DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

14 CFR Parts 61, 91, 121, and 135

[Docket No.: FAA–2014–0504; Notice No. 16–06]

RIN 2120–AJ87

Pilot Professional Development

AGENCY: Federal Aviation Administration (FAA), DOT.

ACTION: Notice of proposed rulemaking (NPRM).

SUMMARY: The Federal Aviation Administration proposes to modify the requirements primarily applicable to air carriers conducting domestic, flag and supplemental operations to enhance the professional development of pilots in those operations. The proposal would require air carriers conducting domestic, flag and supplemental operations to provide new-hire pilots with an opportunity to observe flight operations (operations familiarization) to become familiar with procedures before serving as a flightcrew member in operations; revise the upgrade curriculum; provide leadership and command and mentoring training for all pilots in command (PICs); and establish Pilot Professional Development Committees (PPDC). This proposal is responsive to a statutory requirement for the Federal Aviation Administration to convene an aviation rulemaking committee (ARC) to develop procedures for air carriers pertaining to pilot mentoring, professional development, and leadership and command training and to issue an NPRM and final rule based on these recommendations. The proposal also includes a number of additional conforming changes related to flight simulation training devices and second in command (SIC) pilot training and checking, and other miscellaneous changes. The FAA believes that this proposed rule would mitigate incidents of unprofessional pilot behavior which would reduce pilot errors that can lead to a catastrophic event.

DATES: Send comments on or before January 5, 2017.

ADDRESSES: Send comments identified by docket number FAA–2014–0504 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: In accordance with 5 U.S.C. 553(c), DOT solicits comments from the public to better inform its rulemaking process. DOT posts these comments, without edit, including any personal information the commenter provides, to *www.regulations.gov,* as described in the system of records notice (DOT/ALL–14 FDMS), which can be reviewed at *www.dot.gov/privacy.*

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 Sheri Pippin, Air Transportation Division (AFS–200), Flight Standards Service, Federal Aviation Administration, 800 Independence Avenue SW., Washington, DC 20591; telephone: (202) 267–8166; email: *sheri.pippin@faa.gov.*

SUPPLEMENTARY INFORMATION:

Authority for This Rulemaking

The Federal Aviation Administration's (FAA) 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 FAA's authority.

This rulemaking is promulgated under the general authority described in 49 U.S.C. 106(f) and 44701(a) and the specific authority found in section 206 of Public Law 111–216, the Airline Safety and Federal Aviation Administration Extension Act of 2010 (Aug. 1, 2010) (49 U.S.C. 44701 note), which directed the FAA to convene an ARC and conduct a rulemaking proceeding based on the ARC's recommendations pertaining to mentoring, professional development, and leadership and command training for pilots serving in part 121 operations. Section 206 further required that the FAA include in leadership and command training instruction on compliance with flightcrew member duties under 14 CFR 121.542 (sterile flight deck rule).[1]

List of Abbreviations and Acronyms Frequently Used in This Document

AC Advisory Circular
ACSPT ARC Air Carrier Safety and Pilot Training Aviation Rulemaking Committee
ARC Aviation Rulemaking Committee
ATP Airline Transport Pilot
ATP–CTP Airline Transport Pilot Certification Training Program
CAMI FAA Civil Aerospace Medical Institute
CFR Code of Federal Regulations
CRM Crew Resource Management
FFS Full Flight Simulator
FSTD Flight Simulation Training Device
InFO Information for Operators
LOFT Line-Oriented Flight Training
MLP ARC Flight Crewmember Mentoring, Leadership, and Professional Development Aviation Rulemaking Committee
NPRM Notice of Proposed Rulemaking
PIC Pilot in Command
PDSC Professional Development Steering Committee
PPDC Pilot Professional Development Committee
PTS Practical Test Standards
SAFO Safety Alert for Operators
SIC Second in Command
THRR ARC Flightcrew Member Training Hours Requirement Review Aviation Rulemaking Committee
91K Part 91, subpart K

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[1] 14 CFR 121.542 has commonly been referred to as the sterile cockpit rule. (46 FR 5500, January 19, 1981) Throughout this NPRM, it will be referred as the sterile flight deck rule consistent with updated terminology.

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I. Executive Summary

A. Purpose of the Regulatory Action

Although the overall safety and reliability of the National Airspace System (NAS) demonstrates that most pilots conduct operations with a high degree of professionalism, a problem still exists in the aviation industry with some pilots acting unprofessionally and not adhering to standard operating procedures, including the sterile flight deck rule. The National Transportation Safety Board (NTSB) has continued to cite inadequate leadership in the flight deck, pilots' unprofessional behavior, and pilots' failure to comply with the sterile flight deck rule as factors in multiple accidents and incidents including Pinnacle Airlines flight 3701 (October 14, 2004) and Colgan Air, Inc. flight 3407 (February 12, 2009).

The Colgan Air accident focused public and Congressional attention on multiple aspects of air carrier training requirements, including issues pertaining to pilot leadership and command and mentoring. The accident also raised questions about pilot adherence to the sterile flight deck rule.

The Airline Safety and Federal Aviation Administration Extension Act of 2010 (Public Law 111–216), was enacted following the Colgan Air accident. Section 206 of Public Law 111–216 directed the FAA to convene an ARC to develop procedures for each part 121 air carrier pertaining to mentoring, professional development, and leadership and command training for pilots serving in part 121 operations and to issue an NPRM and final rule based on the ARC recommendations. Accordingly, this rulemaking is promulgated under the general authority described in 49 U.S.C. 106(f) and 44701(a) and the specific authority found in section 206 of Public Law 111–216.

B. Summary of the Major Provisions of the Regulatory Action

This rulemaking proposes to modify requirements for air carriers and pilots operating under part 121 to enhance the professional development of part 121 pilots. The proposed requirements would most affect air carrier training for pilots in command. The proposed requirements would also affect air carrier qualification for newly employed pilots. Additionally, this proposed rule would require air carriers to establish and maintain a pilot professional development committee to develop, administer, and oversee formal pilot mentoring programs. Table 1 provides additional detail regarding the proposed amendments.

TABLE 1—SUMMARY OF PROPOSED AMENDMENTS

Proposed provision	Summary of proposed provision
Operations familiarization for new-hire pilots (§ 121.432(d)).	• Operations familiarization must include a minimum of 2 operating cycles. A new-hire pilot completing operations familiarization must occupy the flight deck observer seat.
Upgrade training curriculum requirements (§§ 121.420 and 121.426).	• Upgrade ground and flight training requirements have been updated based on the qualification and experience that all upgrading pilots now have as a result of the Pilot Certification and Qualification Requirements for Air Carrier Operations rule requirements. • Leadership and command and mentoring training must be included in the upgrade curriculum. Leadership and command and mentoring training are required subjects for upgrade ground training. Leadership and command training must also be incorporated into flight training through scenario-based training. (Note: For those air carriers that use an initial curriculum to qualify pilots to serve as PICs, leadership and command and mentoring training must be provided as part of that initial curriculum (§§ 121.419 and 121.424)).
Leadership and command and mentoring ground training for pilots currently serving as PIC (§ 121.429).	• All pilots currently serving as PIC must complete ground training on leadership and command and mentoring. • The Administrator may credit previous training completed by the pilot at that air carrier.
Recurrent PIC leadership and command and mentoring training (§§ 121.409(b) and 121.427).	• PICs must complete recurrent leadership and command and mentoring ground training every 36 months. • Recurrent Line-Oriented Flight Training (LOFT) must provide an opportunity for PICs to demonstrate leadership and command.
Pilot professional development committee (PPDC) (§ 121.17).	• Air carriers must establish and maintain a PPDC to develop, administer, and oversee formal pilot mentoring programs. The PPDC must consist of at least one management representative and one pilot representative. The PPDC must meet on a regular basis. The frequency of such meetings would be determined by the air carrier, but must occur at least annually.
Pilot recurrent ground training content and programmed hours (§ 121.427).	• Pilot recurrent ground training has been aligned with the pilot initial ground training requirements for pilots who have completed the Airline Transport Pilot Certification Training Program (ATP–CTP). As a result, the existing content and corresponding programmed hours for recurrent ground training have been reduced.
Part 135 Operators and Part 91 Subpart K Program Managers Complying with Part 121, Subparts N and O.	• Part 135 operators and part 91 subpart K (91K) program managers complying with part 121 subparts N and O would continue to use the existing upgrade curriculum requirements and the proposed leadership and command and mentoring training would only apply to PICs serving in operations that use two or more pilots.

TABLE 1—SUMMARY OF PROPOSED AMENDMENTS—Continued

Proposed provision	Summary of proposed provision
Flight Simulation Training Device (FSTD) Conforming Changes (Part 121, subparts N and O and appendices E, F, and H).	• Part 121, subparts N and O and appendices E, F, and H are updated as follows: (1) Reflect the terminology currently used to identify FSTDs approved for use in part 121 training programs; (2) Remove references to simulation technology that no longer exists; and (3) Remove requirement for FAA certification of training and remove pilot experience prerequisites for using a Level C full flight simulator (FFS) to reflect advances in current FSTD technology.
SIC Training and Checking Conforming Changes (Part 121 appendices E and F).	• Part 121 appendices E and F are updated to align with the current 14 CFR 61.71 requirements for SICs to obtain a type rating in a part 121 training program. Initial, conversion, and transition SIC training and checking must include the few training and checking maneuvers and procedures formerly designated in appendices E and F as PIC-only.
Other Conforming and Miscellaneous Changes.	• Pilot transition ground training has been aligned with the pilot initial ground training for pilots who have completed the ATP–CTP. • The term used to identify the training provided to flight engineers qualifying as SICs on the same airplane type has been changed from ''upgrade'' to ''conversion.'' • Conversion ground training for flight engineers who have completed the ATP–CTP has been aligned with the pilot initial ground training for pilots who have completed the ATP–CTP. • Part 121 appendices E and F and § 121.434 are amended to allow for pictorial means for the training and checking of preflight visual inspections of the exterior and interior of the airplane.

C. Costs and Benefits

The FAA believes the proposed rule would generate safety benefits and address both the statutory requirement for this rulemaking and the NTSB recommendations. Additionally, the proposed rule contains cost saving benefits to operators of $72 million over a 10-year period based on changes to ground training in this proposal that are possible due to changes already implemented in the Pilot Certification and Qualification Requirements for Air Carrier Operations final rule (the Pilot Certification rule) (78 FR 42324, July 15, 2013).[2] These changes would lead to a reduction in the time required to complete recurrent and upgrade training and would not compromise safety. When discounted using a 7 percent discount rate, the proposed rule would result in cost saving benefits of $46 million over a 10-year period.

The FAA estimates that the proposed rule would result in costs to operators of approximately $68 million over a 10-year period. When discounted using a 7 percent discount rate, the proposed rule would result in costs of $47 million over a 10-year period. In undiscounted terms, benefits in future years outweigh costs; however, when discounting benefits using the 7% discount rate, future benefits do not outweigh upfront costs.

The benefits and costs, by provision, of the proposed rule are seen in Table 2 below.

TABLE 2—NET BENEFITS BY PROVISION

[7% Present value, millions of 2013 dollars, 2015–2024]*

Provision	Cost saving benefits	Compliance costs	Net benefits
Recurrent Ground Training (§ 121.427)	$34.424	$0	$34.424
Upgrade Ground Training (§ 121.420)	$11.839	0	11.839
New-Hire SIC Operations Familiarization (§ 121.432(d))	Not Quantified	2.855	−2.855
Upgrade Training (Mentoring, Leadership, and Command) (§§ 121.420 and 121.426)	Not Quantified	6.304	−6.304
One-Time and Recurrent PIC Training (Mentoring, Leadership, and Command) (§§ 121.409(b), 121.427 and 121.429).	Not Quantified	37.037	−37.037
PPDC Annual Meeting (§ 121.17)	Not Quantified	0.572	−0.572
Recordkeeping	Not Quantified	0.006	−0.006
Total	46.263	46.774	−0.511

*Table values have been rounded. Totals may not add due to rounding.

II. Background

A. Statement of the Problem

As recognized by the NTSB, the overall safety and reliability of the NAS demonstrates that most pilots conduct operations with a high degree of professionalism.[3] Nevertheless, a problem still exists in the aviation industry with some pilots acting unprofessionally and not adhering to standard operating procedures, including the sterile flight deck rule.[4] The NTSB has continued to cite inadequate leadership in the flight deck, pilots' unprofessional behavior, and pilots' failure to comply with the sterile flight deck rule as factors in multiple accidents and incidents, including Pinnacle Airlines flight 3701 and Colgan Air,[5] Inc., flight 3407.

[2] RIN 2120–AJ67.

[3] *See* Crash of Pinnacle Airlines Flight 3701, Bombardier CL–600–2B19, N8396A, Jefferson City, Missouri, October 14, 2004, Aircraft Accident Report NTSB/AAR–07/01 (Washington, DC: NTSB, 2007) (hereinafter ''Aircraft Accident Report NTSB/AAR–07/01'').

[4] *See* Loss of Control on Approach, Colgan Air, Inc., Operating as Continental Connection Flight 3407, Bombardier DHC–8–400, N200WQ, Clarence Center, New York, February 12, 2009, Aircraft Accident Report NTSB/AAR–10/01 (Washington, DC: NTSB, 2010) (hereinafter ''Aircraft Accident Report NTSB/AAR–10/01'').

[5] Some contributing factors to this accident were also mitigated by the following rules: Flightcrew Member Duty and Rest Requirements (77 FR 330, January 4, 2012, RIN 2120–AJ58) with a .5 effective mitigation, Qualification, Service, and Use of Crewmembers and Aircraft Dispatchers with a .2 effective mitigation, the Pilot Certification Rule

On October 14, 2004, a Pinnacle Airlines Bombardier CL–600–2B19, operating as Northwest Airlink flight 3701, crashed into a residential area about 2.5 miles from the Jefferson City Memorial Airport, Jefferson City, Missouri. During the flight, both engines flamed out after a pilot-induced aerodynamic stall and were unable to be restarted. Both pilots were killed and the airplane was destroyed.

The NTSB determined the probable causes of this accident were (1) the pilots' unprofessional behavior, deviation from standard operating procedures, and poor airmanship, which resulted in an in-flight emergency from which the pilots were unable to recover, in part because of their inadequate training; (2) the pilots' failure to prepare for an emergency landing in a timely manner; and (3) the pilots' improper management of the double engine failure checklist.

The NTSB noted that at the time of the accident, Pinnacle Airlines provided 2 hours of leadership training during SIC to PIC upgrade training with topics covering leadership authority, responsibility, and leadership styles. The NTSB also noted that after the accident and as a result of a high initial failure rate for pilots upgrading to PIC (22% failure rate in July 2004), Pinnacle revised the leadership training to 8 hours with modules on leadership, authority, and responsibility; briefing and debriefing scenarios; decision-making processes, including those during an emergency; dry run line-oriented flight training scenarios; and risk management and resource utilization. In October 2006, Pinnacle reported to the NTSB that the pass rate for pilots upgrading to PIC had improved to 92% first attempt and 95% overall.

On the evening of February 12, 2009, a Colgan Air, Inc., Bombardier DHC–8–400, operating as Continental Connection flight 3407, was on approach to Buffalo-Niagara International Airport, Buffalo, New York, when it crashed into a residence in Clarence Center, New York, about 5 nautical miles northeast of the airport. The 2 pilots, 2 flight attendants, all 45 passengers aboard the airplane, and 1 person on the ground were killed, and the airplane was destroyed by impact forces and a post-crash fire. The NTSB determined that the probable cause of this accident was the PIC's inappropriate response to the stall warning which eventually led to a stall from which the airplane did not recover. Contributing to the accident were (1) the pilots' failure to monitor airspeed; (2) the pilots' failure to adhere to sterile flight deck procedures; (3) the PIC's failure to effectively manage the flight; and (4) Colgan Air's inadequate procedures for airspeed selection and management during approaches in icing conditions.

The NTSB noted that at the time of the accident, although the Colgan Air crew resource management (CRM) training was consistent with Advisory Circular (AC) 120–51E, Crew Resource Management Training, it only included 5 slides that addressed command, leadership, and leadership styles. The NTSB also noted that the Colgan Air SIC to PIC upgrade training included a one day course on leadership; however, the training focused on the administrative duties associated with becoming a PIC and did not contain significant content applicable to developing leadership skills, management oversight, and command authority. The NTSB concluded that specific leadership training for pilots upgrading to PIC would help standardize and reinforce the critical command authority skills needed by a PIC during air carrier operations.

The Colgan Air accident focused public and Congressional attention on multiple aspects of air carrier training requirements, including (1) whether air carriers were providing PICs with the appropriate training to successfully execute the required PIC responsibilities while exhibiting effective leadership to promote professionalism and adherence to standard operating procedures, (2) whether pilots have access to individuals, such as more experienced pilots, who could serve as mentors, and (3) pilot adherence to the sterile flight deck rule.

The Airline Safety and Federal Aviation Administration Extension Act of 2010 (Public Law 111–216), enacted August 1, 2010, included a number of requirements to convene advisory groups and conduct rulemakings related to the results of the NTSB investigation of the Colgan Air accident. Section 206 directed the FAA to convene an ARC to develop procedures for each part 121 air carrier pertaining to mentoring, professional development, and leadership and command training for pilots serving in part 121 operations and to issue a NPRM and final rule based on the ARC recommendations.

In accordance with sections 204, 206, and 209 of Public Law 111–216, the FAA chartered the Air Carrier Safety and Pilot Training (ACSPT) ARC, the Flight Crewmember Mentoring, Leadership, and Professional Development (MLP) ARC and the Flightcrew Member Training Hours Requirement Review (THRR) ARC, respectively, in September 2010. The MLP ARC completed its work and provided recommendations in November 2010. At the same time as the MLP ARC worked to develop its recommendations, a number of related rulemakings required by Public Law 111–216 were already underway, including the Pilot Certification and Qualification Requirements for Air Carrier Operations rulemaking [6] and the Qualification, Service, and Use of Crewmembers and Aircraft Dispatchers rulemaking.

This proposal is the culmination of the FAA's analysis of (1) the rulemaking requirements of section 206 of Public Law 111–216; (2) the recommendations provided by the MLP ARC, the THRR ARC, and the ACSPT ARC; (3) the part 121 pilot qualification and experience requirements provided in the Pilot Certification rule; (4) the Qualification, Service, and Use of Crewmembers and Aircraft Dispatchers final rule (78 FR 67800, November 12, 2013),[7] and (5) the current part 121 PIC role and responsibilities. This comprehensive analysis resulted in this proposal that furthers the FAA's safety mission, satisfies the requirement for rulemaking in section 206 of Public Law 111–216 and accounts for the recent changes to pilot certification and qualifications to serve as a PIC in part 121 operations. The FAA believes that this proposed rule can be effectively implemented by air carriers and would mitigate unprofessional pilot behavior which would reduce pilot errors that can lead to a catastrophic event.[8]

with a .2 effective mitigation, and Safety Management Systems for Domestic, Flag, and Supplemental Operations Certificate Holders with a .05 effective mitigation.

[6] In early 2010, the FAA published an advance notice of proposed rulemaking (ANPRM) entitled New Pilot Certification Requirements for Air Carrier Operations (75 FR 6164, February 8, 2010) asking for input on current part 121 pilot eligibility, training, and qualification requirements for SICs. In July 2010, as a result of the public response to the ANPRM, the FAA chartered the First Officer Qualification ARC (FOQ ARC). The FAA subsequently asked the FOQ ARC to consider the provisions in §§ 216 and 217 of Public Law 111–216 in developing its recommendations. The FOQ ARC submitted its recommendations to the FAA in September 2010. The FAA issued the Pilot Certification and Qualification Requirements for Air Carrier Operations NPRM on February 29, 2012 (77 FR 12374).

[7] RIN 2120–AJ00.

[8] The FAA notes that section 206 of Public Law 111–216 references both ''flight crewmembers'' and ''pilots.'' Section 201 of Public Law 111–216 states, ''The term 'flight crewmember' has the meaning given the term 'flightcrew member' in part 1 of title 14, Code of Federal Regulations.'' Part 1 defines ''flightcrew member'' as ''a pilot, flight engineer, or flight navigator assigned to duty in an aircraft

Continued

B. National Transportation Safety Board (NTSB) Recommendations

This proposed rule addresses the following NTSB recommendations from Aircraft Accident Report NTSB/AAR–07/01 and Aircraft Accident Report NTSB/AAR–10/01 for air carriers operating under part 121:

- A–07–6: Require regional air carriers operating under 14 CFR part 121 to provide specific guidance on expectations for professional conduct to pilots who operate nonrevenue flights.
- A–10–13: Issue an advisory circular with guidance on leadership training for upgrading captains at 14 CFR part 121, 135, and 91K operators, including methods and techniques for effective leadership; professional standards of conduct; strategies for briefing and debriefing; reinforcement and correction skills; and other knowledge, skills, and abilities that are critical for air carrier operations.[9]
- A–10–14: Require all 14 CFR part 121, 135, and 91K operators to provide a specific course on leadership training to their upgrading captains that is consistent with the advisory circular requested in Safety Recommendation A–10–13.
- A–10–15: Develop and distribute to all pilots, multimedia guidance materials on professionalism in aircraft operations that contain standards of performance for professionalism; best practices for sterile cockpit adherence; techniques for assessing and correcting pilot deviations; examples and scenarios; and a detailed review of accidents involving breakdowns in sterile cockpit and other procedures, including the Colgan Air, Inc. flight 3407 accident. Obtain the input of operators and air carrier and general aviation pilot groups in the development and distribution of these guidance materials.[10]

C. Airline Safety and Federal Aviation Administration Extension Act of 2010 (Public Law 111–216)

Paragraph (a)(1) of section 206 of Public Law 111–216 directed the FAA to convene an ARC to develop procedures for each part 121 air carrier to take the following actions:

(A) Establish flight crewmember mentoring programs under which the air carrier will pair highly experienced flight crewmembers who will serve as mentor pilots and be paired with newly employed flight crewmembers. Mentor pilots should be provided, at a minimum, specific instruction on techniques for instilling and reinforcing the highest standards of technical performance, airmanship, and professionalism in newly employed flight crewmembers.

(B) Establish flight crewmember professional development committees made up of air carrier management and labor union or professional association representatives to develop, administer, and oversee formal mentoring programs of the carrier to assist flight crewmembers to reach their maximum potential as safe, seasoned, and proficient flight crewmembers.

(C) Establish or modify training programs to accommodate substantially different levels and types of flight experience by newly employed flight crewmembers.

(D) Establish or modify training programs for second-in-command flight crewmembers attempting to qualify as pilot-in-command flight crewmembers for the first time in a specific aircraft type and ensure that such programs include leadership and command training.

(E) Ensure that recurrent training for pilots in command includes leadership and command training.

(F) Such other actions as the aviation rulemaking committee determines appropriate to enhance flight crewmember professional development.

Accordingly, as directed by section 206, the FAA convened the MLP ARC to address procedures in these areas.

Section 206 of Public Law 111–216 also requires the FAA to issue an NPRM and final rule based on the ARC recommendations. It further specifies that leadership and command training must include instruction on compliance with flightcrew member duties under § 121.542, the sterile flight deck rule.

Finally, section 206 of Public Law 111–216 requires the FAA to establish a streamlined review process for part 121 air carriers that had, in effect on August 1, 2010, the programs described above. Under the streamlined review process, the FAA must expedite approval of programs that it determines meet the requirements in the final rule.[11]

In addition to the requirements in section 206, Public Law 111–216 also contains a number of related requirements for rulemaking, which have resulted in the following rulemaking initiatives: Pilot Certification and Qualification Requirements for Air Carrier Operations (secs. 216 and 217); Qualification, Service, and Use of Crewmembers and Aircraft Dispatchers (secs. 208 and 209); Safety Management Systems for Domestic, Flag, and Supplemental Operations Certificate Holders (sec. 215); and Pilot Records Database (sec. 203). The FAA also determined that amendments to FSTD qualification and evaluation standards in part 60 were necessary to support the provisions in the Qualification, Service, and Use of Crewmembers and Aircraft Dispatchers final rule and initiated a rulemaking to address this issue.

In 2013, the FAA issued the Pilot Certification and Qualification Requirements for Air Carrier Operations final rule and the Qualification, Service, and Use of Crewmembers and Aircraft Dispatchers final rule. In 2015, the FAA issued the Safety Management Systems for Domestic, Flag, and Supplemental Operations Certificate Holders final rule (80 FR 1308, January 8, 2015).[12] In 2016, the FAA issued the Flight Simulation Training Device Qualification Standards for Extended Envelope and Adverse Weather Event Training Tasks final rule (81 FR 18178, March 30, 2016).[13] The Pilot Records Database rulemaking initiative is in development.

The Pilot Certification rule includes a number of changes that increase the knowledge, qualification, and experience of pilots serving in part 121 operations. Notably, the Pilot Certification rule requires all pilots serving in part 121 operations to hold an airline transport pilot (ATP) certificate with a type rating and requires pilots to complete a minimum of 1,000 hours of relevant operational experience prior to serving as a PIC in part 121 operations. Additionally, the Pilot Certification rule requires pilots, who will serve in part 121 operations, to complete the ATP–CTP prior to ATP certification.[14]

during flight time.'' However, because section 206 uses the terms ''flight crewmember'' and ''pilot'' interchangeably, the FAA assumes that Congress intended the rulemaking requirements of this section to apply to pilots only. Further, because no accidents have been attributed to flight engineer performance and the FAA has not identified any issues related to flight engineer training or professionalism, this NPRM applies to pilots only.

[9] ''Captain'' is an industry term that refers to the PIC.

[10] This recommendation supersedes NTSB Safety Recommendation A–07–8: Work with pilot associations to develop a specific program of education for air carrier pilots that addresses professional standards and their role in ensuring safety of flight. The program should include associated guidance information and references to recent accidents involving pilots acting unprofessionally or not following standard operating procedures.

[11] Existing § 121.405 provides the process by which a certificate holder must seek approval of its training program. Therefore, the streamlining of the review process would take place under the framework of this provision and be managed by the principal operations inspector (POI) responsible for approval of an air carrier's training program. The FAA will provide guidance to POIs on this process upon publication of the final rule.

[12] RIN 2120–AJ86.

[13] RIN 2120–AK08.

[14] The ATP–CTP provides foundational knowledge and competencies to prepare a pilot to enter an air carrier training program. It is designed to bridge the gap between a pilot who holds a commercial pilot certificate and a pilot eligible to operate in an air carrier environment. The ATP–CTP provides academic and simulator training in essential subject areas, such as aerodynamics,

Public Law 111–216 also required the FAA to establish a task force and multidisciplinary expert panels, in addition to the MLP ARC, to further examine existing training program requirements and develop recommendations for improvements. Therefore, the FAA established the following ARCs:

- Stick Pusher and Adverse Weather Event Training ARC (sec. 208 of Pub. L. 111–216) to study and submit to the Administrator a report on methods to increase the familiarity and improve the response of flightcrew members on stick pusher systems, icing conditions, and microburst and windshear weather events.
- Flightcrew Member Training Hours Requirement Review ARC (THRR ARC) (sec. 209 of Pub. L. 111–216) to assess and make recommendations to the Administrator on the best methods and optimal time needed for flightcrew member training in part 121 and 135 air carrier operations; the best methods for flightcrew member evaluation; best methods to allow specific academic training courses to be credited toward the total flight hours required to receive an Airline Transport Pilot certificate; and crew leadership training.
- Air Carrier Safety and Pilot Training ARC (ACSPT ARC) (sec. 204 of Pub. L. 111–216) to evaluate best practices in the air carrier industry and provide recommendations on air carrier management responsibilities for flightcrew member education and support, flightcrew member professional standards, flightcrew member training standards and performance, and mentoring and information sharing between air carriers.

D. Related FAA Actions

To promote pilot professionalism and standardization, the FAA has taken a number of actions through rulemakings and guidance. The FAA first issued the sterile flight deck rule (§ 121.542) to prohibit the performance of nonessential duties by flightcrew members during critical phases of flight, including all ground operations involving taxi, take-off and landing and other flight operations conducted below 10,000 feet, except cruise flight (46 FR 5500, January 19, 1981). The FAA recently amended the sterile flight deck rule to prohibit flightcrew members from using a personal wireless communications device or laptop computer for personal use while at their duty station while the aircraft is being operated. This rule is intended to ensure that certain non-essential activities do not contribute to the challenge of task management on the flight deck or a loss of situational awareness due to attention to non-essential tasks. (Prohibition on Personal Use of Electronic Devices on the Flight Deck final rule, 79 FR 8257, February 12, 2014) [15] (The FAA monitors compliance with this rule during the conduct of enroute inspections.) Training on § 121.542 is currently required during initial and recurrent ground training for all flightcrew members.[16]

On February 27, 2003, the FAA issued Advisory Circular (AC) 120–71A, Standard Operating Procedures for Flight Deck Crewmembers. This AC stressed that safety in commercial operations depends on good crew performance founded on clear, comprehensive, and readily available standard operating procedures.

In response to NTSB Safety Recommendation A–06–7, the FAA issued Safety Alert for Operators (SAFO) 06004 on April 28, 2006, to emphasize the importance of sterile flight deck discipline and fatigue countermeasures, especially during approach and landing.[17]

On July 3, 2007, the FAA issued Safety Alert for Operators (SAFO) 07006, to address procedural intentional non-compliance (PINC) because multiple accidents revealed pilots not adhering to established procedures and airplane limitations when conducting positioning flights.[18] Accordingly, the FAA recommended that certificate holders consider training for management personnel and crewmembers on the hazards associated with positioning flights and PINC principals.

On April 26, 2010, the FAA issued Information for Operators (InFO) 10003, to address flight deck distractions because recent incidents and accidents revealed pilots using laptop computers and mobile telephones for personal activities unrelated to the duties and responsibilities required for conduct of a safe flight. Accordingly, the FAA recommended to Directors of Safety and Directors of Operations that specific policies and training be provided to ensure that distractions in the flight deck are minimized.

To address the significance of human performance factors such as communication, decision-making, and leadership, the FAA issued the Air Carrier and Commercial Operator Training Programs final rule requiring crew resource management (CRM) training for flightcrew members and flight attendants and dispatcher resource management (DRM) training for aircraft dispatchers. (60 FR 65940 December 20, 1995) [19] In this final rule, the FAA stated that the objective of CRM and DRM training was to teach flightcrew members, flight attendants, and aircraft dispatchers to effectively use all available resources (*e.g.* hardware, software, and human resources) to achieve safe and efficient flight operations. Coincident to the final rule, the FAA published AC 120–51B Crew Resource Management Training and AC 121–32 Dispatch Resource Management Training to provide guidance on establishing CRM and DRM training under the broad requirement established by the final rule. The current version, AC 120–51E, stresses that CRM training should focus on the functioning of crewmembers as teams and should include all operational personnel. During the time since publication of the CRM final rule, the agency has revised AC 120–51 three times to address evolving research and concepts of CRM.

The FAA recognizes the need to continue to review air carrier training and qualification regulations, policies, and guidance to ensure they are current and relevant and addresses new technology and research. Therefore, in January 2014, the FAA chartered the Air Carrier Training ARC to provide a forum for the U.S. aviation community to continue to discuss, prioritize, and provide recommendations to the FAA concerning air carrier training.

automation, adverse weather conditions, air carrier operations, transport airplane performance, professionalism, and leadership and development.

[15] RIN 2120–AJ17.

[16] *See* §§ 121.415(a), 121.419(c) and (d), and 121.427(b).

[17] NTSB Safety Recommendation A–06–7: Direct the principal operations inspectors of all 14 CFR part 121 and 135 operators to reemphasize the importance of strict compliance with the sterile flight deck rule. This recommendation was issued after Corporate Air flight 5966 struck trees on final approach and crashed short of the runway at the Kirksville Regional Airport, Kirksville, Missouri, fatally injuring the PIC, SIC, and 11 of the 13 passengers on October 19, 2004. The airplane was destroyed by impact and a post-impact fire. The NTSB determined that the pilots' failure to make standard callouts contributed to the accident, and the pilots' unprofessional behavior during the flight and their fatigue likely contributed to the pilots' downgraded performance. The NTSB issued several safety recommendations in response to this accident, including A–06–7.

[18] Positioning flights include nonrevenue flights, flights to pick up passengers, and ferry flights for maintenance.

[19] RIN 2120–AC79.

E. Flight Crewmember Mentoring, Leadership, and Professional Development Aviation Rulemaking Committee (MLP ARC)

1. Background

On September 15, 2010, the FAA established the MLP ARC as required by Public Law 111–216. The MLP ARC membership consisted of representatives from the Air Line Pilots Association (ALPA), Air Transport Association (ATA) (now known as Airlines for America), Coalition of Airline Pilots Associations (CAPA), National Air Carrier Association (NACA), National Association of Flight Instructors (NAFI), Regional Airline Association (RAA), and the University Aviation Association (UAA).

The Administrator tasked the MLP ARC with developing recommendations to submit to the FAA for rulemaking consideration. Specifically the MLP ARC considered and addressed the topics as required by section 206(a)(1) of Public Law 111–216 and as specified in the ARC charter. The MLP ARC presented its report and recommendations to the FAA on November 2, 2010 (''Report from the MLP ARC'').

NACA filed a dissenting report to the MLP ARC recommendations, asserting that the recommendations were too prescriptive and did not provide sufficient scalability for smaller airlines. A copy of the Report from the MLP ARC, including NACA's dissenting report, has been placed in the docket for this rulemaking.

2. Summary of Recommendations and Dissenting Views

a. Mentoring Programs

Based on section 206(a)(1)(A) of Public Law 111–216, the FAA asked the MLP ARC to consider and address flightcrew member mentoring programs. In response to this tasking, the MLP ARC recommended the creation of two mentoring programs: Long-term career mentoring and flightcrew mentoring. The long-term career mentoring would be accomplished by a relationship between a protégé pilot and a highly experienced senior pilot. Flightcrew mentoring would be facilitated by the short-term relationship between every PIC and SIC protégé that occurs naturally with each crew pairing. The MLP ARC also recommended that career mentors be paired with protégé pilots at the following career milestones: (1) New-hire pilots during their first year following initial hire, (2) operational transitions, and (3) PICs during their first year following upgrade to PIC. Additionally, the MLP ARC recommended that flightcrew mentors submit a protégé report to the career mentor for every crew pairing with a new-hire pilot during the new-hire pilot's first year.

To support FAA analysis of the MLP ARC recommendations related to mentoring, the FAA Civil Aerospace Medical Institute (CAMI), Human Factors Research Laboratory, reviewed mentoring research literature to (1) assess the benefits of mentoring as it was related to improving pilot airmanship, aeronautical decision-making, and professionalism, (2) assess effectiveness of mentoring programs across a range of occupations, and (3) make recommendations regarding the development of mentoring programs, the selection and training of mentors, and the expected benefits to mentors and protégés. CAMI developed a report of the research review and recommendations in a document titled ''Determining the Feasibility and Effectiveness of Aircraft Pilot Mentoring Programs May 2015'' (Report from CAMI). The FAA notes that although the report identifies some limitations in the mentoring research, the report does provide several mentoring program recommendations based on the available literature. The FAA has provided a copy of this report in the docket for this rulemaking.

The FAA agrees with certain elements of the MLP ARC recommendations pertaining to flightcrew member mentoring programs and is proposing PIC mentoring training. However, the FAA does not agree with the MLP ARC recommendation for career mentors and the associated recommendation for PICs to submit a report to the career mentor after every crew pairing with a new-hire pilot. These recommendations do not allow for the many air carrier-specific factors that must be considered in the development, administration, and oversight of a formal pilot mentoring program. Further, the Report from CAMI identified factors such as air carrier culture, goals and objectives as important to the development of a mentoring program. *See* Report from CAMI at p. 20, 21, 30 and 46. The FAA agrees with NACA's recommendation that flexibility must be allowed in the development of a formal pilot mentoring program. The FAA's proposals regarding PIC mentoring training and a formal pilot mentoring program are addressed in further detail in the portion of the document titled ''III. Discussion of the Proposal, D. PIC Mentoring Training'' and ''III. Discussion of the Proposal, I. Pilot Professional Development Committee (§ 121.17).''

b. Professional Development

Based on section 206(a)(1)(B) of Public Law 111–216, the FAA tasked the MLP ARC to consider and address procedures to ''Establish flight crewmember professional development committees made up of air carrier management and labor union or professional association representatives to develop, administer, and oversee formal mentoring programs of the carrier to assist flight crewmembers to reach their maximum potential as safe, seasoned, and proficient flight crewmembers.'' In response to this tasking, the MLP ARC recommended the creation of a Professional Development Steering Committee (PDSC) at each air carrier to meet at least quarterly. The MLP ARC stated that ''[h]aving in place positive programs that continually develop and cultivate professionalism will, in the ARC's view, have a profound impact on safety, standardization, professional ethics, and integrity.'' To this end, the MLP ARC further stated that ''the 14 CFR should provide specific guidance on the responsibility of each air carrier's professional development programs'' and outlined objectives for all stakeholders (*i.e.,* the air carrier, the pilots and the industry). *See* Report from the MLP ARC at p. 7.

The MLP ARC recommended that the PDSC's responsibilities include areas such as professional development, pilot mentoring, and certain pilot training subjects. A number of additional areas of PDSC responsibility contemplated by the MLP ARC fall within the purview of air carrier management (*e.g.,* the hiring process and development of the training program) or are outside of the scope of the tasking (*e.g.,* share de-identified data with industry and academia).

In connection with the tasking to consider flightcrew member professional development committees, the MLP ARC also recommended the creation of a full-time part 119 professional development position dedicated solely to the professional development program at the air carrier. Further the MLP ARC recommended that the individual who holds this position meet the following qualifications: (1) Hold an ATP certificate; (2) have at least 3 years of experience as a part 121 pilot; (3) hold a bachelor's degree; and, (4) be qualified through training, experience and expertise. The MLP ARC also recommended that the PDSC consist of leaders of flight operations management and pilot representatives, such as from the pilots' union, and focus on career

professional development programs specific to the air carrier.

NACA dissented from the recommendation to require a part 119 management official to head the PDSC although it concurred that a professional development position is important. NACA explained that new and smaller airlines commonly employ personnel who fulfill multiple management responsibilities (*e.g.* a small airline's director of safety may also serve as director of security). Further, NACA noted that the qualifications for the part 119 management official recommended by the MLP ARC do not relate to professional development, mentoring, or leadership qualifications.

The FAA agrees with certain elements of the MLP ARC recommendations pertaining to the creation of a professional development steering committee to develop, administer and oversee a formal pilot mentoring program. Consistent with the MLP ARC recommendations, the FAA recognizes the importance of both management and pilot participation in a committee focused on pilot professional development. However, regarding management qualifications, the FAA's proposal balances the MLP ARC recommendations with NACA's dissent. The FAA proposes to require the management representative who serves on such a committee to have certain qualifications to capture relevant operational experience, but is not required to be a part 119 management official. This component of the FAA's proposal is addressed in further detail in the portion of the document titled ''III. Discussion of the Proposal, I. Pilot Professional Development Committee (§ 121.17).''

c. Establish or Modify Training Programs To Accommodate Substantially Different Levels and Types of Experience

Based on section 206(a)(1)(C) of Public Law 111–216, the FAA asked the MLP ARC to consider and address ''Methods to establish or modify training programs to accommodate substantially different levels and types of experience.'' The MLP ARC recommended amendments to the part 121 training content requirements for indoctrination training as the most appropriate means by which to address this tasking.

The MLP ARC recommended that indoctrination training address three broad subject areas: (1) An overview of air carrier management and the pilot union (as applicable); (2) flight operations; and, (3) professional development. The MLP ARC provided a summary of content for each of the three subject areas, noting some degree of overlap with current training content requirements in part 121. The MLP ARC further recommended that part 121 indoctrination training should allow the training to be tailored to each air carrier's equipment and operational environment.

NACA provided a dissenting view with respect to the MLP ARC's indoctrination training recommendations. NACA does not believe the MLP ARC recommendations fulfill the intent of the tasking because the MLP ARC recommended increasing indoctrination training to cover a wider range of topics but did not allow for training to be adjusted for specific pilot groups and assumed all pilot indoctrination training classes are conducted in a similar fashion.

The FAA agrees with the intent of the recommendations to strengthen pilot indoctrination training but has not included amendments to basic indoctrination training in this proposal. The FAA does not believe that the recommended approach to accommodate different levels and types of experience is necessary because of the recent changes to part 121 air carrier pilot certification requirements and the redundancy with other existing training requirements.

The Pilot Certification final rule, issued after the MLP ARC developed its recommendations, requires all pilots in part 121 operations to hold an ATP certificate and a type rating. Further, recognizing pilots come from various backgrounds, the rule requires ATP applicants to complete an ATP–CTP that addresses the potential knowledge gap between a commercial pilot certificate and an ATP certificate. This prerequisite eligibility requirement for an ATP certificate (the ATP–CTP) provides foundational knowledge in many subject areas, including air carrier operations, leadership and command, professional development and crew resource management (CRM). Thus, the Pilot Certification rule requirements raise the baseline knowledge and experience level for pilots prior to serving at an air carrier.

Additionally, as acknowledged by the MLP ARC, much of the content suggested for indoctrination training is currently required by part 121 (*e.g.,* hazardous materials training (subpart Z), icing subjects (§ 121.629), weight and balance (§ 121.419)). In addition, some of the recommended content, such as security training, is required by other federal agency regulations (*e.g.,* aircraft operator's security program training required by the Transportation Security Administration (49 CFR 1544.233)).

The FAA also agrees with the MLP ARC recommendation that indoctrination training should be tailored to the air carrier's unique operational environment. Currently, § 121.415(a)(1)(iii)–(iv) requires indoctrination training to include contents of the air carrier's certificate and operations specifications, and appropriate portions of the air carrier's operating manual. Therefore, the FAA expects that individual air carrier's indoctrination training curriculum is already tailored to its environment in accordance with the existing regulatory requirement in § 121.415(a)(1).

Further, the MLP ARC recommended the inclusion of industry best practices in an Advisory Circular (AC) or a standard training template pertaining to indoctrination training. Since this proposal does not include amendments to basic indoctrination, the FAA has not developed an AC specific to basic indoctrination. However, on March 16, 2010, the FAA published InFO 10002 Industry Best Practices Reference List which provides a comprehensive list of resources available for use in the development of training curriculums.

The MLP ARC also recommended that the PDSC should develop special indoctrination training for all pilots when special events occur in the life of the air carrier, such as mergers or acquisitions, to ensure that all pilots operate from a standard operating procedure. The FAA does not agree with the recommendation to require the PDSC to develop special indoctrination training for special events because current regulations already require air carriers to provide training for special events. Section 121.415(g) requires air carrier training programs to include ground and flight training, instruction, and practice, as necessary to ensure pilots qualify in new equipment, facilities, procedures, and techniques. Thus, an air carrier involved in a merger or acquisition is already required to provide training, as necessary, to ensure all pilots are operating from a standard operating procedure.[20]

Although the FAA has not included the MLP ARC recommendations for amendments to indoctrination training in this proposal, the FAA has proposed a requirement for operations familiarization. This component of the FAA's proposal is addressed in the portion of the document titled, ''III. Discussion of the Proposal, B.

[20] *See* FAA Order 8900.1 Volume 3, Chapter 34, Section 1 for guidance to inspectors regarding mergers and acquisitions.

Operations Familiarization (§ 121.432(d)).''

d. Enhancements To Upgrade Training To Include Leadership and Command Training

Based on section 206(a)(1)(D) of Public Law 111–216, the FAA asked the MLP ARC to consider and address enhancements to upgrade training to include leadership and command. In response to this tasking, the MLP ARC discovered there is wide variation among part 121 air carriers regarding leadership and command training for new PICs. The MLP ARC stated that current part 121 training requirements are ''not written in such a manner to ensure that new captains will receive a comprehensive education on subjects which are foundational to command, leadership, and professionalism.'' *See* Report from the MLP ARC at p. 22. The MLP ARC recommended that part 121 air carriers should develop and implement a leadership and command course for all SICs attempting to qualify as PIC for the first time in a specific aircraft type.

The MLP ARC recommended that this leadership and command course be developed as a training event separate from the normal upgrade syllabus. Additionally, the MLP ARC recommended that the course consist of a minimum of 32 hours of in-person facilitated class discussion separated into two segments; the first segment to be completed prior to upgrade training and the second segment to be completed between 6 and 18 months after the completion of PIC operating experience.

NACA opposed the prescribed 32 hours of in-person, facilitated training. NACA did not oppose leadership and command training, but stated 32 hours of training for one topic was extreme and costly. NACA also stated that each air carrier should be allowed to develop a leadership and command course that best suits that air carrier's needs.

In addition to the MLP ARC, two other ARCs subsequently considered leadership and command training. The ACSPTARC determined that leadership and command courses varied among air carriers and recommended rulemaking and associated guidance to implement leadership and command training for new PICs. The THRR ARC also considered leadership training for all PICs, including the MLP ARC recommendations in this area. The THRR ARC stated that current upgrade training ''does not necessarily provide education to the new PIC on his or her leadership role.'' The THRR ARC also stated that ''Crew Resource Management training, required for all air carriers, contains some elements of the desired leadership training, but is not designed to aid the PIC in assuming a leadership role in the aircraft and the air carrier as the training envisioned by this ARC would.'' *See* Report from the THRR ARC at p. 17. The THRR ARC agreed with the MLP ARC to require leadership and command training for SICs attempting to qualify as PIC for the first time in a specific aircraft type. The THRR ARC also agreed with the MLP ARC that this course should be separate from current upgrade training requirements and consist of two segments. However, the THRR ARC disagreed with the MLP ARC recommendation for a minimum of 32 hours of training. The THRR ARC recommended using an instructional system design (ISD) process which would allow each air carrier to determine the training time. The THRR ARC was also concerned that a prescribed minimum training time would not address scalability concerns of small air carriers.

Additionally, the THRR ARC concurred with the MLP ARC that a facilitated discussion was a key component of a leadership and command course. However, the THRR ARC stated that additional items in a leadership and command course may be suitable for distance learning.

The FAA agrees with the MLP ARC and THRR ARC recommendations to require leadership and command training for all SICs attempting to qualify as PIC for the first time in a specific aircraft type but does not agree with the recommendation that leadership and command training should be separate from the upgrade syllabus. Further, the FAA believes that the MLP ARC recommendations for a specific minimum number of training hours and in-person training are unnecessarily prescriptive. The FAA agrees with the THRR ARC and NACA positions pertaining to the necessity of flexibility in the development of leadership and command training. Accordingly, the FAA is proposing a comprehensive revision to the SIC to PIC upgrade training requirements to include leadership and command training in a performance based curriculum. The FAA's proposals regarding PIC leadership and command training and upgrade training are addressed in further detail in the portion of the document titled ''III. Discussion of the Proposal, C. PIC Leadership and Command Training'' and ''III. Discussion of the Proposal, E. SIC to PIC Upgrade (§§ 121.420 and 121.426).''

e. Enhancements to Recurrent Training To Include Leadership and Command Training

Based on section 206(a)(1)(E) of Public Law 111–216, the FAA asked the MLP ARC to consider and address enhancements to recurrent training to include leadership and command. In response to this tasking, the MLP ARC determined that there is no current regulatory requirement for leadership and command training in recurrent training. The MLP ARC recommended that part 121 air carriers enhance recurrent training by integrating leadership and command components into the various forms of recurrent training (*e.g.* distance instruction, classroom, FSTD briefing, and FSTD training). The MLP ARC recommended that the leadership and command components that an air carrier incorporates into annual recurrent training as emphasis items be determined by the PDSC, with all components being included in recurrent training at least once during a 4-year cycle. Further, the MLP ARC recommended that special emphasis be given to sterile flight deck procedures.

The FAA agrees with the MLP ARC recommendation to include leadership and command in recurrent training and also agrees that the delivery of recurrent leadership and command training may be accomplished through a range of methods. However, the FAA does not agree with the MLP ARC recommendation regarding the frequency for recurrent leadership and command training. Since leadership and command skills are used regularly, during every flight, and therefore are less susceptible to degradation, the FAA does not believe it is necessary to require leadership and command training annually. Further, the FAA does not agree with the MLP ARC recommendation that the PDSC should determine the content of the training. Development of training curriculums is the responsibility of air carrier management. This component of the FAA's proposal is addressed in further detail in the portion of the document titled ''III. Discussion of the Proposal, G. Recurrent Leadership and Command Training and Mentoring Training (§§ 121.409(b) and 121.427).''

f. Other Actions That May Enhance Professional Development

Based on section 206(a)(1)(F) of Public Law 111–216, the FAA asked the MLP ARC to consider and address ''Other actions that may enhance crewmember professional development.'' The MLP ARC made

three recommendations in this area: (1) Enhancements to knowledge tests and practical test standards (PTS); (2) bachelor's degree for pilots in part 121 operations; and (3) leadership and command training for pilots currently employed.

Enhancements to Knowledge Tests and PTS

The MLP ARC stated ''that in order to ensure that an ATP pilot applicant at any part 121 air carrier has a foundational knowledge of the concepts of professional development, leadership, and command; the PTS requirements for the Commercial, Flight Instructor, and ATP certificates should incorporate these elements into the written, practical, and/or oral portions of pilot certification.'' *See* Report from the MLP ARC at p. 29.

The FAA agrees with the intent of the recommendation to ensure ATP applicants at a part 121 air carrier have the foundational knowledge of professional development, leadership and command. However, the FAA does not agree with the recommended approach of amending the PTS because the FAA believes the Pilot Certification rule addressed this recommendation.

As previously discussed, the Pilot Certification rule, issued after the MLP ARC developed its recommendations, requires all pilots in part 121 operations to hold an ATP certificate and a type rating. Further, the Pilot Certification rule requires ATP applicants to complete an ATP–CTP that provides foundational knowledge in leadership and command, professional development, and CRM. Additionally, as stated in the Pilot Certification rule, the ATP–CTP course topics will be incorporated into the ATP knowledge test. *See* 78 FR at 42368.

Bachelor's Degree for Pilots in Part 121 Operations

The MLP ARC recommended that pilots hired by part 121 air carriers be required to have a minimum of a bachelor's degree or equivalent military flight training. NACA provided a dissenting view that many highly qualified and experienced applicants may be eliminated due to this requirement. NACA believes each carrier should be able to set its own hiring qualifications.

As indicated in the 2012 Pilot Source Study, there was no difference in the completion rate of a part 121 air carrier's training program between pilots with a bachelor's degree and pilots without a bachelor's degree.[21] Although the Pilot Source Study did indicate pilots with at least an associate degree in aviation had a higher completion rate of part 121 air carrier training programs, the FAA believes each air carrier should have the flexibility to set its own hiring requirements for higher education. Therefore, this proposal does not include a requirement for part 121 pilots to have a bachelor's degree.

Leadership and Command Training for Pilots Currently Employed

The MLP ARC recommended that each air carrier's PDSC develop a process or training program to ensure that all PICs are qualified in the principles of the entire leadership and command program. In addition, the MLP ARC recommended that each air carrier's PDSC develop a process or training program that ensures all pilots at an air carrier understand the entire professional development and mentoring programs.

The FAA agrees with the intent of the recommendation to ensure all PICs have completed the air carrier's training in leadership and command and is proposing a requirement for all current PICs to complete leadership and command training equivalent to the leadership and command training in the air carrier's upgrade ground training. However, the regulatory framework for part 121 training program designates the development of an approved pilot training curriculum as the exclusive responsibility of air carrier management, not a committee such as the PDSC. This component of the FAA's proposal is addressed in the portion of the document titled, ''III. Discussion of the Proposal, F. Training for Pilots Currently Serving as PIC (§ 121.429).''

Finally, the FAA agrees with the intent of the recommendation to ensure all pilots at an air carrier understand the professional development and mentoring programs. However, the FAA believes this recommendation is the responsibility of each air carrier's Pilot Professional Development Committee (PPDC) in developing, administering, and overseeing a formal pilot mentoring program. Therefore, this proposal does not include a separate requirement to address this recommendation.

III. Discussion of the Proposal

A. Applicability, Effective Date, and Compliance Date

This proposal affects operators that train and qualify pilots in accordance with part 121 and therefore primarily affects certificate holders conducting part 121 operations. Certificate holders that conduct operations under part 121 may train and qualify pilots in accordance with the provisions of current subparts N and O or under an Advanced Qualification Program (AQP) in accordance with subpart Y of part 121. AQP allows for an alternative method for training and evaluating pilots based on instructional systems design, advanced simulation equipment, and comprehensive data analysis to continuously validate curriculums. Requirements of subparts N and O that are not specifically addressed in the certificate holder's AQP continue to apply to the certificate holder and to the individuals being trained and qualified by the certificate holder. *See* § 121.903(b). Although the proposed rule does not make any changes to subpart Y, after the new subparts N and O training requirements become effective (60 days after publication of a final rule in the **Federal Register**), certificate holders that use AQP would have to review their training curriculums to make sure they address the new subparts N and O requirements before the proposed compliance date (24 months after the effective date).

Additionally, the proposal affects some certificate holders conducting part 135 commuter operations.[22] Further, operators conducting operations under 91K or under part 135 authorized to voluntarily comply with subparts N and O of part 121 may also be affected.

For all of the proposals in this NPRM, the FAA is proposing an effective date of 60 days after publication of a final rule in the **Federal Register**. However, the FAA is proposing a delayed compliance date of 24 months after the effective date for the proposals pertaining to operations familiarization, leadership and command training, mentoring training, the revised upgrade curriculum, and the Pilot Professional Development Committee, as indicated in the regulatory text. Under this proposal, all PICs would have to complete leadership and command and mentoring training no later than the compliance date. The FAA expects that the delayed compliance date would allow sufficient time for air carriers to revise training curriculums, receive FAA approval of those curriculums, train the instructors who would conduct

[21] The 2012 Pilot Source Study is available in the docket for this rulemaking.

[22] In accordance with 14 CFR 135.3, a certificate holder that conducts commuter operations under part 135 with airplanes in which two pilots are required by the type certification rules must comply with subparts N and O of part 121 instead of the requirements of subparts E, G, and H of part 135.

the training, and provide this training to all PICs.

In addition, although compliance with the revised upgrade curriculum requirements would not be required until 24 months after the effective date, the FAA proposes to provide flexibility by allowing those air carriers that choose to comply earlier to do so. The proposed revisions to §§ 121.419 and 121.424 would allow an air carrier to include in its approved training program either the existing upgrade curriculum or the revised upgrade curriculum until the compliance date.

B. Operations Familiarization (§ 121.432)

Currently, a pilot newly employed by an air carrier may serve as a pilot in part 121 operations without first observing actual operations conducted by the air carrier. The MLP ARC, however, recommended that all pilots complete one or more observation flights before beginning service with a part 121 operator as one of a number of revisions to air carrier indoctrination training. The MLP ARC identified observation flights as providing a valuable introduction for new-hire pilots to an air carrier's operations and company procedures. The MLP ARC explained that, ''[t]hese flights should be used as an integral part of the indoctrination training process helping to reinforce information learned during training and ease the transition to line operations.'' *See* Report from the MLP ARC at p. 17.

The FAA is aware that some air carriers already recognize the benefit of these flights and currently require operations familiarization flights for newly employed pilots. Additionally, the ACSPT ARC also identified observations flights as a best practice in use at several air carriers. The ACSPT ARC indicated that observation flights allow a new-hire pilot to be better prepared to serve in line operations because the pilot would have gained familiarity with typical line operations ''without becoming task saturated in the control seat of a new, unfamiliar environment.'' *See* Report from the ACSPT ARC at p. 37.

The FAA agrees with the MLP ARC recommendation for observation flights and proposes to add a requirement for newly employed pilots to complete operations familiarization before beginning operating experience and serving as a pilot in part 121 operations for the air carrier.[23] *See* § 121.434. The operations familiarization must include at least two operating cycles[24] during part 121 operations conducted by the air carrier. During the operating cycles, the newly employed pilot must occupy the flight deck observer seat and use a headset that allows the newly employed pilot to listen to the communications between the required flightcrew members and air traffic control. The proposed operations familiarization may occur in any airplane type operated by the air carrier in part 121 operations because the FAA believes that each air carrier's processes are similar among airplane types. Operations familiarization during or soon after the completion of basic indoctrination training would provide newly employed pilots with an opportunity to observe from the flight deck in a real world environment, the unique characteristics of the air carrier's operations and the specialized processes learned during basic indoctrination training.

In order to achieve the operations familiarization goals, the FAA believes that a minimum of two operating cycles are necessary to provide the newly employed pilot with sufficient exposure to an air carrier's operations and processes. During each flight, the newly employed pilot may observe different operational events, processes and briefings (*e.g.,* types of departures and arrivals, airports, ramp operations, checklist sequences, varying weather, and navigation methods). In addition, two operating cycles may allow the newly employed pilot to observe two different flight crews, as well as a complete round trip.

The FAA expects each pilot completing operations familiarization to remain on the flight deck and in the observer seat for takeoff and landing as well as during the en route portion of the flight. These pilots may, however, leave the flight deck to attend to physiological needs, and during long haul operations, for reasonable rest breaks.

Finally, the FAA recognizes that certain airplanes used in part 121 operations do not have an observer seat in the flight deck. Therefore, the proposed rule provides a process for an air carrier to request a deviation from the operations familiarization requirements to meet the learning objectives through another means.

C. PIC Leadership and Command Training

1. General Description and Objectives

Although the MLP ARC and the ACSPT ARC reported that some air carriers provided leadership and command training, the current part 121 training requirements do not specifically require air carrier training programs to include leadership and command instruction. The purpose of leadership and command training is to provide PICs with the leadership and command skills necessary to manage the crew (including flight attendants, if applicable), communications, workload, and decision-making in a manner that promotes professionalism and adherence to standard operating procedures. Accordingly, an air carrier's leadership and command training should include subjects such as leadership characteristics, types of leaders, leadership strategies, roles of a leader, leadership styles, command responsibility and authority, sound decisions and awareness.

Consistent with the MLP ARC recommendation to ensure all PICs are qualified in the principles of leadership and command, the FAA is proposing to require all PICs serving in part 121 operations to complete leadership and command training. Specifically, the FAA is proposing that this training be included during ground and flight training in the PIC upgrade curriculum (or the initial curriculum for the limited circumstance of a new-hire PIC), as well as the PIC recurrent curriculum. The FAA is also proposing that all pilots qualified to serve as PIC prior to the compliance date must complete the PIC upgrade ground training on leadership and command.

The FAA has drafted an AC containing guidelines for the development of leadership and command training and provided a copy of this document in the docket for this rulemaking. The FAA seeks comment on this draft AC.

2. Distance Instruction

Although the MLP ARC recommended facilitated in-person training for leadership and command, this proposal does not place restrictions on distance instruction as long as the leadership and command training objectives can be satisfied. The FAA believes that the MLP ARC and THRR ARC recommendations for a facilitated discussion during leadership and command training can be accomplished either in-person or with existing technology. Moreover, the proposal for leadership and command training is not

[23] The FAA clarifies that a person completing conversion training after serving as a flight engineer for the air carrier is not a ''newly employed pilot.'' This person is completing training to serve in a new flightcrew member duty position but is not ''newly employed'' by the air carrier.

[24] Section 121.431(b) defines operating cycle as ''a complete flight segment consisting of a takeoff, climb, enroute portion, descent, and a landing.''

limited to ground training. The FAA has proposed that leadership and command must be demonstrated during the flight training portion of the upgrade curriculum and during recurrent LOFT. The FAA seeks comment, however, on whether restrictions on distance instruction are necessary to ensure the effectiveness of the leadership and command components of PIC training. The FAA asks commenters to specify whether the curriculum in which leadership and command training is required (*e.g.,* PIC initial, upgrade, recurrent) constitutes a basis for differentiating any restrictions on distance instruction.

D. PIC Mentoring Training

The FAA proposes to require training on mentoring skills for all PICs serving in part 121 operations to establish the mentoring environment recommended by the MLP ARC. The mentoring research literature indicates that mentor training is one of the most important and agreed upon elements for effective mentoring. *See* Report from CAMI p. 22 and 23. The proposed mentoring training would include techniques for instilling and reinforcing the highest standards of technical performance, airmanship, and professionalism in newly employed pilots. By providing mentoring training to all PICs serving in part 121 operations, the opportunity exists for a PIC to mentor an SIC during each duty day. Accordingly, the benefits of SIC mentoring would be maximized by requiring all PICs to complete mentoring training.

This training would be included in the PIC upgrade curriculum (or the initial curriculum for the limited circumstance of a new-hire PIC) and PIC recurrent ground training. The FAA has included mentoring skills in upgrade ground training because it complements the other related PIC ''soft skills'' (*i.e.,* leadership and command and CRM). The FAA believes that collectively these ''soft skills'' would enhance pilot professionalism. Further, all current PICs would also be required to complete the PIC upgrade ground training on mentoring skills to create a comprehensive and consistent mentoring environment.

The FAA has developed a draft AC that provides guidelines for developing and implementing mentoring training for PICs and provided a copy of this document in the docket for this rulemaking. The FAA seeks comment on this draft AC.

In addition, this proposal leverages the experience requirements required by the Pilot Certification rule for all PICs serving in part 121 operations. The Pilot Certification rule raised the experience requirements for all PICs serving in part 121 operations by requiring at least 1,000 hours of air carrier experience.[25] Therefore, the FAA believes the increased experience requirements of the Pilot Certification rule together with this proposal would ensure every newly employed pilot is paired, on every flight, with an experienced pilot who can serve as a mentor.

E. SIC to PIC Upgrade (§§ 121.420 and 121.426)

Currently, subpart N and appendix E of part 121 allow pilots who have previously qualified as SIC on an airplane type to complete upgrade training to qualify as PIC on that same airplane type. *See* §§ 121.400(c)(3), 121.415, and 121.433(a)(2). The upgrade training requirements in subpart N and appendix E of part 121 presuppose that upon entering the upgrade curriculum, the pilot holds only a commercial pilot certificate with a multi-engine land class rating and no type rating on that airplane. As a result of this presupposition, the upgrade training requirements are focused on developing the technical knowledge and skills necessary to hold an ATP certificate and type rating for that airplane. However, the current role served by an SIC in part 121 operations as well as the current SIC qualification requirements no longer support this foundation for upgrade training requirements.

The historic division of responsibilities between the PIC and SIC has advanced over time from a flight deck environment where the PIC typically served as the pilot flying and the SIC typically served exclusively as the pilot monitoring. As this progression occurred, throughout various rulemakings, the FAA has amended the training, qualification, and experience requirements of SICs to recognize this advancement in SIC responsibilities. In the current air carrier environment, both the PIC and SIC share pilot flying and pilot monitoring responsibilities. Thus, in the Pilot Certification rule the FAA determined that it was appropriate to require an SIC to train to the same level of airplane handling and proficiency as the PIC by obtaining an airplane type rating. *See* 78 FR at 42354. As a result, with the Pilot Certification rule, the FAA elevated the qualifications of all SICs.

With the changes put in place by the Pilot Certification rule, all SICs serving in part 121 operations must now hold an ATP certificate and type rating for the airplane in which they serve. Additionally, a pilot must have a minimum of 1,000 hours of air carrier experience to serve as a PIC. This means that SICs will have already demonstrated technical mastery of the airplane at the ATP certificate level when they begin upgrade training. Therefore, the FAA is proposing revised upgrade training requirements to account for this evolution in SIC qualification and experience requirements. The following proposed upgrade training would ensure technical knowledge and skills while focusing on the decision-making and leadership skills required of a PIC serving in part 121 operations.

1. Performance-Based Curriculum

The FAA is proposing a performance-based upgrade curriculum. The proposal removes the requirement to include all existing upgrade ground training subjects required by § 121.419(a) and the § 121.424 requirement to include all appendix E maneuvers and procedures during upgrade flight training. Instead, the proposal refocuses upgrade ground and flight training to include subjects, maneuvers, and procedures specific to the duties and responsibilities the pilot will have as PIC at that air carrier. However, consistent with existing upgrade curriculum requirements, the proposed upgrade flight training continues to include rare, but high-risk scenarios. The FAA believes this approach would continue to allow air carriers to develop a robust upgrade curriculum specific to their operations and airplane types, and provides the opportunity for air carriers to more effectively target PIC-specific responsibilities and duties.

Consistent with existing upgrade curriculum requirements, the proposal does not specify a minimum number of training hours. However, because the FAA has removed the requirement to train the entire range of § 121.419 subjects and appendix E tasks in upgrade training, the FAA believes that the revised upgrade ground training can be completed in less time than the programmed hours currently identified in each air carrier's approved training program and the upgrade flight training can be completed within the same or less time than currently identified in each air carrier's approved training program.

[25] Section 121.436(a)(3) requires a pilot in command serving in part 121 operations to have 1,000 hours as second in command in part 121 operations, pilot in command in operations under § 91.1053(a)(2)(i), pilot in command in operations under § 135.243(a)(1), or any combination thereof.

2. Revised Upgrade Curriculum Requirements

a. Seat Dependent and Duty Position Maneuvers and Procedures

The proposed upgrade ground and flight training must include seat dependent maneuvers and procedures as well as duty position maneuvers and procedures. Seat dependent maneuvers and procedures include the use of systems with controls that are not centrally located, or are accessible or operable from only the left or from only the right pilot seat as identified by the airplane manufacturer, air carrier, or the Administrator as seat dependent tasks. For example, in some airplane types, the tiller used to steer the airplane while taxiing on the ground is only accessible from the left seat. In these airplane types, upgrade training must include the maneuvers and procedures for taxiing from the seat in which the operator expects the PIC to serve.[26] The number of seat dependent maneuvers and procedures would vary among air carriers due to variations in the design of airplane types; some airplane types may not have any seat dependent maneuvers and procedures while other airplane types may have several.

Duty position maneuvers and procedures include tasks specified by the airplane manufacturer, air carrier, or the Administrator, as PIC or SIC only tasks. For example, some air carrier procedures specify that only the PIC may perform a circling approach. In this instance, upgrade training must include the maneuvers and procedures for circling approaches. Additionally, certain maneuvers and procedures require coordinated action between the PIC and SIC to accomplish the maneuver or procedure. For these maneuvers and procedures, the air carrier's standard operating procedures will specify who (SIC or PIC) performs each step of the maneuver or procedure. For example, during engine start, the PIC may perform the communication and coordination with the ramp personnel while the SIC physically turns the switch to engage the engine starter. In this instance, upgrade training must include engine start to train the pilot on the PIC required actions. The duty position procedures and maneuvers would vary by airplane type and air carrier. However, it is expected that all air carriers would have some duty position procedures, such as completion of weight and balance or variations of pre-flight, engine start, taxi and post-flight duties.

b. Leadership and Command and CRM

Under this proposal, upgrade ground training must include leadership and command, as well as CRM. CRM training includes decision making, authority and responsibility, and conflict resolution. The proposed upgrade flight training must include scenario-based training structured to incorporate CRM and leadership and command. The purpose of this scenario-based training is to provide the pilot with an opportunity to use these ''soft skills'' learned in ground training in a realistic flight environment.

Scenario-based training should address specific training objectives based on technical and soft skills. As such, the scenario-based training may consist of full or partial flight segments and would necessarily vary, depending on the training objectives. Examples of scenarios include, but are not limited to, mechanical malfunctions, passenger medical events, changing weather, or security concerns. An effective scenario would provide an opportunity for the PIC to identify available resources, obtain information from those resources, analyze that information, apply decision-making techniques, and communicate and coordinate with ATC, the aircraft dispatcher, and other crewmembers, as appropriate. The FAA believes this scenario-based training would ensure the effective integration of these ''soft skills'' with technical skills.

c. Mentoring

The proposed upgrade ground training must include mentoring, to include techniques for instilling and reinforcing the highest standards of technical performance, airmanship, and professionalism in newly employed pilots.

d. Low-Altitude Windshear and Extended Envelope Flight Training

The proposed upgrade flight training must continue to include training in the rare, but high risk scenarios specified in § 121.423 as well as the carrier's approved low-altitude windshear flight training program.

e. Additional Flight Training

The proposed upgrade curriculum also must include sufficient flight training to ensure the pilot has attained the knowledge and skills to proficiently operate the airplane as a PIC. Under the proposed upgrade curriculum, the air carrier must determine the specific maneuvers and procedures for each airplane type considering its operational factors and authorizations, risks identified through its safety management system (SMS), and other risks identified through programs such as an Aviation Safety Action Program (ASAP), Flight Operational Quality Assurance (FOQA), and Line Operations Safety Audit (LOSA).[27] For example, an air carrier may be authorized by FAA to conduct operations using lower than standard takeoff minima. As a condition of this authorization, each PIC must have completed training in the duty position for the applicable takeoff minima authorized for the air carrier.[28] Therefore, in this instance, upgrade training must include takeoff maneuvers using the lower standard minima authorized for the air carrier.

Additionally, the training must ensure the pilot has developed the visual and psychomotor acuity necessary to operate the airplane from the seat position to be occupied while serving as PIC, typically the left pilot seat. For example, a carrier authorized to conduct circling approaches may determine that the circling approach maneuver is required during upgrade flight training due to the altered visual references available to the pilot from the left pilot seat.

3. Upgrade Proficiency Check Requirements

To ensure a proficient PIC, the FAA proposes to revise the waiver provisions for a § 121.441 proficiency check completed after upgrade ground and flight training. Section 121.441 allows a person conducting a proficiency check to waive certain maneuvers if, among other requirements, the pilot has ''within the preceding six calendar months, satisfactorily completed an approved training program for the particular type airplane.'' This waiver authority is premised on the requirement for the pilot to demonstrate proficiency in all maneuvers and procedures specified in appendix E during flight training. Since the proposed upgrade training requirements do not require pilots to complete all maneuvers and procedures in appendix E during training, proficiency must still be demonstrated for all maneuvers and procedures in appendix F during the proficiency check completed after upgrade training. Accordingly, the waiver provisions in § 121.441 and

[26] Typically, the PIC is assigned to and operates the airplane from the left seat and the SIC is assigned to and operates the airplane from the right seat.

[27] ASAP, FOQA, and LOSA are voluntary programs implemented by many air carriers. Analysis of the data provided by these voluntary programs has contributed to increased safety including improvements to training and operational procedures.

[28] Operations specification C078, IFR Lower Than Standard Takeoff Minim, 14 CFR part 121 Airplane Operations—All Airports

appendix F would no longer be appropriate for the proficiency check completed after upgrade training. The waiver provisions for recurrent proficiency checks and proficiency checks after completion of initial, conversion, or transition training are unchanged.

4. Effect of Revised Upgrade Curriculum on Recurrent Training

To serve as a pilot in part 121 operations, a pilot must satisfactorily complete recurrent ground and flight training within 12 calendar months preceding service as a pilot. *See* §§ 121.427 and 121.433(c). In order to track when this training is due, industry practice is to assign the pilot a ''base'' month; the month when recurrent training is due. A pilot may have a different base month for ground training and flight training. An air carrier may change a pilot's base month (*i.e.,* reset it to an earlier month in the 12-month recurrent interval) if the air carrier ensures that the pilot has met all requirements of recurrent training. Satisfactory completion of a qualification curriculum may provide an air carrier with an opportunity to reset a pilot's base month if the qualification curriculum includes the recurrent training requirements.

Under this proposal, an air carrier may continue to reset a pilot's base month for recurrent flight training if the pilot satisfactorily completes the proposed upgrade flight training and proficiency check. The proposed upgrade requirements continue to meet the recurrent flight training requirements of § 121.427. However, under this proposal, an air carrier may not reset a pilot's base month for recurrent ground training based upon a pilot's satisfactory completion of the proposed upgrade ground training because the proposed upgrade curriculum requirements do not include all the subjects required by § 121.427 for recurrent ground training.

As is the case today, a pilot's base month for recurrent ground training may only be changed upon completion of upgrade ground training if the air carrier's upgrade curriculum includes all recurrent ground training requirements of § 121.427.[29] The FAA is aware that some carriers designed their upgrade curriculums to include all recurrent ground training requirements to change the pilot's base month while other carriers designed their upgrade curriculums to only include the upgrade ground training requirements without a change to the pilot's base month. Therefore, the FAA expects the change to upgrade ground training to have a minimal impact on recurrent training because air carriers may continue to design their upgrade curriculums in the same manner.

F. Training for Pilots Currently Serving as PIC (§ 121.429)

As discussed previously, the MLP ARC recommended that air carriers qualify all PICs in the principles of leadership and command. The MLP ARC also recommended the creation of a mentoring environment by training all PICs on mentoring skills. Consistent with these MLP ARC recommendations, the FAA is proposing that all pilots qualified to serve as PIC prior to the compliance date must complete the PIC upgrade ground training on leadership and command and mentoring.

However, the FAA believes that it is unnecessarily burdensome for PICs to complete the one-time training on leadership and command and mentoring if the PIC has previously completed training that is duplicative of the proposed requirements in § 121.429. The MLP ARC and the ACSPT ARC reported that some air carriers have voluntarily provided leadership and command training to PICs. *See* Report from the MLP ARC at p. 22 and Report from ACSPT ARC at p. 10.

Therefore, the FAA proposes to allow credit toward all or part of the requirements for leadership and command and mentoring training for current PICs based on leadership and command and mentoring training previously completed by these PICs at that air carrier. The FAA seeks comment on the proposal to allow credit for previously completed training at that air carrier, specifically:

(1) Whether and to what extent air carriers are already providing leadership and command training and/or mentoring training for current PICs as described in the draft ACs included in the docket for this rulemaking;

(2) Whether the previous training must have been provided as part of a training program approved by the FAA for that air carrier;

(3) Whether the previous training must have been completed within a certain period of time prior to the effective date of the final rule;

(4) What criteria and documentation should the FAA consider in determining whether all or part of the requirements have been met with previous training; and

(5) What criteria and documentation should the FAA consider in determining whether a PIC completed all or part of the previous training at that air carrier.

G. Recurrent PIC Leadership and Command and Mentoring Training (§§ 121.409(b) and 121.427)

Consistent with the MLP ARC recommendation for enhancing recurrent training, the FAA proposes to require recurrent training on leadership and command for all PICs serving in part 121 operations. The FAA also proposes to require recurrent training on mentoring skills for all PICs serving in part 121 operations.

The purpose of recurrent training is to ensure that flightcrew members remain competent in the performance of their assigned duties. The FAA has previously recognized that the necessary frequency for recurrent training is not the same for all subject areas and tasks. For example, most flight training tasks are required at least every 12 months, however, extended envelope flight training tasks are only required every 24 or 36 months.[30]

The MLP ARC recommended that recurrent training include selected items from leadership and command training every year with all components being included at least once during a 4-year cycle. However, the FAA does not believe that it is necessary to require leadership and command training to be completed on an annual basis. Rather, the FAA believes the appropriate frequency for recurrent leadership and command and mentoring training is at least once every 36 months because these skills are used regularly, during every flight, and therefore are less susceptible to degradation. Therefore, the FAA proposes to require recurrent ground training on leadership and command and mentoring for PICs every 36 calendar months.

Currently, air carriers may substitute LOFT that meets the requirements of § 121.409, for the recurrent proficiency check requirement specified in § 121.441. LOFT is flight training conducted in an FFS using real-time scenarios of complete flight segments that address normal, non-normal, or emergency procedures and provides training in CRM. The FAA proposes to modify the existing recurrent LOFT scenario requirements in § 121.409. Specifically, the FAA proposes that the LOFT scenario must provide each PIC an opportunity to demonstrate leadership and command. This proposed amendment to recurrent LOFT is consistent with the proposal for upgrade flight training to include scenario-based training that

[29] *See* FAA Order 8900.1, Volume 3, Chapter 19, Section 10.

[30] *See* §§ 121.423 and 121.427.

incorporates leadership and command skills. Additionally, it would provide an opportunity for the PIC to practice the integration of leadership and command skills with technical skills. The proposed requirement to include leadership and command skills during recurrent LOFT does not place any additional FFS time burden on air carriers who substitute LOFT for recurrent proficiency check requirements because the requirement can be met during the ordinary course of any LOFT that is currently part of an air carrier's training program. However there may be some burden due to the need to amend an air carrier's training program. This burden has been reflected in the information collection requirements that are discussed in Section IV Regulatory Notices and Analyses, E. Paperwork Reduction Act.

H. Leadership and Command Training and Mentoring Training for SICs Serving in Operations That Require Three or More Pilots

The FAA's proposal to provide leadership and command training and mentoring training to PICs is consistent with the rulemaking requirements in Public Law 111–216. However, the FAA has long recognized that a pilot who serves as SIC in an operation that requires three or more pilots must be fully qualified to act as PIC of that operation (except for operating experience).[31]

Based on the current requirement for the SIC serving in an augmented flightcrew to be fully qualified to act as PIC, the FAA is considering including the requirements for leadership and command training and mentoring training in the requirements for these SICs.[32] Accordingly, the FAA seeks comment on the following:

(1) Whether the PIC leadership and command training should be included in the qualification requirements for pilots serving as the SIC in an augmented flightcrew;

(2) Whether mentoring training should be included in the qualification requirements for pilots serving as the SIC in an augmented flightcrew;

(3) Whether providing training in only one of the new subject areas (*i.e.,* only leadership and command training or only mentoring training) would reduce the effectiveness of the training for these SICs; and

(4) Whether providing training in only one of the new subject areas (*i.e.,* only leadership and command training or only mentoring training) would reduce the effectiveness of the requirement for the SIC in an augmented flightcrew to be fully qualified to act as PIC.

I. Pilot Professional Development Committee (§ 121.17)

Public Law 111–216 and the MLP ARC report suggest that air carriers can maximize the benefits of the existing pilot operating rules and pilot training and evaluation through formal pilot mentoring programs. Accordingly, the FAA proposes to add a requirement for certificate holders conducting operations under part 121 to establish and maintain a pilot professional development committee (PPDC) to develop, administer, and oversee a formal pilot mentoring program.

The FAA's proposal to require each certificate holder conducting part 121 operations to establish a PPDC is based on the premise that the PPDC must consider the attributes of the carrier itself in order to design a mentoring program. The mentoring research literature indicates one mentoring program approach will not necessarily fit all air carriers and it is important that the goals and objectives of the mentoring program are firmly tied to the air carrier's culture. *See* Report from CAMI pp. 20, 21, 30 and 46. Therefore, to develop, administer, and oversee a formal pilot mentoring program, the FAA believes the PPDC would need to consider many factors, including the air carrier's size and scope of operation (*e.g.,* number of pilots, number of aircraft, number of operations, types of operations, and locations of operations), unique organizational culture, and unique hiring and advancement practices. For example, the pilots at a smaller air carrier with few bases of operation may have more frequent opportunities for ''in person'' mentoring during the course of a duty day than pilots at a larger air carrier with numerous bases and pilots. Alternatively, pilots at larger air carriers may utilize technology (*e.g.* video conferencing) to create mentoring opportunities. These are just two examples of why the FAA believes the parameters for a formal pilot mentoring program must be designed by the PPDC for each air carrier.

The FAA proposes to require the PPDC to meet frequently enough to accomplish the objectives of the committee. Although the MLP ARC recommended quarterly meetings, the FAA believes that the same factors would affect the frequency of meetings. For example, the PPDC at a small carrier with limited hiring and advancement may not need to meet as frequently as at a larger carrier in order to accomplish and sustain the same mentoring program objectives. However, the FAA expects that in order for the PPDC to be effective, the committee must meet at least once a year. The FAA further notes that an air carrier may take advantage of existing labor-management collaborative initiatives and incorporate the PPDC into an existing committee structure.

The proposal includes minimum staffing requirements for the PPDC. Specifically, the FAA proposes that the PPDC must consist of at least one management representative and at least one representative of the air carrier's pilots. The FAA believes that mentoring programs at each air carrier would realize the most benefit by including the perspective and participation of both the air carrier's management and its pilots.

The FAA used the term management representative to mean any person who has been designated to represent management's perspective on pilot mentoring. The FAA does not believe that it is necessary to require a part 119 management official to oversee the committee. Therefore, to account for the varying sizes and organizational structures of part 121 air carriers, the FAA proposal specifies qualification requirements for the management representative who serves on the committee instead of adding a requirement for a new part 119 management official to serve this purpose.

The proposal requires at least one management representative who serves on the carrier's PPDC to (1) have at least 1 year experience serving as a PIC in part 121 operations, and (2) be qualified through training, experience, and expertise relevant to the PPDC's responsibilities. The specific qualifications for the management representative are intended to capture relevant operational experience and do not include the MLP ARC recommendation for a bachelor's degree because a highly qualified and experienced person could be eliminated with this requirement.

The FAA has developed draft guidance pertaining to a PPDC and the development, administration, and oversight of a formal pilot mentoring program. The FAA seeks comment on this draft guidance which can be found in the docket for this rulemaking.

The FAA also seeks comments on whether a PPDC and a formal pilot mentoring program is necessary in light of the FAA's proposal to require all PICs

[31] *See* § 121.432(a).

[32] An augmented flightcrew is a flightcrew that consists of more than the minimum number of flightcrew members required by the airplane type certificate to operate the airplane to allow a flightcrew member to be replaced by another qualified flightcrew member for in-flight rest.

to complete mentoring training, including recurrent mentoring training. Although addressed in full in the ''PIC Mentoring Training'' discussion in this preamble, by providing training on mentoring to all PICs, all newly employed SICs would be paired with a pilot who is prepared and has been trained to instill and reinforce the professionalism, skill, and knowledge expected of all pilots serving in part 121 operations.

J. Pilot Recurrent Ground Training Content and Programmed Hours (§ 121.427)

Currently, § 121.427 specifies the minimum content and training hours for pilot recurrent ground training. The minimum content requirements include instruction in the subjects required for initial ground training.

Prior to the Pilot Certification rule, § 121.419 contained pilot initial ground training requirements applicable to all pilots in part 121 operations. However, the Pilot Certification rule resulted in different initial ground training requirements for pilots who have completed the ATP–CTP.

The Pilot Certification rule created new prerequisite certification training (*i.e.*, the ATP–CTP) and experience requirements that pilots must now achieve before starting initial training at an air carrier. The ATP–CTP requirements include ground training in general knowledge areas for airplanes and environments relevant to air carrier operations. As a result, the ATP–CTP establishes a foundational knowledge base that additional airplane type-specific and air carrier-specific qualification training is built upon when a pilot completes training at an air carrier.

In the Pilot Certification rule, the FAA recognized that a number of the general knowledge elements that are included in pilot initial ground training in § 121.419(a)(1) are now addressed by the ATP–CTP academic requirements. Therefore, in § 121.419(b), the Pilot Certification rule revised the part 121 initial ground training requirements by removing the generic elements for pilots who have completed the ATP–CTP.[33] As a result of the revisions to the required initial ground training subjects for pilots who have completed the ATP–CTP, the Pilot Certification rule also reduced the minimum programmed hours for this revised initial ground training by 10 hours. *See* § 121.419(d).

When the FAA revised the initial ground training subjects, the FAA did not address the effects of this change on recurrent ground training. Since the required content of recurrent ground training is based, in part, on the content of initial ground training, the content of recurrent ground training may also be reduced for pilots who have completed the revised initial ground training requirements. For these pilots, the recurrent ground training requirement to include initial ground training is satisfied by including only those initial ground training subjects in § 121.419(b). Currently, recurrent training for pilots who have not completed the ATP–CTP must continue to include those initial ground training subjects in § 121.419(a). However, there is no basis for differentiating recurrent ground training requirements based on different initial ground training requirements.

In the time since the part 121 recurrent training requirements were established, the qualification, experience, and training requirements for all pilots in part 121 operations have significantly increased; the latest changes resulting from both the certification standards from the Pilot Certification rule and the additional knowledge and skill requirements required from the Qualification, Service, and Use of Crewmembers and Aircraft Dispatchers final rule. Further, air carrier training programs have also evolved in their maturity such that the general knowledge elements are no longer necessary to support the objectives of recurrent training.

Accordingly, the FAA proposes to remove from the recurrent ground training requirements, certain foundational knowledge elements that are no longer necessary in light of the maturity of air carrier training programs and the increase in pilot experience and qualification. This creates a single standard for recurrent ground training requirements.[34]

Given the proposed reduction in recurrent ground training content, the FAA further proposes a reduction in required minimum programmed hours for pilot recurrent ground training. Although the FAA does not require a specific amount of minimum time for each particular subject, after comparing the subjects required during recurrent ground training prior to and after the Pilot Certification rule, the FAA believes that a one hour reduction in required minimum programmed hours for pilot recurrent ground training is appropriate. Accordingly, the FAA proposes to further amend § 121.427 by reducing by one hour the minimum programmed hours required annually for pilot recurrent ground training.

Notwithstanding this proposal, pilots must still complete recurrent extended envelope ground training and the associated programmed hours. Also, in addition to the annual minimum programmed hours, the FAA proposes that PICs must complete leadership and command and mentoring training every 36 months.

K. Part 135 Operators and Part 91 Subpart K Program Managers Complying With Part 121, Subparts N and O

In addition to air carriers conducting part 121 operations, some additional operators use pilot training and qualification programs that comply with subparts N and O of part 121. Those operators include the following:

- Operators conducting commuter operations with airplanes in which the airplanes' type certificate requires two pilots are required by § 135.3(b) to comply with the training and qualification requirements in subparts N and O of part 121 instead of the requirements in subparts E, G, and H of part 135.[35]
- Operators conducting part 135 operations authorized to voluntarily comply with the training and qualification requirements in subparts N and O of part 121 instead of the requirements in subparts E, G, and H of part 135.[36]
- Fractional ownership program managers conducting operations under subpart K of part 91, authorized to

[33] For example, the ATP–CTP must include instruction on transport category aircraft performance. As indicated in AC 61–138 Airline Transport Pilot Certification Training Program, instruction on transport category aircraft performance should include an introduction to air carrier weight and balance systems. Therefore, for pilots who have completed the ATP–CTP, the Pilot Certification rule revised the initial ground training requirements to remove ''principles of weight and balance'' and focus the training on the air carrier's specific method for determining weight and balance.

[34] To implement the proposed amendments to recurrent ground training content for pilots, the FAA proposes revisions to § 121.427(b), that separate the recurrent ground training requirements by training population. Additionally, the FAA proposes to remove from § 121.427(b), the reference to § 121.805 because of the requirement in § 121.415(a)(3) to complete § 121.805 training.

[35] 14 CFR 110.2 definition of commuter operation.

Commuter operation means any scheduled operation conducted by any person operating one of the following types of aircraft with a frequency of operations of at least five round trips per week on at least one route between two or more points according to the published flight schedules:

(1) Airplanes, other than turbojet-powered airplanes, having a maximum passenger-seat configuration of 9 seats or less, excluding each crewmember seat, and a maximum payload capacity of 7,500 pounds or less; or

(2) Rotorcraft.

[36] *See* § 135.3(c).

voluntarily comply with the training and qualification requirements in subparts N and O of part 121 instead of the requirements in 14 CFR 91.1065 through 91.1107.[37]

Sections 135.3 and 91.1063, which allow, and in some cases require, operators to train and qualify pilots under part 121, raise the training requirements for these other operators and permits them to benefit from the more balanced mix of training and checking in part 121 (versus the testing and checking emphasis in part 135 and 91K). *See* 60 FR 65940, December 20, 1995 (Air Carrier and Commercial Operator Training Programs final rule (RIN 2120–AC79)), 66 FR 37520, July 18, 2001 (Regulation of Fractional Aircraft Ownership Programs and On-Demand Operations NPRM (RIN 2120–AH06)). However, some of the proposed revisions to part 121 in this NPRM are not compatible with all part 135 and 91K operations because of differences between the requirements for minimum flight crew and pilot certification.

First, for these other operators who either choose or are required to train and qualify pilots in accordance with part 121 requirements, the part 121 SIC certification requirements do not apply. SIC pilots serving in these operations are not required to hold an ATP certificate or type rating in the airplane in which they serve. However, this NPRM includes proposed revisions to the upgrade curriculum requirements in subpart N of part 121 based on the presupposition that the pilot entering the upgrade curriculum already holds an ATP certificate and type rating for the airplane. Since this presupposition is not applicable to pilots serving in part 135 and 91K operations, the FAA proposes to retain the existing upgrade curriculum requirements for part 135 operators and fractional ownership program managers who use a part 121 subparts N and O training and qualification program.

Second, unlike part 121 operating rules which require at least two pilots for all operations (§ 121.385(c)), certain operations under parts 135 and 91K may be conducted with only one pilot. The proposed leadership and command and mentoring enhancements to part 121 training programs were developed based on the assumption by the MLP ARC and the FAA that at least two pilots are serving on the flight deck during operations. Since this assumption is not applicable to all part 135 and 91K operations, for these other operators who choose to train and qualify pilots in accordance with part 121 requirements, the FAA proposes to limit the applicability of the leadership and command and mentoring training to pilots in command serving in operations that require two or more pilots.

The remaining proposed amendments to subparts N and O of part 121 would apply to these other operators. The FAA notes that the proposal for a PPDC would not apply to these other operators because this provision is proposed in subpart A of part 121.

The FAA also proposes to revise § 121.431(a)(1) to remove language that is redundant to § 135.3(b) and (c). The FAA believes § 135.3(b) and (c) adequately address the requirements for part 135 operators who choose, or are required, to train and qualify pilots under part 121.

L. Flight Simulation Training Device (FSTD) Conforming Changes

In a 1996 final rule, Advanced Simulation Plan Revisions, the FAA replaced the terminology used in appendix H to part 121 to identify the varying capabilities of the different simulators at that time (61 FR 30726, June 17, 1996).[38] Then, in a 2006 final rule, Flight Simulation Training Device Initial and Continuing Qualification and Use, the FAA added part 60 to title 14, providing requirements for the evaluation, qualification, and maintenance of FSTDs (71 FR 63392, October 30, 2006).[39] Based on the changes made by these two final rules, the Pilot Certification rule as well as the substantive proposals found elsewhere in this NPRM, the FAA proposes a number of conforming changes throughout subparts N and O, and appendices E, F and H as described in more detail in the following discussion.

References to FSTDs in subparts N and O and appendices E and F have been updated to reflect current terminology. Specifically, references to visual simulators (Level A FFS) and advanced simulators (Level B, C and D FFS) have been updated to reflect current terminology and all references to simulation technology that no longer exists have been removed.

As a result of the terminology updates and the commonality in training maneuvers and procedures across qualification curriculum categories, the FAA is proposing revisions to appendices E and F to consolidate the columns identifying the FSTD or airplane required for the completion of each maneuver or procedure. There is only one substantive change to a required maneuver or procedure in appendices E and F. This change is described later in the preamble discussion pertaining to preflight visual inspection using pictorial means.

In § 121.439, the FAA proposes to update the references to visual simulators (Level A FFS) and advanced simulators (Level B, C and D FFS) to reflect current terminology. In addition, the FAA clarifies that a Level A FFS may not be used to satisfy the requirements of this section because a Level A FFS cannot be qualified under part 60 for takeoff and landing tasks. Accordingly, all requirements associated with completing takeoffs and landings in a Level A FFS have been removed from this section.

The FAA proposes to remove the experience requirements for use of a Level C FFS and to conform appendix H terminology with subparts N and O.

The current distinction in capabilities between a Level C and Level D FFS is negligible. The primary difference that exists today between a Level C and a Level D FFS is the evaluation of vibration and sound. Level D evaluation involves objective criteria while Level C evaluation of vibration and sound is subjective. Additionally, the FAA considered the increase in the baseline qualification and experience requirements for all pilots engaged in part 121 operations put into place by the Pilot Certification rule. Based on the current simulation technology and current part 121 pilot qualification and experience, the FAA has determined that the appendix H experience requirements for use of a Level C FFS are unnecessary.

The FAA further notes that removing the experience requirements for use of a Level C FFS is consistent with Exemption No. 5400 as amended over the last 22 years. In 1992, the FAA first issued Exemption No. 5400 to the member airlines of the Air Transport Association of America (now Airlines for America), and ''other similarly situated Part 121 air carriers.'' This exemption allows air carriers to conduct pilot training in a Level C FFS while providing an exemption from the pilot experience requirements in appendix H. At the time of this first exemption, the FAA recognized that more than a decade of experience with training and checking under appendix H had proven these experience requirements to be excessively conservative. This exemption has been extended multiple times without any adverse impact on safety and is still in place today. *See* FAA Exemption No. 5400L, Regulatory Docket No. FAA–2001–10676.

However, the FAA notes that the experience requirements in § 61.64 for

[37] *See* § 91.1063(b).

[38] RIN 2120–AF29

[39] RIN 2120–AH07

use of a Level C or D FFS still apply to practical tests for type ratings conducted in a part 121 training and qualification program. The experience requirements in § 61.64 ensure that a pilot has minimum level of inflight experience in a turbojet airplane or turbo-propeller airplane, as applicable, prior to serving as PIC in operations under any part of title 14 in a turbojet or turbo-propeller airplane that requires a type rating.

The floating paragraph below § 121.409(b)(3) requires the Administrator or a check airman to ''certify'' satisfactory completion of a course of training conducted in a simulator. This provision was implemented at a time when simulator technology was new and unproven. As technology advanced, the FAA incrementally raised the standards for performance of simulators, while simultaneously increasing the allowance for training and checking in a simulator. As a result, the FAA believes that training conducted in FFS is effective and believes that the certification required by an instructor in accordance with existing § 121.401(c) is sufficient.[40] Therefore, the FAA proposes to remove the floating paragraph below § 121.409(b)(3) because the FAA is confident in the effectiveness of today's simulation technology and the instruction that occurs.

M. SIC Training and Checking Conforming Changes

1. Amendments to Training Requirements in Appendix E to Part 121

Certain maneuvers and procedures in appendix E to part 121 are limited to PIC training. Those maneuvers and procedures are as follows: Steep turns, zero-flap approaches and landings, landing and go around with the horizontal stabilizer out of trim, and maneuvering to a landing with a simulated powerplant failure. Additionally, depending on the air carrier's policies, circling approaches may also be limited to PIC training. However, in this NPRM, the FAA proposes to require that SIC training include these maneuvers in order to align appendix E with the training requirements in § 61.71(b). The Pilot Certification rule requires all SICs serving in part 121 operations to hold a type rating. To obtain a type rating within a part 121 training program, § 61.71(b)(1) requires the pilot to satisfactorily accomplish an approved training program and proficiency check for that airplane type that includes all the tasks and maneuvers required to serve as PIC in accordance with subparts N and O of part 121. Therefore, § 61.71(b)(1) already requires an SIC obtaining a type rating in a part 121 training program (*i.e.*, during initial, transition, or conversion) to complete training on those maneuvers and procedures in appendix E that are currently limited to PIC training.

The FAA recognizes that there are limited instances in which a part 121 SIC obtains a type rating prior to employment at a part 121 air carrier.[41] However, to ensure all SICs at the air carrier have been trained to the same standards at that specific air carrier, the FAA is proposing that all SICs be trained by that air carrier on the maneuvers and procedures in appendix E that are currently limited to PIC training, regardless of whether the SIC already holds a type rating. The FAA believes that the effect of this proposed change is minimal because in the limited instances that an SIC holds a type rating, it is expected that the SIC should be able to complete the flight training in less time than an SIC who does not hold a type rating. In accordance with § 121.401(e), a pilot who progresses successfully through flight training, is recommended by an instructor or check airman, and successfully completes the appropriate proficiency check, is not required to complete the programmed hours of flight training for the particular airplane type. Additionally, an air carrier may develop and submit for approval a reduced training hour curriculum based on specific prerequisites.[42] For example, a carrier could have an initial Boeing 737 SIC curriculum for pilots who do not hold a Boeing 737 type rating and a second initial Boeing 737 SIC curriculum that requires less flight training hours for pilots that already hold a Boeing 737 type rating.

2. Amendments to Proficiency Check Requirements in Appendix F to Part 121

Two maneuvers and procedures in appendix F to part 121 are limited to PIC proficiency checks: steep turns and a second missed approach. Additionally, depending on the air carrier's policies and airplane types, some maneuvers and procedures may be limited to PIC proficiency checks: taxiing, circling approaches, maneuvering to a landing with simulated powerplant failure, and two actual landings. However, as previously discussed, § 61.71(b)(1) requires an SIC obtaining a type rating within a part 121 training program to complete a proficiency check which includes all tasks and maneuvers required to serve as PIC. Therefore, the FAA has amended appendix F to indicate that these maneuvers and procedures are required for SICs completing a proficiency check to obtain a type rating.

3. Amendment to § 61.71

As previously discussed, current § 61.71(b)(1) requires a pilot obtaining a type rating within a part 121 training program to satisfactorily accomplish an approved training program and proficiency check for that airplane type that includes all the tasks and maneuvers required to serve as PIC in accordance with the requirements of subparts N and O of part 121.

Currently, as required by § 121.424, PIC initial, transition and upgrade flight training includes the same tasks and maneuvers. However, this NPRM includes proposed revisions to the tasks and maneuvers required for upgrade flight training. Accordingly, without a clarification to § 61.71(b)(1), the proposed changes to the upgrade curriculum could result in confusion as to which tasks and maneuvers are required under § 61.71(b)(1) since the tasks and maneuvers required to serve as PIC would vary for initial, transition, and upgrade training. Therefore, the FAA is proposing a change to § 61.71(b)(1) to clarify that a pilot obtaining a type rating within a part 121 training program must satisfactorily accomplish the same tasks and maneuvers required by § 121.424 to serve as PIC.

[40] Section 121.401(c) states, Each instructor, supervisor, or check airman who is responsible for a particular ground training subject, segment of flight training, course of training, flight check, or competence check under this part shall certify as to the proficiency and knowledge of the crewmember, aircraft dispatcher, flight instructor, or check airman concerned upon completion of that training or check. That certification shall be made a part of the crewmember's or dispatcher's record. When the certification required by this paragraph is made by an entry in a computerized recordkeeping system, the certifying instructor, supervisor, or check airman must be identified with that entry. However, the signature of the certifying instructor, supervisor, or check airman is not required for computerized entries.

[41] For example, a pilot may seek type rating training from a part 142 training center. Part 142 airplane type rating training courses are based on the Airline Transport Pilot and Aircraft Type Rating Practical Test Standards for Airplane (FAA–S–8081–5, current edition) (ATP PTS) which includes the PIC-only tasks and maneuvers in appendix E. Although not specifically required by part 142 regulations, all part 142 airplane type rating courses include these tasks and maneuvers since their training courses are based on the ATP PTS.

[42] *See* FAA Order 8900.1, Volume 3, Chapter 19, Section 1.

N. Other Conforming and Miscellaneous Changes

1. Pilot Transition Ground Training Content (§ 121.419)

The FAA proposes to align the subject area requirements for pilot transition ground training with the subject area requirements for initial ground training for pilots who have completed the ATP–CTP.[43] Prior to the Pilot Certification rule, the subject areas for pilot initial ground training and pilot transition ground training were the same. However, the Pilot Certification rule revised the initial ground training subject areas for pilots who have completed the ATP–CTP because the FAA recognized that a number of the general knowledge elements that are included in pilot initial ground training in § 121.419(a)(1) are now addressed by the ATP–CTP. Therefore, the Pilot Certification rule revised the subjects in part 121 pilot initial ground training to remove the generic elements for pilots who have completed the ATP–CTP. The initial ground training subjects specific to each airplane type remain unchanged.

In order for a pilot to complete the transition curriculum requirements to qualify to serve on an airplane of a different type, a pilot must have previously qualified and served in the same duty position (*i.e.*, PIC or SIC) on another airplane of the same group.[44] Therefore, prior to commencing transition training, a pilot would have already satisfactorily completed training in the foundational knowledge elements either during initial ground training with the air carrier or during the ATP–CTP. Additionally, the pilot would have previously demonstrated proficiency in these foundational knowledge elements during at least one proficiency check conducted by a check pilot.

In recognition of the transitioning pilot's previous training in foundational knowledge elements combined with the recent increase in qualification and experience required to serve as a pilot in part 121 operations, and the evolution of air carrier training programs discussed earlier in this preamble, the FAA proposes to align the required transition ground training subjects with the required initial ground training subjects as revised by the Pilot Certification rule. As a result, the foundational knowledge elements removed from the initial ground training curriculum in the Pilot Certification rule would no longer be required for transition ground training.[45] The airplane type specific training requirements remain unchanged.

2. Conversion Training (§§ 121.400, 121.415, 121.419, 121.424)

Currently, the term ''upgrade'' applies to part 121 training to allow SICs who previously served on an airplane type to serve as PICs on the airplane type. Upgrade also applies to training to allow flight engineers who previously served on an airplane type to serve as SICs on the airplane type. The FAA has proposed to rename the training provided to flight engineers qualifying as SICs to distinguish this training from the SIC to PIC upgrade training. The proposed new term for flight engineer to SIC training is ''conversion.''

Additionally, for flight engineers who have completed the ATP–CTP, the FAA proposes to align the subject areas for conversion ground training with the subject areas for initial ground training for those pilots who have completed the ATP–CTP. Prior to the Pilot Certification rule, the subject areas for pilot initial ground training and flight engineer upgrade ground training (now identified as conversion training) were the same. The Pilot Certification rule revised the subject areas for initial ground training for pilots who have completed the ATP–CTP. However, the Pilot Certification rule did not address the effect of the ATP–CTP on flight engineer upgrade ground training (now identified as conversion training). With the changes put in place by the Pilot Certification rule, flight engineers who complete conversion training must also hold an ATP certificate prior to serving as an SIC in part 121 operations. Therefore, for flight engineers who have completed the ATP–CTP, the FAA proposes that conversion ground training consist of the same subject areas as initial ground training for those pilots who have completed the ATP–CTP.

3. Preflight Visual Inspection Using Pictorial Means

Part 121 appendix E requires initial, transition, and upgrade training to include the preflight visual inspection of the exterior and interior of the airplane, the location of each item to be inspected, and the purpose for inspecting it. Additionally, the proficiency check requirements in appendix F require the pilot to conduct an actual visual inspection of the exterior and interior of the airplane, locating each item and explaining briefly the purpose for inspecting it.

In 1985, the FAA first issued Exemption No. 4416 to the member airlines of the Air Transport Association of America (now Airlines for America), and any other qualifying part 121 certificate holder, to allow the preflight visual inspection to be trained and checked using pictorial means as long as certain conditions and limitations were met. There has been no adverse impact on safety as a result of this exemption. Accordingly, the FAA has extended Exemption No. 4416 multiple times and it is still in use today. *See* Exemption No. 4416P, Regulatory Docket No. FAA–2002–12831.

Instead of continuing to extend Exemption No. 4416, the FAA proposes to amend appendices E and F to allow pictorial means for the conduct of the preflight visual inspection. Consistent with the exemption, the pictorial means must be approved by the Administrator and must provide for the portrayal of normal and abnormal conditions of preflight inspection items. Additionally, if the pictorial means was used during the proficiency check, the pilot must demonstrate proficiency on at least one complete visual inspection of a static airplane before the completion of operating experience required by § 121.434. This means that the demonstration of proficiency may occur at any time between the satisfactory completion of the proficiency check and the completion of all required hours of operating experience. A check pilot must certify the pilot's proficiency on visual inspection before the pilot completes the operating experience required by § 121.434.

IV. Regulatory Notices and Analyses

A. Regulatory Evaluation

1. Introduction

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), as amended, prohibits agencies from setting standards that create unnecessary

[43] Transition training applies to a pilot who has previously qualified and served in the same duty position on another airplane of the same group. *See* §§ 121.400(c)(2) and 121.433(a)(1).

[44] For the purpose of subpart N, airplanes are divided into two groups. Group I includes propeller driven airplanes and group II includes turbojet powered airplanes. *See* § 121.400.

[45] The FAA notes that unlike initial and recurrent ground training, part 121 does not provide a minimum number of programmed hours for the transition ground training requirements.

obstacles to the foreign commerce of the United States. In developing U.S. standards, the Trade Agreements 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 this 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, the 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 ''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.

2. Total Benefits and Costs of This Rule

The October 14, 2004 crash of Pinnacle Airlines flight 3701 in Jefferson City, Missouri and the February 12, 2009 crash of Colgan Air flight 3407 near Buffalo, New York are examples of past accidents where unprofessional pilot behavior contributed to the accident. These accidents provide a qualitative analysis of the expected benefits of the proposed rule because quantified benefits related to the accidents are attributed to earlier rules. However, these accidents exemplify the types of accidents that the proposed rule intends to prevent as issues addressed by this rule were present in these accidents; therefore the FAA believes further rulemaking is appropriate. The benefits of the training in the proposed rule include an increased level of safety from mitigation of unprofessional pilot behavior which would reduce pilot errors that can lead to a catastrophic event.

Moreover the proposed rule responds to the statutory requirement for a rulemaking in Public Law 111–216 and to unresolved NTSB recommendations.

Additionally, by reducing subjects in pilot recurrent ground training and upgrade training, the proposed rule would generate savings to operators of $72 million over a 10-year period. When discounted using a 7 percent discount rate, the proposed rule would result in savings of $46 million over the same period.

The estimated cost of the proposed rule to air carriers is $68 million over a 10-year period. When discounted using a 7 percent discount rate, the proposed rule is estimated to result in costs of $47 million over the same period. Detailed benefit and cost information follows below.

3. Who is potentially affected by this rule?

The proposed rule would apply to all part 121 air carriers (78) and, for some provisions, to part 135 operators conducting commuter operations in airplanes type certificated for two pilots (3).[46]

4. Assumptions

The key elements used in framing the regulatory evaluation are as follows:

- Discount Rates: [47] 7% and 3%
- Period of Analysis: 2015–2024
- Monetary values expressed in 2013 dollars
- Discounting calculations use 2013 as the base year

Other key assumptions used to complete the regulatory evaluation are as follows:

- Pilot Retirement Rate: 2.2%
- Pilot Attrition Rate Due To Medical Reasons: 0.5%
- Pilot Growth Rate: 0.4%
- Ground Instructors Needed: 1 instructor for every 200 pilots
- Class Size: 20 pilots per class

5. Benefits of This Rule

The benefits of the training in the proposed rule include an increased level of safety from mitigation of unprofessional pilot behavior which would reduce pilot errors that can lead to a catastrophic event. The October 14, 2004 crash of Pinnacle Airlines flight 3701 in Jefferson City, Missouri and the February 12, 2009 crash of Colgan Air flight 3407 near Buffalo, New York are examples of past accidents where unprofessional pilot behavior contributed to the accident. In addition the proposed rule responds to NTSB recommendations and satisfies the statutory requirement for a rulemaking in Public Law 111–216.

The FAA proposed rule also includes savings from reducing certain subjects in pilot recurrent ground training and upgrade training. Reducing these subjects would not impact safety because the recent Pilot Certification rule ensured technical proficiency in those subjects via other means. The savings from recurrent training apply to all part 121 air carriers and to carriers who operate within part 135 and are required to use pilot training and qualification programs that comply with part 121 subparts N and O. The savings from upgrade training applies only to part 121 air carriers. SICs within part 135 are not required to hold an ATP certificate or type rating and therefore must continue to meet current upgrade requirements. The estimated savings from the proposed rule are shown in Table 3 below.

TABLE 3—SAVINGS OF THE PROPOSED RULE BY PROVISION (2015–2024) *

Cost saving benefits	Total cost savings (millions of 2013 dollars)		
		Present value	
	Total	7 Percent	3 Percent
Recurrent Ground Training (§ 121.427)	$52.559	$34.424	$43.486

[46] If authorized by the Administrator, part 91K operators and part 135 operators may voluntarily comply with the training program requirements in subparts N and O of part 121 instead of the training program requirements of part 91K or part 135. Given that part 121 compliance is voluntary for part 91K and part 135 operators (other than those 3 commuter operators) and the number of pilots who voluntarily train under part 121 subparts N and O is not known, this pilot segment is not included in this analysis.

[47] Office of Management and Budget, OMB Circular No. A–4, *New Guidelines for the Conduct of Regulatory Analysis*, Mar. 2, 2004.

TABLE 3—SAVINGS OF THE PROPOSED RULE BY PROVISION (2015–2024) *—Continued

Cost saving benefits	Total cost savings (millions of 2013 dollars)		
		Present value	
	Total	7 Percent	3 Percent
Upgrade Ground Training (§ 121.420)	19.458	11.839	15.615
Total	72.017	46.263	59.101

* Table values have been rounded. Totals may not add due to rounding.

6. Costs of This Rule

This proposed rule would impose two types of compliance costs: (1) Start-up costs to develop training curriculums and train the current pilot work force prior to the compliance date and (2) recurring costs to conduct the training each year as the pilot work force evolves over time and to operate the PPDC.

The costs of the proposed rule are associated with the following proposed requirements of the rule:

- Operations familiarization for new-hire pilots;
- Revised ground and flight training for upgrading pilots which includes leadership and command and mentoring training;
- Leadership and command and mentoring ground training for current PICs;
- Leadership and command and mentoring recurrent training for PICs; and
- Pilot Professional Development Committees (PPDC).

These cost provisions apply to all part 121 air carriers and, with the exception of the PPDC, to carriers who operate under part 135 and are required to use pilot training and qualification programs that comply with part 121 subparts N and O.

The estimated compliance costs of the proposed rule, by provision, are shown in Table 4 below.

TABLE 4—COMPLIANCE COSTS FOR THE PROPOSED RULE BY PROVISION (2015–2024) *

Cost	Total compliance costs (millions of 2013 dollars)		
		Present Value	
	Total	7 Percent	3 Percent
New-Hire Pilot Operations Familiarization (§ 121.432(d))	$4.693	$2.855	$3.766
Upgrade Training (§§ 121.420 and 121.426)	10.178	6.304	8.227
One-Time and Recurrent PIC Training (§§ 121.409(b), 121.427, and 121.429)	51.815	37.037	44.568
PPDC Meeting (§ 121.17)	0.938	0.572	0.754
Recordkeeping	0.007	0.006	0.006
Total	67.632	46.774	57.321

* Table values have been rounded. Totals may not add due to rounding.

7. Alternatives Considered

The FAA considered an alternative to the proposed rulemaking: a proposal representing the MLP ARC recommendations as presented to the FAA.

These recommendations, and their corresponding costs, are presented in Table 5 below and discussed in further detail in the Pilot Professional Development Regulatory Evaluation.

TABLE 5—ESTIMATED COSTS OF MLP ARC RECOMMENDATIONS (2015–2024) *

Proposed provision	Total costs (millions of 2013 dollars)		
		Present Value	
	Total	7 Percent	3 Percent
Create a Professional Development Position	$166.140	$109.056	$137.593
Create a PDSC Program	0.704	0.615	0.663
Mentor Training for All PICs	37.084	27.899	32.651
Hold Quarterly PDSC Meetings	12.670	8.011	10.332
Additional Indoctrination Training for New-Hire Pilots	0.656	0.399	0.526
1 or More Familiarization Flights for New-Hire Pilots **	4.693	2.855	3.766
32 Hours of Training for SICs Upgrading to PIC	39.026	23.745	31.318
Recurrent PIC Training	238.295	144.987	191.233
Total	499.267	317.567	408.083

* Table values have been rounded. Totals may not add due to rounding.
** FAA estimate is for 2 operating cycles.

The cost of the MLP ARC recommendations is substantially greater than the cost of the proposed rule. The main drivers of the cost differences between the MLP ARC recommendations and the proposed rule are the full-time professional development position and the longer amount of time required for leadership and command training during upgrade training and during PIC recurrent training.

The FAA carefully considered the MLP ARC recommendations when developing the proposed rule and many of the recommendations are incorporated into the proposed rule albeit with less prescriptive requirements. Specifically, the MLP ARC recommended that the committee to oversee pilot professional development meet quarterly while the proposed rule does not specify how frequently the committee overseeing the formal pilot mentoring program should meet. Further the MLP ARC recommended a 32-hour program in leadership and command for upgrading pilots. The proposed rule requires leadership and command training for upgrading pilots but does not specify a minimum number of hours for that training. Relatedly the MLP ARC recommended that the leadership and command topics be included in recurrent training over a four-year cycle suggesting that the recurrent training would then need to be eight hours per year to cover the same material that is included in the upgrade training. The proposed rule also includes a requirement to include leadership and command training in recurrent training but does not specify a minimum number of hours for that training. The FAA does not have enough information to quantify the benefits related to incremental hours spent in leadership and command training or additional committee meetings and therefore leaves the requirements flexible so that each air carrier can make a determination based on its own circumstances.

Additional requirements recommended by the MLP ARC are not included in the proposed rule for a number of reasons. These reasons include redundancy with existing requirements, redundancy in light of regulatory changes put in place after the MLP ARC issued its recommendations, and identification of alternate (less costly) means to achieve desired benefit. A full discussion of the MLP ARC recommendations and dissenting views, and the FAA response can be found in the portion of this preamble titled ''Background''.

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.

The Small Business Administration (SBA) categorizes airlines with 1,500 or fewer employees as small businesses. Of the 78 carriers that operate under part 121, 52 had fewer than 1,500 total employees based on National Vital Information Subsystem (NVIS) data from August 2014. Of the three part 135 operators required to use pilot training and qualification programs that comply with part 121 subparts N and O, all three have fewer than 1,500 total employees based on NVIS data. The count of pilots for the 52 small part 121 air carriers and the three small part 135 operators is shown in Table 6 below.[48]

TABLE 6—TOTAL NUMBER OF IMPACTED PILOTS, PICS, AND SICS FROM SMALL CARRIERS IN 2014 AND 2024

Pilot category	Year		Annual growth (%)
	2014	2024	
PIC	3,176	3,306	0.4
SIC	2,643	2,753	0.4
Total pilots	5,819	6,059	0.4

Based on these pilot counts, the analysis used to conduct the Pilot Professional Development Regulatory Evaluation was recalculated to analyze the cost to small carriers only. Total cost of the proposed rule on small carriers is shown in Table 7 below.

[48] Of these carriers, six use an Advanced Qualification Program (AQP) and therefore incur additional costs associated with a one-time revision to their Qualification Standards Document. For further details see the Paperwork Reduction Act section of this document.

TABLE 7—TOTAL COST OF THE PROPOSED RULE FOR SMALL CARRIERS (2015–2024) *

	Total costs (millions of 2013 dollars)		
		Present value	
	Total	7 Percent	3 Percent
Total Compliance Costs	$6.455	$4.475	$5.476

* Table values have been rounded. Totals may not add due to rounding.

The total cost of the proposed rule on small carriers, and the corresponding per small carrier cost, by provision, is shown in Table 8 below.

TABLE 8—TOTAL AND PER CARRIER COST OF THE PROPOSED RULE FOR SMALL CARRIERS BY PROVISION (2015–2024) *

Cost	Total compliance costs (millions of 2013 dollars)		
	Total	Carriers impacted	Per carrier total cost
New-Hire Pilot Operations Familiarization	$0.354	55	$0.006
Upgrade Training	0.956	55	0.017
One-Time and Recurrent PIC Training	4.518	55	0.082
PPDC Meeting	0.626	52	0.012
Recordkeeping	0.001	55	0.000
Total	6.455	.....	0.118

* Table values have been rounded. Totals may not add due to rounding.

The total cost per carrier of $118,000 for the proposed rule shown in Table 8 above, over the 10-year analysis period, implies an annual average per carrier cost of approximately $11,800. However, the highest cost to a small carrier occurs in 2016 (see Table 9) when the cost per carrier is approximately $41,000 because of the one-time cost to train all current PICs in leadership and command and mentoring.

TABLE 9—TOTAL AND ANNUAL COMPLIANCE COST FOR SMALL CARRIERS BY PROVISION (2015–2024)

[Millions of 2013 dollars] *

Year	Operations familiarization	Revised upgrade training	PIC leadership and command and mentoring	PPDC annual meeting	Record-keeping	Annual total
2015	$0.000	$0.004	$0.002	$0.000	$0.000	$0.005
2016	0.000	0.000	0.041	0.000	0.000	0.041
2017	0.0008	0.002	0.005	0.002	0.000	0.009
2018	0.0008	0.002	0.005	0.002	0.000	0.009
2019	0.0008	0.002	0.005	0.002	0.000	0.009
2020	0.0008	0.002	0.005	0.002	0.000	0.009
2021	0.0008	0.002	0.005	0.002	0.000	0.009
2022	0.0008	0.002	0.005	0.002	0.000	0.009
2023	0.0008	0.002	0.005	0.002	0.000	0.009
2024	0.0008	0.002	0.005	0.002	0.000	0.009
Total	0.006	0.017	0.082	0.012	0.000	0.118

* Table values have been rounded. Totals may not add due to rounding.

The FAA believes that such an economic cost is not economically significant. BTS Form 41 Financial data is available for 31 small air carriers.[49] Operating revenues in 2013 for these 31 operators ranged from $2.4 million to $1 billion. Based on these figures, the estimated annual per carrier cost of the proposed rule does not exceed 2% of the operating revenue for any carrier where data is available. The annual cost per small carrier is above 1% of the lowest operating revenue ($24,000) but below 2% ($48,000). 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 (Pub. L. 96–39), as amended by the Uruguay Round Agreements Act (Pub.

[49] Bureau of Transportation Statistics Air Carrier Financial Reports (Form 41 Financial Data) Database. Schedules P–1.1 and P–1.2. *http://www.transtats.bts.gov/Tables.asp?DB_ID=135&DB_Name=Air%20Carrier%20Financial%20Reports%20%28Form%2041%20Financial%20Data%29&DB_Short_Name=Air%20Carrier%20Financial.*

L. 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. The FAA has assessed the potential effect of this proposed rule and determined that it would respond to a statutorily mandated safety objective and is not considered an unnecessary obstacle to the foreign commerce of the United States.

D. Unfunded Mandates Assessment

Title II of the Unfunded Mandates Reform Act of 1995 (Pub. L. 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. According to the 1995 amendments to the Paperwork Reduction Act (5 CFR 1320.8(b)(2)(vi)), an agency may not collect or sponsor the collection of information, nor may it impose an information collection requirement unless it displays a currently valid Office of Management and Budget (OMB) control number.

This action contains the following proposed new information collection requirements. As required by the Paperwork Reduction Act of 1995 (44 U.S.C. 3507(d)), the FAA has submitted these proposed information collection amendments to OMB for its review.

Summary: The proposed rule requires the development and approval of new and revised training curriculums for the following:

- Leadership and command and mentoring ground training for pilots currently serving as PIC (§ 121.429) and recurrent PIC leadership and command and mentoring training (§§ 121.409(b) and 121.427);
- Upgrade training curriculum requirements (§§ 121.420 and 121.426);
- Part 121 appendix H requirements; and
- Approval of Qualification Standards Document for certificate holders using an Advanced Qualification Program (AQP) (§ 121.909).

The proposed rule also requires some additional recordkeeping related to maintaining records of pilots completing the following:

- Leadership and command and mentoring ground training for pilots currently serving as PIC (§ 121.429);
- Recurrent PIC leadership and command and mentoring ground training (§ 121.427); and
- Operations familiarization for new-hire pilots (§ 121.432(d)).

Use: This information would be used to ensure safety-of-flight by making certain that adequate training is obtained and maintained by those who operate under this part of the regulation. The FAA would review the respondents' training programs and training courseware through routine certification, inspection and surveillance of certificate holders using part 121 pilot training and qualification programs to ensure compliance and adherence to regulations and, where necessary, to take enforcement action.

Respondents (including number of): The relevant provisions of the proposed rule apply to certificate holders using part 121 pilot training and qualification programs. Currently there are 81 such certificate holders who collectively employ 37,228 PICs and 39,956 SICs.

Frequency: The development and approval of new and revised curriculums would be a one-time occurrence for each certificate holder. Similarly the documentation regarding training in leadership and command and mentoring for current PICs would be a one-time occurrence. The documentation of operations familiarization for new-hire pilots would occur once for each new-hire pilot. The documentation of recurrent PIC leadership and command and mentoring training would occur every three years for each PIC.

Annual Burden Estimate: These proposed amendments to part 121 set out prerequisites and levy requirements that must be met by certificate holders using part 121 pilot training and qualification programs and by those individuals who serve in given capacities for those certificate holders. The estimates for hours and costs are broken down by development and approval of new and revised training curriculums followed by pilot training recordkeeping.

The FAA anticipates that certificate holders would incur costs for the following groups of provisions:

- Operations familiarization for new-hire pilots (§ 121.432(d));
- Leadership and command and mentoring ground training for pilots currently serving as PIC (§ 121.429);
- Upgrade training curriculum requirements (§§ 121.420 and 121.426);
- Recurrent PIC leadership and command and mentoring ground training (§§ 121.409(b) and 121.427);
- Part 121, appendix H requirements; and
- Approval of Qualification Standards Document for certificate holders using an AQP (§ 121.909).

1. Development and Approval of New and Revised Training Curriculums

For the development and approval of new and revised training curriculums, the FAA estimated the paperwork costs for these provisions by multiplying the hourly rate of the person responsible by the number of estimated hours to develop and submit the new or revised training curriculum. (In all cases we assume that a ground instructor would develop and submit the new or revised training curriculum and that the ground instructor fully burdened wage is $44 per hour.[50]) We then multiplied these costs by the number of certificate holders affected by the provision.

a. Leadership and Command and Mentoring Ground Training for Pilots Currently Serving as PIC (§ 121.429) and Recurrent PIC Leadership and Command and Mentoring Training (§§ 121.409(b) and 121.427)

Proposed § 121.429 would require one-time development of a training course for leadership and command and mentoring for current PICs. This course must be submitted to the FAA for approval.

Proposed revisions to §§ 121.409(b) and 121.427 would require one-time

[50] Training instructor hourly wage rate of $31 multiplied by 1.42 to account for costs of employer provided benefits. Wage based on 2013 Bureau of Labor Statistics (BLS) Occupational Employment Statistics for Air Transportation Industry. (*http://www.bls.gov/oes/current/naics4_481100.htm*): Training and Development Specialists (13–1151). Wage multiplier from BLS, Employer costs for Employee compensation—June 2013, Table 5, Private Industry. (*http://www.bls.gov/news.release/pdf/ecec.pdf*)

revision to the certificate holder's approved recurrent PIC training curriculum. This revised curriculum must be submitted to the FAA for approval.

The FAA estimates a total of 40 hours of ground instructor time for development and submission of both the curriculum for current PICs and the revision to the recurrent PIC training curriculum.

Assuming 81 affected certificate holders, the FAA estimates that these proposed provisions would result in a one-time total cost of $142,560 for all affected certificate holders.

b. Upgrade Training Curriculum Requirements (§§ 121.420 and 121.426)

Proposed §§ 121.420 and 121.426 would require one time revision to the certificate holder's approved SIC to PIC upgrade training curriculum. This revised curriculum must be submitted to the FAA for approval.

The FAA estimates a total of 80 hours of ground instructor time for development and submission of the revised SIC to PIC upgrade training curriculum.

Assuming 81 affected certificate holders, the FAA estimates that these proposed provisions would result in a one-time cost of $285,120 for all affected certificate holders.

c. Part 121 Appendix H Requirements

The proposed revision to part 121 appendix H would require one time revision to the certificate holder's approved training program to remove the pilot experience prerequisites for using a Level C FFS during training and checking. This revised training program must be submitted to the FAA for approval. The FAA expects that the program updates to reflect this change are minimal and are subsumed in the paperwork costs for the collective amendments made to the training provisions in this proposed rule.

The FAA estimates there are no costs for this proposed provision.

d. Approval of Qualification Standards Document for Certificate Holders Using an AQP (§ 121.909)

Although the proposed rule does not make any changes to § 121.909, when the new subparts N and O training requirements become effective, certificate holders that use AQP would have to review their training programs to make sure they address the new subparts N and O requirements. It is possible that certificate holders may make a one-time revision to their Qualifications Standards Document required by § 121.909 during this process to address the revised subparts N and O requirements.

This is a cost that only applies to certificate holders that use AQP for pilot training because they are the only ones who must meet the § 121.909 requirements. Therefore, this provision does not apply to certificate holders who only train their pilots under a training program in accordance with subparts N and O of part 121.

For each of the 25 certificate holders with an approved AQP, the FAA estimates 3 hours of ground instructor time for development and submission of the revised Qualification Standards Document.

The FAA estimates that this proposed provision would result in one-time costs of $3,300 across all certificate holders who train their pilots under AQP.

2. Recordkeeping

For the pilot training recordkeeping, the FAA estimated the paperwork costs for these provisions by first multiplying the number of required entries by the estimated number of pilots affected. Second, we multiplied the total number of entries by .001 hours (the time required to make each entry). Lastly, we multiplied the total time to make all entries by the hourly rate of the person responsible for making the entries. In all cases, the FAA assumes that the person making the entries is a clerical employee with an estimated fully-burdened wage of $26 per hour.[51]

a. Leadership and Command and Mentoring Ground Training for Pilots Currently Serving as PIC (§ 121.429)

A record showing compliance with this requirement for current PICs would need to be retained in accordance with § 121.683(a)(1). This would be a one-time burden.

The FAA assumes that this cost would be incurred in the year prior to the compliance date of the rule and estimates that during that year 37,527 pilots would be affected and would require one record. The FAA estimates 38 hours of clerical time for entry of these records.

The FAA estimates that this proposed provision would add a one-time cost of $988 for all affected certificate holders.

b. Recurrent PIC Leadership and Command and Mentoring Ground Training (§ 121.427)

A record showing compliance with this requirement for current PICs would need to be retained in accordance with § 121.683(a)(1). This would be an addition to the current recordkeeping burden approved under OMB Control Number 2120–0008.

PICs are required to complete the recurrent training every 3 years. Over the 10 year analysis period, the FAA estimates that there would be 96,328 instances of PICs undergoing recurrent training involving leadership and command and mentoring. Each instance would require one record. The FAA estimates 97 hours of clerical time for entry of these records.

The FAA estimates that this proposed provision would result in costs of $2,522 over the analysis period for all affected certificate holders.

c. Operations Familiarization for New-Hire Pilots (§ 121.432(d))

Section 121.432(d) proposes a new qualification requirement for new-hire pilots to complete operations familiarization consisting of 2 operating cycles. A record showing compliance with this requirement for each new-hire pilot would need to be retained in accordance with § 121.683(a)(1). This would be an addition to the current recordkeeping burden approved under OMB Control Number 2120–0008.

The FAA estimates all affected certificate holders would have a total of 19,636 new-hire pilots over the analysis period. Each of the estimated 19,636 pilots affected would require one record. The FAA estimates 20 hours of clerical time for entry of these records. The FAA estimates that this proposed provision would result in costs of $520 across the analysis period for all affected certificate holders.

3. Summary of Estimated Paperwork Costs

The total cost burden would be $435,010 ($379,076 discounted at 7 percent) over the 10-year analysis period.

[51] The clerk hourly wage rate of $18 multiplied by 1.42 to account for costs of employer provided benefits. Wage based on 2013 BLS Occupational Employment Statistics for Air Transportation Industry. (*http://www.bls.gov/oes/current/naics4_481100.htm*): Information and Record Clerks (43–4000). Wage multiplier from BLS, Employer costs for Employee compensation—June 2013, Table 5, Private Industry. (*http://www.bls.gov/news.release/pdf/ecec.pdf*)

SUMMARY OF ESTIMATED PAPERWORK COSTS

Proposed rule requirement	Number of records	Number of hours	Wage	Number of certificate holders	Total cost
Development and Approval of New and Revised Training Curriculums					
Leadership and command and mentoring ground training for pilots currently serving as PIC (§ 121.429) and recurrent PIC leadership and command and mentoring training (§§ 121.409(b) and 121.427)	N/A	40	*$44	81	$142,560
Upgrade training curriculum (§§ 121.420 and 121.426)	N/A	80	*44	81	285,120
Approval of Qualification Standards Document (§ 121.909)	N/A	3	*44	25	3,300
Recordkeeping					
Leadership and command and mentoring ground training for pilots currently serving as PIC (§ 121.429)	37,527	38	**26	N/A	988
Recurrent PIC leadership and command and mentoring ground training (§ 121.427)	96,328	97	**26	N/A	2,522
Operations familiarization for new-hire pilots (§ 121.432(d))	19,636	20	**26	N/A	520
Total		278			435,010

* Fully burdened hourly wage for ground instructor.
** Fully burdened hourly wage for clerical employee.

The FAA is soliciting comments to—

(1) Evaluate whether the proposed information requirement is necessary for the proper performance of the functions of the FAA, including whether the information will have practical utility;

(2) Evaluate the accuracy of the FAA's estimate of the burden;

(3) Enhance the quality, utility, and clarity of the information to be collected; and

(4) Minimize the burden of collecting information on those who are to respond, including by using appropriate automated, electronic, mechanical, or other technological collection techniques or other forms of information technology.

Individuals and organizations may send comments on the information collection requirement to the address listed in the **ADDRESSES** section at the beginning of this preamble by January 5, 2017. Comments also should be submitted to the Office of Management and Budget, Office of Information and Regulatory Affairs, Attention: Desk Officer for FAA, New Executive Building, Room 10202, 725 17th Street NW., Washington, DC 20053.

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 reviewed the corresponding ICAO Standards and Recommended Practices and has identified no differences with these proposed regulations.

G. Environmental Analysis

FAA Order 1050.1F 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 5–6.6 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 FAA 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 FAA 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.

C. Executive Order 13609, Promoting International Regulatory Cooperation

Executive Order 13609, Promoting International Regulatory Cooperation, promotes international regulatory cooperation to meet shared challenges involving health, safety, labor, security, environmental, and other issues and to reduce, eliminate, or prevent unnecessary differences in regulatory requirements. The FAA has analyzed this action under the policies and agency responsibilities of Executive Order 13609, and has determined that this action would have no effect on international regulatory cooperation.

VI. Additional Information

A. Comments Invited

The FAA invites interested persons to participate in this rulemaking by submitting written comments, data, or views. The FAA 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 FAA 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 FAA 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 61

Aircraft, Airmen, Aviation safety, Reporting and recordkeeping requirements.

14 CFR Part 91

Aircraft, Airmen, Aviation safety, Reporting and recordkeeping requirements.

14 CFR Part 121

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

14 CFR Part 135

Aircraft, Airmen, Aviation safety, Reporting and recordkeeping requirements.

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

PART 61—CERTIFICATION: PILOTS, FLIGHT INSTRUCTORS, AND GROUND INSTRUCTORS

■ 1. The authority citation for part 61 continues to read as follows:

Authority: 49 U.S.C. 106(f), 106(g), 40113, 44701–44703, 44707, 44709–44711, 44729, 44903, 45102–45103, 45301–45302.

■ 2. Amend § 61.71 by revising paragraph (b)(1) to read as follows:

§ 61.71 Graduates of an approved training program other than under this part: Special rules.

* * * * *

(b) * * *

(1) Satisfactorily accomplished an approved training curriculum and a proficiency check for that airplane type that includes all the tasks and maneuvers required by §§ 121.424 and 121.441 of this chapter to serve as pilot in command in operations conducted under part 121 of this chapter; and

* * * * *

PART 91—GENERAL OPERATING AND FLIGHT RULES

■ 3. The authority citation for part 91 continues to read as follows:

Authority: 49 U.S.C. 106(f), 106(g), 1155, 40101, 40103, 40105, 40113, 40120, 44101, 44111, 44701, 44704, 44709, 44711, 44712, 44715, 44716, 44717, 44722, 46306, 46315, 46316, 46504, 46506–46507, 47122, 47508, 47528–47531, 47534, articles 12 and 29 of the Convention on International Civil Aviation (61 Stat. 1180), (126 Stat. 11).

■ 4. Amend § 91.1063 as follows:

■ a. Redesignate paragraphs (c) and (d) as paragraphs (d) and (e), respectively; and

■ b. Add new paragraph (c).

The addition reads as follows:

§ 91.1063 Testing and training: Applicability and terms used.

* * * * *

(c) Additional limitations applicable to program managers authorized in accordance with paragraph (b) of this section, to comply with subparts N and O of part 121 of this chapter instead of §§ 91.1065 through 91.1107 of this part.

(1) *Upgrade training.* (i) Each program manager must include in upgrade ground training for pilots, instruction in at least the subjects identified in § 121.419(a) of this chapter, as applicable to their assigned duties; and, for pilots serving in crews of two or more pilots, beginning on [24 MONTHS AFTER EFFECTIVE DATE OF FINAL RULE], instruction in the subjects identified in § 121.419(c) of this chapter.

(ii) Each program manager must include in upgrade flight training for pilots, flight training for the maneuvers and procedures required in § 121.424(a), (c), (e) and (f) of this chapter; and, for pilots serving in crews of two or more pilots, beginning on [24 MONTHS AFTER EFFECTIVE DATE OF FINAL RULE], the flight training required in § 121.424(b) of this chapter.

(2) *Initial and recurrent leadership and command and mentoring training.* Program managers are not required to include leadership and command training in §§ 121.409(b)(2)(ii)(B)(*6*), 121.419(c)(1), 121.424(b) and 121.427(d)(1) of this chapter, and mentoring training in §§ 121.419(c)(2) and 121.427(d)(1) of this chapter in initial and recurrent training for pilots in command who serve in operations that use only one pilot.

(3) *One-time leadership and command and mentoring training.* Section 121.429 of this chapter does not apply to program managers conducting operations under this subpart when those operations use only one pilot.

* * * * *

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

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

Authority: 49 U.S.C. 106(f), 106(g), 40103, 40113, 40119, 41706, 42301 preceding note added by Pub. L. 112–95, sec. 412, 126 Stat. 89, 44101, 44701–44702, 44705, 44709–44711, 44713, 44716–44717, 44722, 44729, 44732; 46105; Pub. L. 111–216, 124 Stat. 2348 (49 U.S.C. 44701 note); Pub. L. 112–95, 126 Stat. 62 (49 U.S.C. 44732 note).

■ 6. Add § 121.17 to subpart A to read as follows:

§ 121.17 Pilot Professional Development Committee.

(a) Each certificate holder conducting operations under this part must establish and maintain a pilot professional development committee to develop, administer, and oversee a formal pilot mentoring program.

(b) The pilot professional development committee must consist of at least the following individuals:

(1) One certificate holder management representative who has completed at least one year of service as a pilot in command in part 121 operations and is qualified through training, experience, and expertise.

(2) One representative of the pilots employed by the certificate holder.

(c) The pilot professional development committee must hold its first meeting no later than [24 MONTHS AFTER EFFECTIVE DATE OF FINAL RULE]. Thereafter, the pilot professional development committee must meet on a regular basis. The committee must meet with sufficient frequency to accomplish its objectives but not less than once every 12 calendar months.

■ 7. Amend § 121.400 as follows:

■ a. Revise paragraph (a);

■ b. Revise paragraph (c)(3);

■ c. Redesignate paragraphs (c)(4) through (c)(11) as paragraphs (c)(5) through (c)(12), respectively; and

■ d. Add new paragraph (c)(4).

The revisions and addition read as follows:

§ 121.400 Applicability and terms used.

(a) This subpart prescribes the requirements applicable to each certificate holder for establishing and maintaining a training program for crewmembers, aircraft dispatchers, and other operations personnel, and for the approval and use of flight simulation training devices and training equipment in the conduct of the program.

* * * * *

(c) * * *

(3) Upgrade training. The training required for flightcrew members who have qualified and served as second in command on a particular airplane type, before they serve as pilot in command on that airplane.

(4) Conversion training. The training required for flightcrew members who have qualified and served as flight engineer on a particular airplane type, before they serve as second in command on that airplane.

* * * * *

■ 8. Amend § 121.401 by revising paragraph (a)(4) to read as follows:

§ 121.401 Training program: General

(a) * * *

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

* * * * *

§ 121.403 [Amended]

■ 9. In § 121.403 in paragraph (b)(4), remove the words ''airplane simulators or other'' and add, in their place, the words ''flight simulation.''

§ 121.407 [Amended]

■ 10. Amend § 121.407 as follows:

■ a. In the section heading, remove the words ''airplane simulators and other'' and add, in their place, the words ''flight simulation'';

■ b. In paragraph (a) introductory text, remove the words ''airplane simulator and other training device'' and add, in their place, the word ''FSTD'';

■ c. In paragraph (b), remove the words ''airplane simulator or other training device'' and add, in their place, the word ''FSTD'';

■ d. In paragraph (c) introductory text, remove the words ''An airplane simulator'' and add, in their place, the words ''A Level B or higher FFS'', remove the word ''in-flight'' and add, in its place, the word ''inflight'', and remove the word ''simulator'' and add, in its place, the word ''FFS'';

■ f. In paragraph (c)(2), add a comma after ''§ 121.424(a) and (c)'' and add ''§ 121.426,'' after the comma; and

■ g. In paragraphs (d) and (e), remove the words ''airplane simulator'' and add, in their place, the word ''FFS''.

■ 11. Amend § 121.409 as follows:

■ a. In the section heading, remove the words ''airplane simulators and other'' and add, in their place, the words ''flight simulation'';

■ b. In paragraph (a), remove the words ''airplane simulators and other training devices'' and add, in their place, the word ''FSTDs'';

■ c. In paragraphs (b) introductory text, (b)(1) and (c)(1), remove the words ''airplane simulator'' and add, in their place, the word ''FFS'';

■ d. In paragraph (b)(2)(ii)(B)(*4*), remove the word ''and'' at the end of the paragraph;

■ e. In paragraph (b)(2)(ii)(B)(*5*), remove the period at the end of the paragraph and add, in its place, ''; and'';

■ f. Add paragraph (b)(2)(ii)(B)(*6*);

■ g. Remove the floating paragraph that follows paragraph (b)(3);

■ h. In paragraph (c)(2), remove the words ''airplane simulator or other training device'' and add, in their place, the word ''FSTD''; and

■ i. In paragraph (d), in the first sentence, remove the word ''simulator'' and add, in its place, the word ''FFS'', and in the second sentence, add ''121.426,'' after ''121.424'' and before ''and 121.427''.

The addition reads as follows:

§ 121.409 Training courses using flight simulation training devices.

* * * * *

(b) * * *

(2) * * *

(ii) * * *

(B) * * *

(*6)* Provides an opportunity for each pilot in command to demonstrate leadership and command skills.

* * * * *

§ 121.411 [Amended]

■ 12. Amend § 121.411 as follows:

■ a. In paragraphs (a)(1), (a)(2), (f)(1), and (f)(2), remove the words ''flight simulator'' and add, in their place, the words ''full flight simulator''; and

■ b. In paragraph (b)(4), remove the word ''in-flight'' and add, in its place, the word ''inflight''.

§ 121.412 [Amended]

■ 13. Amend § 121.412 as follows:

■ a. In paragraphs (a)(1), (a)(2), (f)(1), and (f)(2), remove the words ''flight simulator'' and add, in their place, the words ''full flight simulator''; and

■ b. In paragraph (b)(4), remove the word ''in-flight'' and add, in its place, the word ''inflight''.

§ 121.413 [Amended]

■ 14. Amend § 121.413 as follows:

■ a. In paragraphs (a)(2), (c)(7) introductory text, (c)(7)(iv), (d)(2) introductory text, (d)(2)(iv), (f), (g) introductory text, (g)(1), (g)(2) and (h), remove the words ''flight simulator'' and add, in their place, the words ''full flight simulator''; and

■ b. In paragraph (f), remove the words ''in flight'' and add, in their place, the word ''inflight''.

§ 121.414 [Amended]

■ 15. Amend § 121.414 as follows:

■ a. In paragraphs (a)(2), (c)(8) introductory text, (c)(8)(iv), (d)(2) introductory text, (d)(2)(iv), (f), (g) introductory text, (g)(1), (g)(2), and (h), remove the words ''flight simulator'' and add, in their place, the words ''full flight simulator'';

■ b. In paragraph (e)(3)(i), remove the word ''In-flight'' and add, in its place, the word ''Inflight''; and

■ c. In paragraph (f), remove the words ''in flight'' and add, in their place, the word ''inflight''.

■ 16. Amend § 121.415 as follows:

■ a. In paragraph (b), remove the reference to ''121.425'' and add, in its place, ''121.426'';

■ b. Revise paragraph (e);
■ c. Redesignate paragraphs (f) through (j) as paragraphs (g) through (k), respectively;
■ d. Add new paragraph (f);
■ e. Revise newly redesignated paragraph (g);
■ f. Revise newly redesignated paragraph (h) introductory text;
■ g. In newly redesignated paragraph (j) remove the reference to ''paragraph (h)'' and add in its place ''paragraph (i)''; and
■ h. In newly redesignated paragraph (k) remove the references to ''paragraphs (h) and (i)'' and add in their place, ''paragraphs (i) and (j)''.

The revisions and addition read as follows:

§ 121.415 Crewmember and dispatcher training program requirements.

* * * * *

(e) *Upgrade training.* (1) Upgrade training as specified in §§ 121.420 and 121.426 of this part for a particular type airplane may be included in the training program for flightcrew members who have qualified and served as second in command pilot on that airplane; or

(2) Before [24 MONTHS AFTER EFFECTIVE DATE OF FINAL RULE], upgrade training as specified in §§ 121.419 and 121.424 of this part for a particular type airplane may be included in the training program for flightcrew members who have qualified and served as second in command pilot on that airplane.

(f) Conversion training as specified in §§ 121.419 and 121.424 of this part for a particular type airplane may be included in the training program for flightcrew members who have qualified and served as flight engineer on that airplane.

(g) Particular subjects, maneuvers, procedures, or parts thereof specified in §§ 121.419, 121.420, 121.421, 121.422, 121.424, 121.425 and 121.426 of this part for transition, conversion or upgrade training, as applicable, may be omitted, or the programmed hours of ground instruction or inflight training may be reduced, as provided in § 121.405 of this part.

(h) In addition to initial, transition, conversion, upgrade, recurrent and differences training, each training program must also provide ground and flight training, instruction, and practice as necessary to insure that each crewmember and dispatcher—

* * * * *

§ 121.417 [Amended]

■ 17. In 14 CFR 121.417(b)(3)(ii), remove the words ''in flight'' and add in their place, the word ''inflight''.

■ 18. Amend § 121.418 by revising paragraphs (a)(2) and (c) to read as follows:

§ 121.418 Differences training and related aircraft differences training.

(a) * * *

(2) Differences training for all variations of a particular type airplane may be included in initial, transition, conversion, upgrade, and recurrent training for the airplane.

* * * * *

(c) Approved related aircraft differences training. Approved related aircraft differences training for flightcrew members may be included in initial, transition, conversion, upgrade and recurrent training for the base aircraft. If the certificate holder's approved training program includes related aircraft differences training in accordance with paragraph (b) of this section, the training required by §§ 121.419, 121.420, 121.424, 121.425, 121.426 and 121.427 of this part, as applicable to flightcrew members, may be modified for the related aircraft.

■ 19. Amend § 121.419 as follows:
■ a. Revise the section heading;
■ b. Revise paragraph (a) introductory text;
■ c. Revise paragraph (b) introductory text;
■ d. Redesignate paragraphs (c) through (e) as paragraphs (d) through (f), respectively;
■ e. Add new paragraph (c);
■ f. In newly redesignated paragraph (f)(2) remove the reference, ''paragraphs (c) and (d)'' and add in its place, ''paragraphs (d) and (e)''; and
■ g. Add paragraph (g).

The revisions and additions read as follows:

§ 121.419 Pilots and flight engineers: Initial, transition, and conversion ground training and before [24 MONTHS AFTER EFFECTIVE DATE OF FINAL RULE], upgrade ground training.

(a) Except as provided in paragraph (b) of this section, initial, conversion, and upgrade ground training for pilots and initial and transition ground training for flight engineers, must include instruction in at least the following as applicable to their assigned duties:

* * * * *

(b) Initial and conversion ground training for pilots who have completed the airline transport pilot certification training program in § 61.156 of this chapter, and transition ground training for pilots, must include instruction in at least the following as applicable to their assigned duties:

* * * * *

(c) Beginning on [24 MONTHS AFTER EFFECTIVE DATE OF FINAL RULE], and in addition to the requirements in paragraphs (a) or (b) of this section, as applicable, initial ground training for pilots in command must include instruction on the following:

(1) Leadership and command, including flightcrew member duties under § 121.542 of this part; and

(2) Mentoring, including techniques for instilling and reinforcing the highest standards of technical performance, airmanship, and professionalism in newly employed pilots.

* * * * *

(f) * * *

(1) * * *

(2) Beginning March 12, 2019, initial programmed hours applicable to pilots as specified in paragraphs (d) and (e) of this section must include 2 additional hours.

(g) Before [24 MONTHS AFTER EFFECTIVE DATE OF FINAL RULE] upgrade ground training must include either the instruction specified in paragraph (a) of this section or the instruction specified in § 121.420 of this part. Beginning on [24 MONTHS AFTER EFFECTIVE DATE OF FINAL RULE], upgrade ground training must include the instruction specified in § 121.420 of this part.

■ 20. Add § 121.420 to read as follows:

§ 121.420 Pilots: Upgrade ground training.

(a) Upgrade ground training must include instruction in at least the following subjects as applicable to the duties assigned to the pilot in command:

(1) Seat dependent procedures, as applicable;

(2) Duty position procedures, as applicable;

(3) Leadership and command, including flightcrew member duties under § 121.542 of this part;

(4) Crew resource management, including decision making, authority and responsibility and conflict resolution; and

(5) Mentoring, including techniques for reinforcing the highest standards of technical performance, airmanship and professional development in newly employed pilots.

(b) Compliance date. Beginning on [24 MONTHS AFTER EFFECTIVE DATE OF FINAL RULE], upgrade ground training must satisfy the requirements of this section.

§ 121.423 [Amended]

■ 21. In the § 121.423 section heading, remove the word ''Pilot'' and add, in its place, the word ''Pilots''.

■ 22. Amend § 121.424 as follows:
■ a. Revise section heading;
■ b. Revise paragraph (a) introductory text;
■ c. Redesignate paragraphs (b) through (e) as paragraphs (c) through (f), respectively;
■ d. Add new paragraph (b);
■ e. In newly redesignated paragraph (c)(1), remove the words ''a simulator'' and add, in their place, the words ''an FFS'';
■ f. In newly redesignated paragraph (c)(3), remove the words ''an airplane simulator, an appropriate training device,'' and add in their place, the words ''an FFS, an FTD,'';
■ g. In newly redesignated paragraph (d) introductory text remove the reference ''paragraph (d)'' and add in its place the reference, ''paragraph (e)'';
■ h. In newly redesignated paragraph (e) introductory text remove the words ''airplane simulator'' and add in their place the word, ''FFS'';
■ i. Revise newly redesignated paragraphs (e)(1)(i) and (ii);
■ j. In paragraph (e)(2), remove the words ''airplane simulator'' and add in their place the word ''FFS''; and
■ k. Add paragraph (g).

The revisions and additions read as follows:

§ 121.424 Pilots: Initial, transition, and conversion flight training and before [24 MONTHS AFTER EFFECTIVE DATE OF FINAL RULE], upgrade flight training.

(a) Initial, transition, conversion, and upgrade flight training for pilots must include the following:

* * * * *

(b) Beginning on [24 MONTHS AFTER EFFECTIVE DATE OF FINAL RULE], in addition to the requirements in paragraph (a) of this section, initial flight training for pilots in command must include sufficient scenario based training incorporating CRM and leadership and command skills, to ensure the pilot's proficiency as pilot in command. The training required by this paragraph may be completed inflight or in an FSTD.

* * * * *

(e) * * *

(1) * * *

(i) Training and practice in the FFS in at least all of the maneuvers and procedures set forth in appendix E to this part for initial flight training that are capable of being performed in an FFS; and

(ii) A proficiency check in the FFS or the airplane to the level of proficiency of a pilot in command or second in command, as applicable, in at least the maneuvers and procedures set forth in appendix F to this part that are capable of being performed in an FFS.

* * * * *

(g) Before [24 MONTHS AFTER EFFECTIVE DATE OF FINAL RULE] upgrade flight training must be provided in accordance with either this section or § 121.426 of this part. Beginning on [24 MONTHS AFTER EFFECTIVE DATE OF FINAL RULE], upgrade flight training must be provided as specified in § 121.426 of this part.

§ 121.425 [Amended]

■ 23. Amend § 121.425 as follows:
■ a. In paragraphs (a)(1) and (a)(2)(iii), remove the comma after the word, ''inflight'' and remove the words ''in an airplane simulator, or in a training device'' and add, in their place, the words ''or in an FSTD'';
■ b. Designate the paragraph that follows paragraph (a)(2)(iii) as (a)(3) and remove the words ''airplane simulator'' and add, in their place, the word ''FFS''; and
■ c. In paragraph (c), remove the words ''airplane simulator or other training device'' and add, in their place, the word ''FSTD'' and remove the words ''simulator or other training device'' and add, in their place, ''FSTD''.
■ 24. Add § 121.426 to read as follows:

§ 121.426 Pilots: Upgrade flight training.

(a) Upgrade flight training for pilots must include the following:

(1) Seat dependent maneuvers and procedures, as applicable;

(2) Duty position maneuvers and procedures, as applicable;

(3) Extended envelope training set forth in § 121.423 of this part;

(4) Maneuvers and procedures set forth in the certificate holder's low altitude windshear flight training program;

(5) Sufficient scenario based training incorporating CRM and leadership and command skills, to ensure the pilot's proficiency as pilot in command; and

(6) Sufficient training to ensure the pilot's knowledge and skill with respect to the following:

(i) The airplane, its systems and components;

(ii) Proper control of airspeed, configuration, direction, altitude and attitude in accordance with the Airplane Flight Manual, the certificate holder's operations manual, checklists or other approved material appropriate to the airplane type; and

(iii) Compliance with ATC, instrument procedures, or other applicable procedures.

(b) The training required by paragraph (a) of this section must be performed inflight except—

(1) That windshear maneuvers and procedures must be performed in an FFS in which the maneuvers and procedures are specifically authorized to be accomplished;

(2) That the extended envelope training required by § 121.423 must be performed in a Level C or higher FFS unless the Administrator has issued to the certificate holder a deviation in accordance with § 121.423(e); and

(3) To the extent that certain other maneuvers and procedures may be performed in an FFS, an FTD, or a static airplane as permitted in appendix E to this part.

(c) If the certificate holder's approved training program includes a course of training utilizing an FFS under § 121.409(c) and (d) of this part, each pilot must successfully complete—

(1) With respect to § 121.409(c) of this part—A proficiency check in the FFS or the airplane to the level of proficiency of a pilot in command in at least the maneuvers and procedures set forth in appendix F to this part that are capable of being performed in an FFS.

(2) With respect to § 121.409(d) of this part, training and practice in at least the maneuvers and procedures set forth in the certificate holder's approved low-altitude windshear flight training program that are capable of being performed in an FFS in which the maneuvers and procedures are specifically authorized.

(d) Compliance dates. Beginning on [24 MONTHS AFTER EFFECTIVE DATE OF FINAL RULE], upgrade flight training must satisfy the requirements of this section, except for the extended envelope training in paragraph (a)(3) and (b)(2) of this section. Upgrade flight training must include the requirements of paragraph (a)(3) and (b)(2) beginning on March 12, 2019.

■ 25. Amend § 121.427 as follows:
■ a. In paragraph (a), remove the words ''crew member'' and add, in their place, the word ''crewmember'';
■ b. Revise paragraph (b)(2);
■ c. Revise paragraph (b)(4);
■ d. Revise paragraph (c) introductory text;
■ e. Redesignate paragraphs (c)(1), (c)(2), and (c)(3) as paragraphs (c)(2), (c)(3), and (c)(4), respectively;
■ f. Add new paragraph (c)(1);
■ g. In newly redesignated paragraph (c)(2), remove the words ''pilots and'';
■ h. Redesignate paragraphs (d) and (e) as paragraphs (e) and (f), respectively;
■ i. Add new paragraph (d);
■ j. Revise newly redesignated paragraph (e)(1)(ii);
■ k. Revise newly redesignated paragraph (e)(2)(ii); and
■ l. Revise newly redesignated paragraph (f)(1).

The revisions and additions read as follows:

§ 121.427 Recurrent training.

* * * * *

(b) * * *

(2) Instruction as necessary in the following:

(i) For pilots, the subjects required for ground training by §§ 121.415(a)(1), (a)(3), and (a)(4) and 121.419(b);

(ii) For flight engineers, the subjects required for ground training by §§ 121.415(a)(1), (a)(3), and (a)(4) and 121.419(a);

(iii) For flight attendants, the subjects required for ground training by §§ 121.415(a)(1), (a)(3), and (a)(4) and 121.421(a); and

(iv) For aircraft dispatchers, the subjects required for ground training by §§ 121.415(a)(1) and (a)(4) and 121.422(a).

* * * * *

(4) For crewmembers, CRM training and for aircraft dispatchers, DRM training. For flightcrew members, CRM training or portions thereof may be accomplished during an approved FFS line-oriented flight training (LOFT) session.

(c) Recurrent ground training for crewmembers and dispatchers must consist of at least the following programmed hours of instruction in the required subjects specified in paragraph (b) unless reduced under § 121.405:

(1) For pilots—

(i) Group I reciprocating powered airplanes, 15 hours;

(ii) Group I turbopropeller powered airplanes, 19 hours; and

(iii) Group II airplanes, 24 hours.

* * * * *

(d) Recurrent ground training for pilots serving as pilot in command.

(1) Within 36 months preceding service as pilot in command, each person must complete ground training on leadership and command, including instruction on flightcrew member duties under § 121.542 of this part, and mentoring. This training is in addition to the ground training required in paragraph (b) of this section and the programmed hours required in paragraph (c) of this section.

(2) The requirements of paragraph (d)(1) do not apply until after a pilot has completed ground training on leadership and command and mentoring, as required by §§ 121.419, 121.420 and 121.429 of this part, as applicable.

(e) * * *

(1) * * *

(ii) Flight training in an approved FFS in maneuvers and procedures set forth in the certificate holder's approved low-altitude windshear flight training program and flight training in maneuvers and procedures set forth in appendix F to this part, or in a flight training program approved by the Administrator, except as follows—

* * * * *

(2) * * *

(ii) The flight check, other than the preflight inspection, may be conducted in an FSTD. The preflight inspection may be conducted in an airplane, or by using an approved pictorial means that realistically portrays the location and detail of preflight inspection items and provides for the portrayal of abnormal conditions. Satisfactory completion of an approved line-oriented flight training may be substituted for the flight check.

(f) * * *

(1) Compliance with the requirements identified in paragraph (e)(1)(i) of this section is required no later than March 12, 2019.

* * * * *

■ 26. Add § 121.429 to subpart N to read as follows:

§ 121.429 Pilots in command: Leadership and command and mentoring training.

(a) Beginning on [24 MONTHS AFTER EFFECTIVE DATE OF FINAL RULE], no certificate holder may use a pilot as pilot in command in an operation under this part unless the pilot has completed the following ground training in accordance with the certificate holder's approved training program:

(1) Leadership and command training in § 121.419(c)(1) of this part and mentoring training in § 121.419(c)(2) of this part; or

(2) Leadership and command training in § 121.420(a)(3) of this part and mentoring training in § 121.420(a)(5) of this part.

(b) Credit for training provided by the certificate holder.

(1) The Administrator may credit leadership and command training and mentoring training completed by the pilot, with that certificate holder, prior to [60 DAYS AFTER DATE OF PUBLICATION OF FINAL RULE IN THE **Federal Register**], toward all or part of the training required by paragraph (a) of this section.

(2) In granting credit for the training required by paragraph (a) of this section, the Administrator may consider training aids, devices, methods and procedures used by the certificate holder in voluntary leadership and command and mentoring instruction.

■ 27. Amend § 121.431 by revising paragraph (a)(1) to read as follows:

§ 121.431 Applicability.

(a) * * *

(1) Prescribes crewmember qualifications for all certificate holders except where otherwise specified; and

* * * * *

■ 28. Amend § 121.432 by revising paragraph (a) and adding new paragraph (d) to read as follows:

§ 121.432 General.

(a) Except in the case of operating experience under § 121.434 of this part and ground training for leadership and command and mentoring required by §§ 121.419, 121.420, 121.427 and 121.429 of this part, as applicable, a pilot who serves as second in command of an operation that requires three or more pilots must be fully qualified to act as pilot in command of that operation.

* * * * *

(d) *Operations familiarization.* (1) *Applicability.* The operations familiarization requirements in paragraph (d)(2) of this section apply to all persons newly employed by the certificate holder to serve as a pilot in part 121 operations and who began the certificate holder's basic indoctrination ground training on or after [24 MONTHS AFTER EFFECTIVE DATE OF FINAL RULE].

(2) *Operations familiarization requirements.* (i) No certificate holder may use, and no person may serve as, a pilot in operations under this part unless that person has completed the operations familiarization required by paragraph (d)(2) of this section.

(ii) Operations familiarization must include at least two operating cycles conducted by the certificate holder in accordance with the operating rules of this part.

(iii) All pilots completing operations familiarization must occupy the observer seat on the flight deck and have access to and use an operational headset.

(3) *Deviation.* (i) A certificate holder who operates an aircraft that does not have an observer seat on the flight deck may submit a request to the Administrator for approval of a deviation from the requirements of paragraphs (d)(1) and (d)(2) of this section.

(ii) A request for deviation from any of the requirements in paragraphs (d)(1) and (d)(2) of this section must include the following information:

(A) The total number and types of aircraft operated by the certificate holder in operations under this part that do not have an observer seat on the flight deck;

(B) The total number and types of aircraft operated by the certificate holder in operations under this part that do have an observer seat on the flight deck; and

(C) Alternative methods for achieving the objectives of this section.

(iii) A certificate holder may request an extension of a deviation issued under this section.

(iv) Deviations or extensions to deviations will be issued for a period not to exceed 12 months.

■ 29. Amend § 121.433 as follows:

■ a. Revise paragraph (a)(2); and

■ b. In paragraph (c)(2), remove the word ''simulator'' and add, in its place, the word ''FFS''.

The revision reads as follows:

§ 121.433 Training required.

(a) * * *

(2) Crewmembers who have qualified and served as second in command or flight engineer on a particular type airplane may serve as pilot in command or second in command, respectively, upon completion of upgrade or conversion training, as applicable, for that airplane as provided in § 121.415.

* * * * *

■ 30. Amend § 121.434 as follows:

■ a. Redesignate paragraph (b)(3) as paragraph (b)(4);

■ b. Add new paragraph (b)(3);

■ c. In newly redesignated paragraph (b)(4), remove the words ''in flight'' and add, in their place, the word ''inflight'';

■ d. In paragraph (c)(1)(ii), revise the first sentence; and

■ e. In paragraph (c)(3)(iii), remove the words ''airplane simulator'' and add, in their place, the words ''FFS''.

The addition and revision read as follows:

§ 121.434 Operating experience, operating cycles, and consolidation of knowledge and skills.

* * * * *

(b) * * *

(3) In the case of a pilot who satisfactorily completed the preflight visual inspection of an aircraft by pictorial means during a proficiency check, the pilot must also demonstrate proficiency to a check pilot on at least one complete preflight visual inspection of the interior and exterior of a static airplane. This demonstration of proficiency must be completed by the pilot and certified by the check pilot before the completion of operating experience.

* * * * *

(c) * * *

(1) * * *

(ii) For a qualifying pilot in command completing initial or upgrade training specified in §§ 121.424 or 121.426 of this part, be observed in the performance of prescribed duties by an FAA inspector during at least one flight leg which includes a takeoff and landing.

* * * * *

■ 31. Amend § 121.439 as follows:

■ a. Revise paragraphs (a), (b) introductory text and (b)(1);

■ b. Remove and reserve paragraph (c);

■ c. Revise paragraphs (d) and (e); and

■ d. In paragraph (f)(2)(ii) remove the word ''reestablish'' and add, in its place, the word ''re-establish''.

The revisions read as follows:

§ 121.439 Pilot qualification: Recent experience.

(a) No certificate holder may use any person nor may any person serve as a required pilot flightcrew member, unless within the preceding 90 days, that person has made at least three takeoffs and landings in the type airplane in which that person is to serve. The takeoffs and landings required by this paragraph may be performed in a Level B or higher FFS approved under § 121.407 to include takeoff and landing maneuvers. In addition, any person who fails to make the three required takeoffs and landings within any consecutive 90-day period must re-establish recency of experience as provided in paragraph (b) of this section.

(b) In addition to meeting all applicable training and checking requirements of this part, a required pilot flightcrew member who has not met the requirements of paragraph (a) of this section must re-establish recency of experience as follows:

(1) Under the supervision of a check airman, make at least three takeoffs and landings in the type airplane in which that person is to serve or in a Level B or higher FFS.

* * * * *

(c) [Reserved]

(d) When using an FFS to accomplish any of the requirements of paragraphs (a) or (b) of this section, each required flightcrew member position must be occupied by an appropriately qualified person and the FFS must be operated as if in a normal inflight environment without use of the repositioning features of the FFS.

(e) A check airman who observes the takeoffs and landings prescribed in paragraph (b)(1) of this section shall certify that the person being observed is proficient and qualified to perform flight duty in operations under this part and may require any additional maneuvers that are determined necessary to make this certifying statement.

■ 32. Amend § 121.441 as follows:

■ a. In paragraphs (a) introductory text, (a)(1)(i)(B), (a)(1)(ii)(B), and (a)(2)(ii), remove the word ''simulator'' and add, in its place, the word ''FFS'';

■ b. In paragraph (a)(2)(i), remove the word ''simulator'' and add, in its place, the word ''flight'';

■ c. In paragraph (c) remove the words, ''airplane simulator or other appropriate training device'' and add, in their place, the words ''FFS or FTD'';

■ d. Revise paragraph (d); and

■ e. Remove the floating paragraph that follows paragraph (e).

The revision reads as follows:

§ 121.441 Proficiency checks.

* * * * *

(d) A person giving a proficiency check may, in his discretion, waive any of the maneuvers or procedures for which a specific waiver authority is set forth in appendix F to this part if the conditions in paragraphs (d)(1) through (3) of this section are satisfied:

(1) The Administrator has not specifically required the particular maneuver or procedure to be performed.

(2) The pilot being checked is, at the time of the check, employed by a certificate holder as a pilot.

(3) The pilot being checked meets one of the following conditions:

(i) The pilot is currently qualified for operations under this part in the particular type airplane and flightcrew member position.

(ii) The pilot has, within the preceding six calendar months, satisfactorily completed an approved training curriculum, except for an upgrade training curriculum in accordance with §§ 121.420 and 121.426 of this part, for the particular type airplane.

* * * * *

■ 33. Revise appendix E to read as follows:

Appendix E to Part 121—Flight Training Requirements

The maneuvers and procedures required by § 121.424 of this part for pilot initial, transition, and conversion flight training are set forth in the certificate holder's approved low-altitude windshear flight training program, § 121.423 extended envelope training, and in this appendix. The maneuvers and procedures required for upgrade training in accordance with § 121.424 of this part are set forth in this appendix and in the certificate holder's approved low-altitude windshear flight training program and § 121.423 extended envelope training. For the maneuvers and procedures required for upgrade training in accordance with § 121.426, this appendix

designates the airplane or FSTD, as appropriate, that may be used.

All required maneuvers and procedures must be performed inflight except that windshear and extended envelope training maneuvers and procedures must be performed in a full flight simulator (FFS) in which the maneuvers and procedures are specifically authorized to be accomplished. Certain other maneuvers and procedures may be performed in an FFS, a flight training device (FTD), or a static airplane as indicated by the appropriate symbol in the respective column opposite the maneuver or procedure.

Whenever a maneuver or procedure is authorized to be performed in an FTD, it may be performed in an FFS, and in some cases, a static airplane. Whenever the requirement may be performed in either an FTD or a static airplane, the appropriate symbols are entered in the respective columns.

A Level B or higher FFS may be used instead of the airplane to satisfy the inflight requirements if the FFS is approved under § 121.407 of this part and is used as part of an approved program that meets the requirements for an Advanced Simulation Training Program in appendix H of this part.

For the purpose of this appendix, the following symbols mean—

I = Pilot in Command (PIC) and Second in Command (SIC) initial training
T = PIC and SIC transition training
U = SIC to PIC upgrade training
C = Flight engineer (FE) to SIC conversion training

	Inflight	Static airplane	FFS	FTD
As appropriate to the airplane and the operation involved, flight training for pilots must include the following maneuvers and procedures.				
I. Preflight:				
(a) Visual inspection of the exterior and interior of the airplane, the location of each item to be inspected, and the purpose for inspecting it. The visual inspection may be conducted using an approved pictorial means that realistically portrays the location and detail of visual inspection items and provides for the portrayal of normal and abnormal conditions.	.....	I, T, U, C.		
(b) Use of the prestart checklist, appropriate control system checks, starting procedures, radio and electronic equipment checks, and the selection of proper navigation and communications radio facilities and frequencies prior to flight.	.....	.....	I, T, U, C.	
(c)(1) Before March 12, 2019, taxiing, sailing, and docking procedures in compliance with instructions issued by ATC or by the person conducting the training.	I, T, U, C.			
(2) Taxiing. Beginning March 12, 2019, this maneuver includes the following:.				
(i) Taxiing, sailing, and docking procedures in compliance with instructions issued by ATC or by the person conducting the training.	I, T, U, C.			
(ii) Use of airport diagram (surface movement chart)	I, T, U, C.			
(iii) Obtaining appropriate clearance before crossing or entering active runways.	I, T, U, C.			
(iv) Observation of all surface movement guidance control markings and lighting.	I, T, U, C.			
(d)(1) Before March 12, 2019, pre-takeoff checks that include powerplant checks.	.....	.....	I, T, U, C.	
(2) Beginning March 12, 2019, pre-takeoff procedures that include powerplant checks, receipt of takeoff clearance and confirmation of aircraft location, and FMS entry (if appropriate) for departure runway prior to crossing hold short line for takeoff.	.....	.....	I, T, U, C.	
II. Takeoffs:				
Training in takeoffs must include the types and conditions listed below but more than one type may be combined where appropriate:				
(a) Normal takeoffs which, for the purpose of this maneuver, begin when the airplane is taxied into position on the runway to be used.	I, T, U, C.			
(b) Takeoffs with instrument conditions simulated at or before reaching an altitude of 100′ above the airport elevation.	.....	.....	I, T, U, C.	
(c)(1) Crosswind takeoffs	I, T, U, C.			
(2) Beginning March 12, 2019, crosswind takeoffs including crosswind takeoffs with gusts if practicable under the existing meteorological, airport, and traffic conditions.	I, T, U, C.			
(d) Takeoffs with a simulated failure of the most critical powerplant—	.....	.....	I, T, U, C.	
(1) At a point after V_1 and before V_2 that in the judgment of the person conducting the training is appropriate to the airplane type under the prevailing conditions; or.	.....	.....	I, T, U, C.	
(2) At a point as close as possible after V_1 when V_1 and V_2 or V_1 and V_R are identical; or.	.....	.....	I, T, U, C.	
(3) At the appropriate speed for nontransport category airplanes	.....	.....	I, T, U, C.	
(e) Rejected takeoffs accomplished during a normal takeoff run after reaching a reasonable speed determined by giving due consideration to aircraft characteristics, runway length, surface conditions, wind direction and velocity, brake heat energy, and any other pertinent factors that may adversely affect safety or the airplane.	.....	.....	I, T, U, C.	
(f) Night takeoffs. For pilots in transition training, this requirement may be met during the operating experience required under.	I, T, U, C.			
§ 121.434 of this part by performing a normal takeoff at night when a check airman serving as PIC is occupying a pilot station.				
III. Flight Maneuvers and Procedures:				
(a) Turns with and without spoilers	.....	.....	I, T, U, C.	
(b) Tuck and Mach buffet	.....	.....	I, T, U, C.	

	Inflight	Static airplane	FFS	FTD
(c) Maximum endurance and maximum range procedures	.....	.....	I, T, U, C.	
(d) Operation of systems and controls at the flight engineer station	.....	.....	I, T, U.	
(e) Runaway and jammed stabilizer	.....	.....	I, T, U, C.	
(f) Normal and abnormal or alternate operation of the following systems and procedures:				
(1) Pressurization	.....	.....	.....	I, T, U, C.
(2) Pneumatic	.....	.....	.....	I, T, U, C.
(3) Air conditioning	.....	.....	.....	I, T, U, C.
(4) Fuel and oil	.....	I, T, U, C	.....	I, T, U, C.
(5) Electrical	.....	I, T, U, C	.....	I, T, U, C.
(6) Hydraulic	.....	I, T, U, C	.....	I, T, U, C.
(7) Flight control	.....	I, T, U, C	.....	I, T, U, C.
(8) Anti-icing and deicing	.....	.....	I, T, U, C.	
(9) Autopilot	.....	.....	I, T, U, C.	
(10) Automatic or other approach aids	.....	.....	I, T, U, C.	
(11) Stall warning devices, stall avoidance devices, and stability augmentation devices.	.....	.....	I, T, U, C.	
(12) Airborne radar devices	.....	.....	I, T, U, C.	
(13) Any other systems, devices, or aids available	.....	.....	I, T, U, C.	
(14) Electrical, hydraulic, flight control, and flight instrument system malfunctioning or failure.	.....	I, T, U, C	.....	I, T, U, C.
(15) Landing gear and flap systems failure or malfunction	.....	I, T, U, C	.....	I, T, U, C.
(16) Failure of navigation or communications equipment	.....	.....	I, T, U, C.	
(g) Flight emergency procedures that include at least the following:				
(1) Powerplant, heater, cargo compartment, cabin, flight deck, wing, and electrical fires.	.....	I, T, U, C	.....	I, T, U, C.
(2) Smoke control	.....	I, T, U, C	.....	I, T, U, C.
(3) Powerplant failures	.....	.....	I, T	U, C.
(4) Fuel jettisoning	.....	I, T, U, C	.....	I, T, U, C.
(5) Any other emergency procedures outlined in the appropriate flight manual.	.....	.....	I, T, U, C.	
(h) Steep turns in each direction. Each steep turn must involve a bank angle of 45° with a heading change of at least 180° but not more than 360°. This maneuver is not required for Group I transition training..	.....	.....	I, T, U, C.	
(i) Stall Prevention. For the purpose of this training the approved recovery procedure must be initiated at the first indication of an impending stall (buffet, stick shaker, aural warning). Stall prevention training must be conducted in at least the following configurations:.	.....	.....	I, T, U, C.	
(1) Takeoff configuration (except where the airplane uses only a zero-flap takeoff configuration).	.....	.....	I, T, U, C.	
(2) Clean configuration	.....	.....	I, T, U, C.	
(3) Landing configuration	.....	.....	I, T, U, C.	
(j) Recovery from specific flight characteristics that are peculiar to the airplane type.	.....	.....	I, T, U, C.	
(k) Instrument procedures that include the following:.				
(1) Area departure and arrival	.....	.....	I, T, U, C.	
(2) Use of navigation systems including adherence to assigned radials	.....	.....	I, T, U, C.	
(3) Holding	.....	.....	I, T, U, C.	
(l) ILS instrument approaches that include the following:.				
(1) Normal ILS approaches	I, T, U, C.			
(2) Manually controlled ILS approaches with a simulated failure of one powerplant which occurs before initiating the final approach course and continues to touchdown or through the missed approach procedure.	I	.....	T, U, C.	
(m) Instrument approaches and missed approaches other than ILS which include the following:.				
(1) Nonprecision approaches that the pilot is likely to use	.....	.....	U, C	I, T.
(2) In addition to subparagraph (1) of this paragraph, at least one other nonprecision approach and missed approach procedure that the pilot is likely to use.	.....	.....	I, T, U, C.	
In connection with paragraphs III(l) and III(m), each instrument approach must be performed according to any procedures and limitations approved for the approach facility used. The instrument approach begins when the airplane is over the initial approach fix for the approach procedure being used (or turned over to the final approach controller in the case of GCA approach) and ends when the airplane touches down on the runway or when transition to a missed approach configuration is completed.				
(n) Circling approaches which include the following:	I, T, U, C.			
(1) That portion of the circling approach to the authorized minimum altitude for the procedure being used must be made under simulated instrument conditions.	I, T, U, C.			

	Inflight	Static airplane	FFS	FTD
(2) The circling approach must be made to the authorized minimum circling approach altitude followed by a change in heading and the necessary maneuvering (by visual reference) to maintain a flight path that permits a normal landing on a runway at least 90° from the final approach course of the simulated instrument portion of the approach.	I, T, U, C.			
(3) The circling approach must be performed without excessive maneuvering, and without exceeding the normal operating limits of the airplane. The angle of bank should not exceed 30°.	I, T, U, C.			
Training in the circling approach maneuver is not required if the certificate holder's manual prohibits a circling approach in weather conditions below 1000–3 (ceiling and visibility).				
(o) Zero-flap approaches. Training in this maneuver is not required for a particular airplane type if the Administrator has determined that the probability of flap extension failure on that type airplane is extremely remote due to system design. In making this determination, the Administrator determines whether training on slats only and partial flap approaches is necessary.	I, C	.....	T, U.	
(p) Missed approaches which include the following:				
(1) Missed approaches from ILS approaches	.....	.....	I, T, U, C.	
(2) Other missed approaches	.....	.....	.....	I, T, U, C.
(3) Missed approaches that include a complete approved missed approach procedure.	.....	.....	.....	I, T, U, C.
(4) Missed approaches that include a powerplant failure	.....	.....	I, T, U, C.	
IV. Landings and Approaches to Landings:				
Training in landings and approaches to landings must include the types and conditions listed below but more than one type may be combined where appropriate:				
(a) Normal landings	I, T, U, C.			
(b) Landing and go around with the horizontal stabilizer out of trim	I, C	.....	T	U.
(c) Landing in sequence from an ILS instrument approach	I	.....	T, U, C.	
(d)(1) Crosswind landing	I, T, U, C.			
(2) Beginning March 12, 2019, crosswind landing, including crosswind landings with gusts if practicable under the existing meteorological, airport, and traffic conditions.	I, T, U, C.			
(e) Maneuvering to a landing with simulated powerplant failure, as follows:				
(1) For 3-engine airplanes, maneuvering to a landing with an approved procedure that approximates the loss of two powerplants (center and one outboard engine).	I, C	.....	T, U.	
(2) For other multiengine airplanes, maneuvering to a landing with a simulated failure of 50 percent of available powerplants with the simulated loss of power on one side of the airplane.	I, C	.....	T, U.	
(f) Landing under simulated circling approach conditions (exceptions under III(n) applicable to this requirement).	I	.....	T, U, C.	
(g) Rejected landings that include a normal missed approach procedure after the landing is rejected. For the purpose of this maneuver the landing should be rejected at approximately 50 feet and approximately over the runway threshold.	I	.....	T, U, C.	
(h) Zero-flap landings if the Administrator finds that maneuver appropriate for training in the airplane.	I, C	.....	T, U.	
(i) Manual reversion	.....	.....	I, T, U, C.	
(j) Night landings. For pilots in transition training, this requirement may be met during the operating experience required under § 121.434 of this part by performing a normal landing at night when a check airman serving as PIC is occupying a pilot station.	I, T, U, C.			

34. Revise appendix F to read as follows:

Appendix F to Part 121—Proficiency Check Requirements

The maneuvers and procedures required by § 121.441 for pilot proficiency checks are set forth in this appendix. Except for the equipment examination, these maneuvers and procedures must be performed inflight. Certain maneuvers and procedures may be performed in a full flight simulator (FFS), or a flight training device (FTD) as indicated by the appropriate symbol in the respective column opposite the maneuver or procedure.

Whenever a maneuver or procedure is authorized to be performed in an FTD, it may be performed in an FFS.

A Level B or higher FFS may be used instead of the airplane to satisfy the inflight requirements if the FFS is approved under § 121.407 and is used as part of an approved program that meets the requirements for an Advanced Simulation Training Program in appendix H of this part.

For the purpose of this appendix, the following symbols mean—

B = Both Pilot in Command (PIC) and Second in Command (SIC).

W = May be waived for both PIC and SIC, except during a proficiency check conducted to qualify a PIC after completing an upgrade training curriculum in accordance with §§ 121.420 and 121.426 of this part.

* = A symbol and asterisk (B*) indicates that a particular condition is specified in the maneuvers and procedures column.

= When a maneuver is preceded by this symbol it indicates the maneuver may be required in the airplane at the discretion of the person conducting the check.

Throughout the maneuvers and procedures prescribed in this appendix, good judgment commensurate with a high level of safety must be demonstrated. In determining whether such judgment has been shown, the person conducting the check considers adherence to approved procedures, actions based on analysis of situations for which there is no prescribed procedure or recommended practice, and qualities of

prudence and care in selecting a course of action.

Maneuvers/procedures	Required		Permitted		
	Simulated instrument conditions	Inflight	FFS	FTD	Waiver provisions of § 121.441(d)
The procedures and maneuvers set forth in this appendix must be performed in a manner that satisfactorily demonstrates knowledge and skill with respect to—					
(1) The airplane, its systems and components;					
(2) Proper control of airspeed, configuration, direction, altitude, and attitude in accordance with procedures and limitations contained in the approved Airplane Flight Manual, the certificate holder's operations manual, checklists, or other approved material appropriate to the airplane type; and					
(3) Compliance with approach, ATC, or other applicable procedures.					
I. Preflight:					
(a) Equipment examination (oral or written). As part of the proficiency check the equipment examination must be closely coordinated with, and related to, the flight maneuvers portion but may not be given during the flight maneuvers portion. The equipment examination must cover—					
(1) Subjects requiring a practical knowledge of the airplane, its powerplants, systems, components, operational and performance factors;					
(2) Normal, abnormal, and emergency procedures, and the operations and limitations relating thereto; and					
(3) The appropriate provisions of the approved Airplane Flight Manual.					
The person conducting the check may accept, as equal to this equipment examination, an equipment examination given to the pilot in the certificate holder's ground training within the preceding 6 calendar months.					
(b) Preflight inspection. The pilot must—					
(1) Conduct an actual visual inspection of the exterior and interior of the airplane, locating each item and explaining briefly the purpose for inspecting it. The visual inspection may be conducted using an approved pictorial means that realistically portrays the location and detail of visual inspection items and provides for the portrayal of normal and abnormal conditions. If a flight engineer is a required flightcrew member for the particular type airplane, the visual inspection may be waived under § 121.441(d).	.....	.....	.....	B	W.*
(2) Demonstrate the use of the prestart checklist, appropriate control system checks, starting procedures, radio and electronic equipment checks, and the selection of proper navigation and communications radio facilities and frequencies prior to flight.	.....	.....	.....	B.	
(c)(1) Taxiing. Before March 12, 2019, this maneuver includes taxiing, sailing, or docking procedures in compliance with instructions issued by ATC or by the person conducting the check. SIC proficiency checks for a type rating must include taxiing. However, other SIC proficiency checks need only include taxiing to the extent practical from the seat position assigned to the SIC.	.....	B.			

Maneuvers/procedures	Required		Permitted		
	Simulated instrument conditions	Inflight	FFS	FTD	Waiver provisions of § 121.441(d)
(c)(2) Taxiing. Beginning March 12, 2019, this maneuver includes the following: (i) Taxiing, sailing, or docking procedures in compliance with instructions issued by ATC or by the person conducting the check. (ii) Use of airport diagram (surface movement chart). (iii) Obtaining appropriate clearance before crossing or entering active runways. (iv) Observation of all surface movement guidance control markings and lighting. SIC proficiency checks for a type rating must include taxiing. However, other SIC proficiency checks need only include taxiing to the extent practical from the seat position assigned to the SIC.	.....	B.			
(d)(1) Powerplant checks. As appropriate to the airplane type.	.....	.....	B.		
(d)(2) Beginning March 12, 2019, pre-takeoff procedures that include powerplant checks, receipt of takeoff clearance and confirmation of aircraft location, and FMS entry (if appropriate), for departure runway prior to crossing hold short line for takeoff.	.....	.....	B.		
II. Takeoff:					
Takeoffs must include the types listed below, but more than one type may be combined where appropriate:					
(a) Normal. One normal takeoff which, for the purpose of this maneuver, begins when the airplane is taxied into position on the runway to be used.	.....	B.*			
(b) Instrument. One takeoff with instrument conditions simulated at or before reaching an altitude of 100′ above the airport elevation.	B	.....	B.*		
(c)(1) Crosswind. Before March 12, 2019, one crosswind takeoff, if practicable, under the existing meteorological, airport, and traffic conditions.	.....	B.*			
(c)(2) Beginning March 12, 2019, one crosswind takeoff with gusts, if practicable, under the existing meteorological, airport, and traffic conditions.	.....	B.*			
#(d) Powerplant failure. One takeoff with a simulated failure of the most critical powerplant—	.....	.....	B.		
(1) At a point after V_1 and before V_2 that in the judgment of the person conducting the check is appropriate to the airplane type under the prevailing conditions;	.....	.....	B.		
(2) At a point as close as possible after V_1 when V_1 and V_2 or V_1 and V_r are identical; or.	.....	.....	B.		
(3) At the appropriate speed for nontransport category airplanes.	.....	.....	B.		
(e) Rejected. A rejected takeoff may be performed in an airplane during a normal takeoff run after reaching a reasonable speed determined by giving due consideration to aircraft characteristics, runway length, surface conditions, wind direction and velocity, brake heat energy, and any other pertinent factors that may adversely affect safety or the airplane.	.....	.....	B*	.....	W.
III. Instrument procedures:					
(a) Area departure and area arrival. During each of these maneuvers the pilot must—	B	.....	B	.....	W.*
(1) Adhere to actual or simulated ATC clearances (including assigned radials); and.	B	.....	B.		
(2) Properly use available navigation facilities	B	.....	B.		
Either area arrival or area departure, but not both, may be waived under § 121.441(d).					
(b) Holding. This maneuver includes entering, maintaining, and leaving holding patterns. It may be performed in connection with either area departure or area arrival.	B	.....	B	.....	W.
(c) ILS and other instrument approaches. There must be the following:					
(1) At least one normal ILS approach	B	.....	B.		
(2) At least one manually controlled ILS approach with a simulated failure of one powerplant. The simulated failure should occur before initiating the final approach course and must continue to touchdown or through the missed approach procedure.	B	B.			

Maneuvers/procedures	Required		Permitted		
	Simulated instrument conditions	Inflight	FFS	FTD	Waiver provisions of § 121.441(d)
(3) At least one nonprecision approach procedure using a type of nonprecision approach procedure that the certificate holder is approved to use.	B		B.		
(4) At least one nonprecision approach procedure using a different type of nonprecision approach procedure than performed under subparagraph (3) of this paragraph that the certificate holder is approved to use.	B			B.	
Each instrument approach must be performed according to any procedures and limitations approved for the approach procedure used. The instrument approach begins when the airplane is over the initial approach fix for the approach procedure being used (or turned over to the final approach controller in the case of GCA approach) and ends when the airplane touches down on the runway or when transition to a missed approach configuration is completed. Instrument conditions need not be simulated below 100′ above touchdown zone elevation.					
(d) Circling approaches. If the certificate holder is approved for circling minimums below 1000–3 (ceiling and visibility), at least one circling approach must be made under the following conditions—			B*		W.*
(1) The portion of the approach to the authorized minimum circling approach altitude must be made under simulated instrument conditions.	B		B.*		
(2) The approach must be made to the authorized minimum circling approach altitude followed by a change in heading and the necessary maneuvering (by visual reference) to maintain a flight path that permits a normal landing on a runway at least 90° from the final approach course of the simulated instrument portion of the approach.			B.*		
(3) The circling approach must be performed without excessive maneuvering, and without exceeding the normal operating limits of the airplane. The angle of bank should not exceed 30°.			B.*		
If local conditions beyond the control of the pilot prohibit the maneuver or prevent it from being performed as required, it may be waived as provided in § 121.441(d). However, the maneuver may not be waived under this provision for two successive proficiency checks. Except for a SIC proficiency check for a type rating, the circling approach maneuver is not required for a SIC if the certificate holder's manual prohibits a SIC from performing a circling approach in operations under this part.					
(e) Missed approach.					
(1) At least one missed approach from an ILS approach.			B.*		
(2) At least one additional missed approach for SIC proficiency checks for a type rating and for all PIC proficiency checks.			B.*		
A complete approved missed approach procedure must be accomplished at least once. At the discretion of the person conducting the check a simulated powerplant failure may be required during any of the missed approaches. These maneuvers may be performed either independently or in conjunction with maneuvers required under Sections III or V of this appendix. At least one missed approach must be performed inflight.					
IV. Inflight Maneuvers:					
(a) Steep turns. For SIC proficiency checks for a type rating and for all PIC proficiency checks, at least one steep turn in each direction must be performed. Each steep turn must involve a bank angle of 45° with a heading change of at least 180° but not more than 360°.	B		B		W.
(b) Stall Prevention. For the purpose of this maneuver the approved recovery procedure must be initiated at the first indication of an impending stall (buffet, stick shaker, aural warning). Except as provided below there must be at least three stall prevention recoveries as follows:	B		B		W.*

Maneuvers/procedures	Required		Permitted		
	Simulated instrument conditions	Inflight	FFS	FTD	Waiver provisions of § 121.441(d)
(1) Takeoff configuration (except where the airplane uses only a zero-flap takeoff configuration).	B		B.		
(2) Clean configuration.	B		B.		
(3) Landing configuration.	B		B.		
At the discretion of the person conducting the check, one stall prevention recovery must be performed in one of the above configurations while in a turn with the bank angle between 15° and 30°. Two out of the three stall prevention recoveries required by this paragraph may be waived.					
If the certificate holder is authorized to dispatch or flight release the airplane with a stall warning device inoperative the device may not be used during this maneuver.					
(c) Specific flight characteristics. Recovery from specific flight characteristics that are peculiar to the airplane type.			B		W.
(d) Powerplant failures. In addition to specific requirements for maneuvers with simulated powerplant failures, the person conducting the check may require a simulated powerplant failure at any time during the check.			B.		
V. Landings and Approaches to Landings:					
Notwithstanding the authorizations for combining and waiving maneuvers and for the use of an FFS, at least two actual landings (one to a full stop) must be made for all PIC proficiency checks, all initial SIC proficiency checks, and all SIC proficiency checks for a type rating.					
Landings and approaches to landings must include the types listed below, but more than one type may be combined where appropriate:					
(a) Normal landing		B.			
(b) Landing in sequence from an ILS instrument approach except that if circumstances beyond the control of the pilot prevent an actual landing, the person conducting the check may accept an approach to a point where in his judgment a landing to a full stop could have been made.		B.*			
(c)(1) Crosswind landing, if practical under existing meteorological, airport, and traffic conditions.		B.*			
(c)(2) Beginning March 12, 2019, crosswind landing with gusts, if practical under existing meteorological, airport, and traffic conditions.		B.*			
(d) Maneuvering to a landing with simulated powerplant failure as follows:					
(1) In the case of 3-engine airplanes, maneuvering to a landing with an approved procedure that approximates the loss of two powerplants (center and one outboard engine); or			B.*		
(2) In the case of other multiengine airplanes, maneuvering to a landing with a simulated failure of 50 percent of available powerplants, with the simulated loss of power on one side of the airplane.			B.*		
Notwithstanding the requirements of subparagraphs (d)(1) and (2) of this paragraph, for an SIC proficiency check, except for an SIC proficiency check for a type rating, the simulated loss of power may be only the most critical powerplant.					
In addition, a PIC may omit the maneuver required by subparagraph (d)(1) or (d)(2) of this paragraph during a required proficiency check or FFS course of training if he satisfactorily performed that maneuver during the preceding proficiency check, or during the preceding approved FFS course of training under the observation of a check airman, whichever was completed later.					

Maneuvers/procedures	Required		Permitted		
	Simulated instrument conditions	Inflight	FFS	FTD	Waiver provisions of § 121.441(d)
(e) Except as provided in paragraph (f) of this section, if the certificate holder is approved for circling minimums below 1000–3 (ceiling and visibility), a landing under simulated circling approach conditions. However, when performed in an airplane, if circumstances beyond the control of the pilot prevent a landing, the person conducting the check may accept an approach to a point where, in his judgment, a landing to a full stop could have been made.	.....	.....	B.*		
#(f) A rejected landing, including a normal missed approach procedure, that is rejected approximately 50′ over the runway and approximately over the runway threshold. This maneuver may be combined with instrument, circling, or missed approach procedures, but instrument conditions need not be simulated below 100 feet above the runway.	.....	.....	B.		
VI. Normal and Abnormal Procedures:					
Each pilot must demonstrate the proper use of as many of the systems and devices listed below as the person conducting the check finds are necessary to determine that the person being checked has a practical knowledge of the use of the systems and devices appropriate to the airplane type:					
(a) Anti-icing and deicing systems	.....	.....	B.		
(b) Autopilot systems	.....	.....	B.		
(c) Automatic or other approach aid systems	.....	.....	B.		
(d) Stall warning devices, stall avoidance devices, and stability augmentation devices.	.....	.....	B.		
(e) Airborne radar devices	.....	.....	B.		
(f) Any other systems, devices, or aids available	.....	.....	B.		
(g) Hydraulic and electrical system failures and malfunctions.	.....	.....	.....	B.	
(h) Landing gear and flap systems failure or malfunction	.....	.....	.....	B.	
(i) Failure of navigation or communications equipment	.....	.....	B.		
VII. Emergency Procedures:					
Each pilot must demonstrate the proper emergency procedures for as many of the emergency situations listed below as the person conducting the check finds are necessary to determine that the person being checked has an adequate knowledge of, and ability to perform, such procedure:					
(a) Fire in flight	.....	.....	B.		
(b) Smoke control	.....	.....	B.		
(c) Rapid decompression	.....	.....	B.		
(d) Emergency descent	.....	.....	B.		
(e) Any other emergency procedures outlined in the approved Airplane Flight Manual.	.....	.....	B.		

■ 35. Revise appendix H to read as follows:

Appendix H to Part 121—Advanced Simulation

This appendix prescribes the requirements for use of Level B or higher FFSs to satisfy the inflight requirements of appendices E and F of this part and the requirements of § 121.439. The requirements in this appendix are in addition to the FFS approval requirements in § 121.407. Each FFS used under this appendix must be approved as a Level B, C, or D FFS, as appropriate.

Advanced Simulation Training Program

For a certificate holder to conduct Level C or D training under this appendix all required FFS instruction and checks must be conducted under an advanced simulation training program approved by the Administrator for the certificate holder. This program must also ensure that all instructors and check airmen used in appendix H training and checking are highly qualified to provide the training required in the training program. The advanced simulation training program must include the following:

1. The certificate holder's initial, transition, conversion, upgrade and recurrent FFS training programs and its procedures for re-establishing recency of experience in the FFS.

2. How the training program will integrate Level B, C, and D FFSs with other FSTDs to maximize the total training, checking, and certification functions.

3. Documentation that each instructor and check airman has served for at least 1 year in that capacity in a certificate holder's approved program or has served for at least 1 year as a pilot in command or second in command in an airplane of the group in which that pilot is instructing or checking.

4. A procedure to ensure that each instructor and check airman actively participates in either an approved regularly scheduled line flying program as a flightcrew member or an approved line observation program in the same airplane type for which that person is instructing or checking.

5. A procedure to ensure that each instructor and check airman is given a minimum of 4 hours of training each year to become familiar with the certificate holder's advanced simulation training program, or changes to it, and to emphasize their respective roles in the program. Training for instructors and check airmen must include training policies and procedures, instruction methods and techniques, operation of FFS controls (including environmental and trouble panels), limitations of the FFS, and minimum equipment required for each course of training.

6. A special Line-Oriented Flight Training (LOFT) program to facilitate the transition from the FFS to line flying. This LOFT program must consist of at least a 4-hour course of training for each flightcrew. It also must contain at least two representative flight segments of the certificate holder's operations. One of the flight segments must contain strictly normal operating procedures from push back at one airport to arrival at another. Another flight segment must contain training in appropriate abnormal and emergency flight operations. After March 12, 2019, the LOFT must provide an opportunity for the pilot to demonstrate workload management and pilot monitoring skills.

FFS Training, Checking and Qualification Permitted

1. Level B FFS

a. Recent experience (§ 121.439).

b. Training in night takeoffs and landings (part 121, appendix E).

c. Landings in a proficiency check (part 121, appendix F).

2. Level C and D FFS

a. Recent experience (§ 121.439).

b. All pilot flight training and checking required by this part except the following:

i. The operating experience, operating cycles, and consolidation of knowledge and skills requirements of § 121.434;

ii. The line check required by § 121.440; and

iii. The visual inspection of the exterior and interior of the airplane required by appendices E and F.

c. The practical test requirements of § 61.153(h) of this chapter, except the visual inspection of the exterior and interior of the airplane.

PART 135—OPERATING REQUIREMENTS: COMMUTER AND ON DEMAND OPERATIONS AND RULES GOVERNING PERSONS ON BOARD SUCH AIRCRAFT

■ 36. The authority citation for part 135 is revised to read as follows:

Authority: 49 U.S.C. 106(f), 106(g), 40113, 41706, 44701–44702, 44705, 44709, 44711–44713, 44715–44717, 44722, 44730, 45101–45105.

■ 37. Amend § 135.3 by adding paragraph (d) to read as follows:

§ 135.3 Rules applicable to operations subject to this part.

* * * * *

(d) Additional limitations applicable to certificate holders that are required by paragraph (b) of this section or authorized in accordance with paragraph (c) of this section, to comply with subparts N and O of part 121 of this chapter instead of subparts E, G, and H of this part.

(1) *Upgrade training.* (i) Each certificate holder must include in upgrade ground training for pilots, instruction in at least the subjects identified in § 121.419(a) of this chapter, as applicable to their assigned duties; and, for pilots serving in crews of two or more pilots, beginning on [24 MONTHS AFTER EFFECTIVE DATE OF FINAL RULE], instruction in the subjects identified in § 121.419(c) of this chapter.

(ii) Each certificate holder must include in upgrade flight training for pilots, flight training for the maneuvers and procedures required in § 121.424(a), (c), (e) and (f) of this chapter; and, for pilots serving in crews of two or more pilots, beginning on [24 MONTHS AFTER EFFECTIVE DATE OF FINAL RULE], the flight training required in § 121.424(b) of this chapter.

(2) *Initial and recurrent leadership and command and mentoring training.* Certificate holders are not required to include leadership and command training in §§ 121.409(b)(2)(ii)(B)(*6*), 121.419(c)(1), 121.424(b) and 121.427(d)(1) of this chapter and mentoring training in §§ 121.419(c)(2) and 121.427(d)(1) of this chapter in initial and recurrent training for pilots in command who serve in operations that use only one pilot.

(3) *One-time leadership and command and mentoring training.* Section 121.429 of this chapter does not apply to certificate holders conducting operations under this part when those operations use only one pilot.

* * * * *

Issued in Washington, DC, under the authority provided by 49 U.S.C. 106(f), 44701(a) and Sec. 206 of Public Law 111–216, 124 Stat. 2348 (49 U.S.C. 44701 note).

Dated: September 21, 2016.

John Barbagallo,

Deputy Director, Flight Standards Service.

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