificate holder may operate an airplane for which the State of Manufacture issued the original certificate of airworthiness or export airworthiness approval after [insert date 2 years after effective date of rule] unless fuel tank vent system explosion prevention means meeting the requirements of § 25.975 of this chapter, are installed and operational.

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

■ 5. The authority citation for part 129 continues to read as follows:

Authority: 49 U.S.C. 40113, 40119, 41301, 44101, 44701–44702, 44705, 44709–44711, 44713, 44716–44717, 44722, 44901–44904, 44906, 44912, 46105, Public Law 107–71 sec. 104.

■ 6. Add § 129.119 to subpart B to read as follows:

§ 129.119 Fuel tank vent explosion protection.

(a) *Applicability.* This section applies to transport category, turbine-powered airplanes with a type certificate issued after January 1, 1958, that, as a result of original type certification or later increase in capacity, have:

(1) A maximum type-certificated passenger capacity of 30 or more, or

(2) A maximum payload capacity of 7,500 pounds or more.

(b) *New production airplanes.* No certificate holder may operate an airplane for which the State of Manufacture issued the original certificate of airworthiness or export airworthiness approval after [insert date 2 years after effective date of rule] unless fuel tank vent system explosion prevention means meeting the requirements of § 25.975 of this chapter, are installed and operational.

Issued under authority provided by 49 U.S.C. 106(f), 44701(a), and 44703 in Washington, DC, on August 1, 2014.

Frank Paskiewicz,

Acting Director, Aircraft Certification Service.

[FR Doc. 2014–18959 Filed 8–14–14; 8:45 am]

BILLING CODE 4910–13–P

DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

14 CFR Part 39

[Docket No. FAA–2014–0569; Directorate Identifier 2014–NM–047–AD]

RIN 2120–AA64

Airworthiness Directives; Bombardier, Inc. Airplanes

AGENCY: Federal Aviation Administration (FAA), DOT.

ACTION: Notice of proposed rulemaking (NPRM).

SUMMARY: We propose to adopt a new airworthiness directive (AD) for certain Bombardier, Inc. Model DHC–8–400 series airplanes. This proposed AD was prompted by a report of loose bolts that are intended to secure the translating door crank assembly to the outside handle shaft. This proposed AD would require a detailed inspection for loose bolts on the aft translating door crank assembly, and removal and reinstallation of the bolts. We are proposing this AD to prevent loose bolts from falling out. If both bolts become loose or fall out after the door is closed and locked, the door cannot be opened from inside or outside, which could impede evacuation in the event of an emergency.

DATES: We must receive comments on this proposed AD by September 29, 2014.

ADDRESSES: You may send comments, using the procedures found in 14 CFR 11.43 and 11.45, by any of the following methods:

- *Federal eRulemaking Portal:* Go to *http://www.regulations.gov.* Follow the instructions for submitting comments.
- *Fax:* 202–493–2251.
- *Mail:* U.S. Department of Transportation, Docket Operations, M–30, West Building Ground Floor, Room W12–140, 1200 New Jersey Avenue SE., Washington, DC 20590.
- *Hand Delivery:* U.S. Department of Transportation, Docket Operations, M–30, West Building Ground Floor, Room W12–140, 1200 New Jersey Avenue SE., Washington, DC, between 9 a.m. and 5 p.m., Monday through Friday, except Federal holidays.

For service information identified in this proposed AD, contact Bombardier, Inc., Q-Series Technical Help Desk, 123 Garratt Boulevard, Toronto, Ontario M3K 1Y5, Canada; telephone 416–375–4000; fax 416–375–4539; email *thd.qseries@aero.bombardier.com;* Internet *http://www.bombardier.com.* You may view this referenced service information at the FAA, Transport Airplane Directorate, 1601 Lind Avenue SW., Renton, WA. For information on the availability of this material at the FAA, call 425–227–1221.

Examining the AD Docket

You may examine the AD docket on the Internet at *http://www.regulations.gov* by searching for and locating Docket No. FAA–2014–0569; or in person at the Docket Management Facility between 9 a.m. and 5 p.m., Monday through Friday, except Federal holidays. The AD docket contains this proposed AD, the regulatory evaluation, any comments received, and other information. The street address for the Docket Operations office (telephone 800–647–5527) is in the **ADDRESSES** section. Comments will be available in the AD docket shortly after receipt.

FOR FURTHER INFORMATION CONTACT: Cesar Gomez, Aerospace Engineer, Airframe and Mechanical Systems Branch, ANE–171, FAA, New York Aircraft Certification Office, 1600 Stewart Avenue, Suite 410, Westbury, New York 11590; telephone (516) 228–7318; fax (516) 794–5531.

SUPPLEMENTARY INFORMATION:

Comments Invited

We invite you to send any written relevant data, views, or arguments about this proposed AD. Send your comments to an address listed under the **ADDRESSES** section. Include ''Docket No. FAA–2014–0569; Directorate Identifier 2014–NM–047–AD'' at the beginning of your comments. We specifically invite comments on the overall regulatory, economic, environmental, and energy aspects of this proposed AD. We will consider all comments received by the closing date and may amend this proposed AD based on those comments.

We will post all comments we receive, without change, to *http://www.regulations.gov,* including any personal information you provide. We will also post a report summarizing each substantive verbal contact we receive about this proposed AD.

Discussion

Transport Canada Civil Aviation (TCCA), which is the aviation authority for Canada, has issued Canadian Airworthiness Directive CF–2014–08, dated February 10, 2014 (referred to after this as the Mandatory Continuing Airworthiness Information, or ''the MCAI''), to correct an unsafe condition for the specified products. The MCAI states:

> There was one in-service report where the bolts securing the translating door crank assembly to the outside handle shaft were found loose. It was also found on another translating door that sealant was missing on these bolts. If both bolts become loose or fall out after the door is closed and locked, the door cannot be opened from inside or outside.
>
> The aft entry translating door and aft service translating door are classified as emergency exits. The inability to open an emergency exit could impede evacuation in the event of an emergency.
>
> This [Canadian] AD mandates the inspection of the translating door crank assemblies for loose bolts, as well as appropriate rectification [removal and reinstallation of the bolts].

You may examine the MCAI in the AD docket on the Internet at *http://www.regulations.gov* by searching for and locating Docket No. FAA–2014–0569.