

DEPARTMENT OF TRANSPORTATION**Federal Aviation Administration****14 CFR Part 121**

[Docket No. 28072; Notice No. 95-2]

RIN 2120-AF29

Advanced Simulation Plan Revisions**AGENCY:** Federal Aviation Administration (FAA), DOT.**ACTION:** Notice of Proposed Rulemaking (NPRM).

SUMMARY: The FAA proposes to: Revise and clarify certain requirements of the Advanced Simulation Plan for part 121 operators to authorize more training and checking in simulators; clarify the operating experience requirements for certain second-in-command pilots trained and checked in simulators; and eliminate the requirement that the minimum of 1 year of employment as an instructor or check airman be with the operator of the simulator. This action is needed to respond to concerns identified by certain affected certificate holders in petitions for exemption. It is intended to alleviate unnecessary training costs while maintaining an equivalent level of safety.

DATES: Comments must be received by March 16, 1995.

ADDRESSES: Comments on this proposal may be mailed in triplicate or delivered to: Federal Aviation Administration, Office of Chief Counsel, Attention: Rules Docket (AGC-10), Docket No. 28072, 800 Independence Avenue Washington, DC 20591.

FOR FURTHER INFORMATION CONTACT: Gary E. Davis, Project Development Branch, AFS-240, Air Transportation Division, Office of Flight Standards, Federal Aviation Administration, 800 Independence Avenue SW., Washington, DC 20591, Telephone (202) 267-3747.

SUPPLEMENTARY INFORMATION:**Comments Invited**

Interested persons are invited to participate in the making of the proposed rule by submitting such written data, views, or arguments as they may desire. Comments relating to the environmental, energy, federalism, or economic impact that might result from adopting the proposals in this notice are also invited. Substantive comments should be accompanied by cost estimates. Comments should identify the regulatory docket or notice number and should be submitted in triplicate to the Rules Docket address specified above. All comments received

on or before the closing date for comments specified will be considered by the Administrator before taking action on this proposed rulemaking. The proposal contained in this notice may be changed in light of comments received. All comments received will be available, both before and after the closing date for comment, in the Rules Docket for examination by interested persons. A report summarizing each substantive public contact with Federal Aviation Administration (FAA) personnel concerned with this rulemaking will be filed in the docket. Commenters wishing the FAA to acknowledge receipt of their comments submitted in response to this notice must include a pre-addressed, stamped postcard on which the following statement is made: "Comments to Docket No. 28072." The postcard will be date stamped and mailed to the commenter.

Availability of NPRM's

Any person may obtain a copy of this NPRM by submitting a request to the Federal Aviation Administration, Office of Public Affairs, Attention: Public Inquiry Center, APA-430, 800 Independence Avenue, SW., Washington, DC 20591, or by calling (202) 267-3484. Communications must identify the notice number of this NPRM.

Persons interested in being placed on the mailing list for future NPRM's should request from the above office a copy of Advisory Circular No. 11-2A, Notice of Proposed Rulemaking Distribution System, which describes the application procedure.

Background*Terminology*

Appendix H to 14 CFR part 121, "Advanced Simulation Plan," provides guidelines and a means for achieving flightcrew training and checking in advanced airplane simulators. The three-phase plan provides standards for a progressive upgrade of airplane simulators so that the total scope of flightcrew training can be enhanced.

Appendix H specifically describes the simulator and visual system requirements that must be met to obtain approval to conduct certain training and checking in the particular type of simulator (Phase I, II, or III). The term "phase" was used because it was expected that operators would be upgrading their simulator inventories in phases while exercising simulator privileges commensurate with the phase of the simulator. The upgrading of simulators in phases is now essentially

complete and the designation of "phase" for identification of simulator complexity is no longer descriptive. Operators no longer begin at a lower level of qualification and upgrade in phases. The tendency is to acquire a given level simulator that best meets their needs. The agency and the industry now commonly refer to the simulators in terms of "levels." The levels currently used to describe a particular simulator compared with the older phase designations are:

New terminology	Old terminology
Level A	Visual.
Level B	Phase I.
Level C	Phase II.
Level D	Phase III.

It is proposed to revise Appendix H to replace the old terminology with the new throughout the appendix. The new terminology will be used throughout this preamble in discussing other amendments proposed herein.

Advanced Simulation

Appendix H was developed and adopted when there were no "advanced simulators." Currently, however, advanced simulators exist which have permitted virtual duplication of many aircraft performance characteristics and systems. As a result, the vast majority of U.S. airline pilot training is now conducted in these advanced simulators. According to industry members, however, certain limitations originally incorporated into Appendix H still require a small, yet relatively expensive, amount of training to be completed in the actual airplane.

In light of their highly satisfactory experience with these simulators, some industry members believe that a Level C simulator should be approved for those flightcrew training and checking maneuvers that currently are permitted only in the aircraft or in Level D simulators. In a petition for exemption dated October 12, 1992, the Air Transport Association, on behalf of its affected member airlines and other similarly situated airlines, petitioned for an exemption to provide for initial training in a Level C simulator. Trans World Airlines and Tower Airlines petitioned individually to use a Level C simulator to conduct limited initial and upgrade training and checking functions that would normally be conducted in a Level D simulator. Agreeing in part with the petitioners' supportive information and, based on its own experience, the FAA granted some limited relief for training and checking.

More recently, United Airlines (UAL) has requested similar but slightly more

extensive relief than previously granted. UAL believes that its experience with advanced simulation, as well as the FAA's own experience, more than adequately justifies expanding the scope of flightcrew training and checking in a Level C simulator. In support of its request, UAL points out that: (1) The same training curricula and pilot proficiency standards would apply to a Level C or Level D simulator; (2) these curricula can be implemented and proficiency demonstrated effectively in a Level C simulator; and (3) daily local FAA oversight of training and checking programs will assure that these curricula and standards remain sufficient.

UAL further believes that its request would be in the public interest since it is universally acknowledged that simulator training is superior to training in an actual aircraft and the public is served best when high quality training is conducted in the safest and most cost-effective manner.

The FAA agrees with much of UAL's rationale in its petition; however, after consideration of the supportive information, the FAA believes that UAL is not alone or unique in its request. Therefore, the FAA has determined that the appropriate response to the UAL petition for exemption is to propose a change to the existing regulations.

Discussion of the Proposal

Authorizing Additional Training and Checking in a Level C Simulator

All simulators duplicate or simulate the functions of an airplane to varying levels of accuracy. The FAA requires that, for each higher level of simulator, the simulator duplicate the performance of the airplane over larger and more critical portions of the airplane's operating envelope. This performance must be shown by documented evidence. Level D simulators must provide the highest level of flight realism. They must perform as the airplane performs over the largest portion of the airplane's operating envelope, while providing the most complete and technically accurate environment possible. Evidence of this performance must include certain sophisticated aerodynamic modeling that allows more complete replication of the performance of the airplane.

Level C simulators are designed to operate over the same portion of the airplane's operating envelope as Level D simulators, and do so under a relatively sophisticated performance verification process. Level C simulators, however, are not required to have sophisticated aerodynamic modeling factors. Nor do

they undergo the degree of performance verification that Level D simulators do. However, based on 13 years of experience using Level C simulators and on the rigorous qualification process and performance standards required for Level C simulators, the FAA has determined that they may now be used for initial qualification and upgrade training and checking for SIC. Because of performance differences between Level C and Level D simulators, however, the pilots qualified using Level C simulators should meet certain prerequisite levels of experience. They should also be required to have supervised post qualification operational experience.

Prior Aeronautical Experience

In Appendix H to part 121, the FAA proposes to add a new paragraph to the section entitled "Level C, Training and Checking Permitted." It would permit SIC applicants to obtain initial and upgrade training and certification checks in Level C simulators if certain preconditions are met. The rule would require that the applicant meet the prior aeronautical experience requirements for an ATP certificate and airplane rating under § 61.155, before beginning training in a Level C simulator and before being checked under § 61.157 in a Level C simulator for an ATP certificate or rating.

In addition, these SIC initial and upgrade applicants must fulfill special operational experience requirements under proposed new provisions in § 121.434(c)(2). Under proposed § 121.434(c)(2)(ii), the SIC would have to obtain line operations experience at the SIC duty position, supervised by a check pilot. These pilots will not have the option, available to other pilots under § 121.434(c)(2)(i), to fulfill operating experience requirements by simply observing another pilot perform SIC duties. In addition, as part of this initial operating experience, these pilots would have to perform a minimum of four takeoffs and four landings also under the supervision of a check pilot.

The proposed amendment to § 121.434(f) would not allow pilots trained in a Level C simulator to substitute takeoffs or landings for required operating experience. The proposed rule would continue to allow other SIC pilots to reduce by 50 percent the hours of required operating experience by the substitution of one additional takeoff and landing for each hour of flight.

Revising Appendix H to authorize expanded use of Level C simulators for additional training and checking would provide an equivalent or higher level of

safety. Additionally, by not doing this training and checking in flight in the actual aircraft, these authorized programs would provide benefits in safety, energy conservation, and efficiency.

Modifying Employment Requirement

The FAA is proposing to remove the requirement in Appendix H (in paragraph 3 of the section entitled "Advanced Simulation Training Program") that each instructor and check airman have been employed for at least 1 year by the certificate holder applying for approval of the program. The FAA's intention, in originally requiring a minimum period of 1-year of employment with the operator, was to ensure suitable experience levels for individuals selected to be instructors and check airmen. The most sophisticated simulator can be of little value without an experienced, well-trained instructor or check airman to operate it. However, the agency has concluded that this goal can be achieved by 1 year of experience serving as an instructor or check airman with any part 121 operator. The FAA believes that this amount of instructor experience, in addition to the training prerequisites for these individuals in Appendix H, is an adequate level of preparation for an instructor or check airman in a Level C simulator. Modifying the employment requirement in this way will not decrease safety. However, it should be noted that, instructors and check airmen may participate in more than one operator's approved training program; each operator must provide training for each instructor and check airman in its training program. Thus, an instructor or check airman who instructs for more than one operator must receive training in each operator's program.

Similarly, the FAA is proposing to revise the section entitled "Phase II, Training and Checking Permitted" in Appendix H to provide that pilots seeking to upgrade to pilot in command (PIC) do not have to have obtained the prerequisite SIC experience "with the operator," nor have served or be serving as SIC "with that operator." Again, the FAA believes that the level of experience required by an approved training program, in addition to the training prerequisites for these individuals in Appendix H and elsewhere under the Federal Aviation Regulations, establishes an adequate level of preparation regardless of employment with any specific operator.

Clarifying Training and Certification Check Requirements for Initial and Upgrading Training for SIC's Upgrading to PIC

The FAA is also proposing to revise paragraph 2 of the section entitled "Level C, Training and Checking Permitted," to clearly distinguish between the prerequisites for initial versus upgrade training and checking. To do this, paragraph 2(a) would be redesignated as paragraph 2 and paragraph 2(b) as paragraph 3. New paragraph 3 would be stated so as to eliminate the need for the flush paragraph currently at the end of the section.

Current paragraph 2(a) sets forth the prerequisites for training and checking in a Level C simulator for SIC's upgrading to PIC in the same equipment. For example, a pilot serving as SIC in a Boeing 727 upgrading to PIC in the same airplane would have to meet the requirements of this paragraph. Under new paragraph 2, these requirements would not change. The pilot would still have to have previously qualified as SIC in the equipment, have at least 500 hours of actual flight time as SIC in an airplane in the same group, and be currently serving as SIC in an airplane in the same group. These requirements are consistent with the definition of upgrade training under Subpart N—Training program. Section 121.400(c)(3) defines "Upgrade training" as the training required for crewmembers who have qualified and served as SIC or flight engineer on a particular airplane type, before they serve as PIC or SIC, respectively, on that airplane.

The requirements of current paragraph 2(b) must be read in conjunction with the final paragraph in the section to determine that it applies to initial training and checking for SIC's upgrading to PIC in an airplane type in which the pilot has never served as SIC. This SIC has experience in the same group of airplanes, but not in the same airplane to which the pilot wants to upgrade. For example, a pilot serving as an SIC in a Boeing 737 initially upgrading to PIC in a Boeing 727 must meet the requirements of this paragraph.

New paragraph 3 would not change this requirement, but would make it easier for the reader to see that it applies to initial training and checking. The pilot would still have to be employed by an operator, be currently serving as SIC in an airplane in the same group, have a minimum of 2500 flight hours as SIC in airplanes in the same group, and have served as SIC on at least two airplanes of the same group. Because proposed

new paragraph 3 would refer to "initial" training, the language in the current last paragraph is no longer needed to explain that pilots meeting these requirements may upgrade to another airplane in that group in which that pilot has not previously qualified. The requirements in new paragraph 3 continue to be consistent with § 121.400(c)(1), which defines "initial training" as the training required for crewmembers and dispatchers who have not qualified and served in the same capacity on another airplane of the same group.

Modifying Minimum Flight Hour Requirements

The FAA also is considering whether to propose revising certain flight hour experience requirements for initial and upgrade training and checking in a Level C simulator. Currently, pilots upgrading from SIC to PIC in equipment in which they have previously qualified as SIC are required to have at least 500 hours of actual flight time while serving as SIC in an airplane in the same group. Similarly, pilots who are initially upgrading from SIC to PIC in other equipment in which the pilot has not been previously qualified, must have a minimum of 2500 hours as SIC in airplanes of the same group as the equipment to which they are upgrading.

The flight hour experience requirements ensure that a pilot has adequate experience in order to upgrade to PIC. These values were established, based on the collective opinions of the FAA and industry members, when Appendix H was originally adopted. Since then, industry members have argued that the required hours are excessive. Based on the success of some industry members who have operated under exemptions that provided certain relief of these flight-hour requirements and other specific requirements for upgrade training under Subpart N, the FAA may propose, for example, to eliminate the 500 flight-hour requirement and reduce from 2500 to 500 the number of flight hours required for initial upgrade training and checking.

The FAA seeks comments and additional information that may justify proposing to modify these current flight hour requirements in a future notice of proposed rulemaking.

Standardizing Language and Eliminating Obsolete References

As discussed above, the term "phase" is no longer used to describe the various simulators referred to in Appendix H. Accordingly, it is proposed to replace "phase" with "level" wherever it

appears and to use the current alphabetical designations for the various levels.

In addition, it is proposed to remove the section entitled "Phase IIA Interim Simulator Upgrade Plan for Part 121 Operators" as obsolete. For the same reason, it is proposed to remove paragraph 7 of the section entitled "Advanced Simulation Training Program" which references Phase IIA. Under Phase IIA, any part 121 operator could conduct Phase II training for 3 and 1/2 years from the date it was approved for Phase I in a simulator approved for the landing maneuver under Phase I. The carrier's upgrade plan had to be submitted to the FAA before July 30, 1981. Thus, these provisions are no longer effective.

Regulatory Analysis

Executive Order 12866 established the requirement that, within the extent permitted by law, a Federal regulatory action may be undertaken only if the potential benefits to society for the regulation outweigh the potential costs to society. In response to this requirement, and in accordance with Department of Transportation policies and procedures, the FAA has estimated the anticipated benefits and costs of this rulemaking action. The FAA has determined that this proposed rule is not a "significant rulemaking action", as defined by Executive Order 12866 (Regulatory Planning and Review). The anticipated costs and benefits associated with this proposed rule are summarized below. (A more detailed discussion of costs and benefits is contained in the full regulatory evaluation placed in the docket for this proposed rule).

Costs

The proposed rule would not improve any additional costs on either part 121 air carrier operators or the flying public. The proposed rule would allow certain training practices that the FAA has determined to be safe and efficient methods for training pilots, and it would clarify other portions of Appendix H. Thus, the proposal would not impose any additional costs because it would permit operators to use the least costly methods of training while maintaining an equivalent level of safety for the flying public. Since current training practices would be maintained to current standards under the proposed rule, there would be no reduction in aviation safety imposed on the flying public.

Potential Cost-Relief Benefits

The proposed rule would generate potential cost savings benefits estimated

at \$20 million, in 1992 dollars, over the next 10 years (or \$12.4 million, discounted, using a 7.0 percent rate of interest). These potential cost savings benefits would take the form of increased operational efficiency (qualitative) and cost savings (quantitative) to those part 121 operators engaged in initial simulator training, in accordance with Appendix H.

The potential cost savings benefits of the proposed rule represent the difference between the costs incurred currently by part 121 air carriers for initial training and checking of SIC pilots and the costs that would be incurred if the proposal were to become a rule. Currently, certain requirements for initial training and checking of SIC pilots that are not performed in a Level D simulator must be performed in the aircraft. Under the proposed rule, those requirements that are performed in the aircraft in lieu of a Level D simulator would be performed in a Level C simulator. The costs of operating the aircraft for those requirements above the costs of operating the less expensive simulator for those same requirements is the estimated benefit of this proposed rule.

In an effort to derive a cost-relief estimate associated with this proposed rule, several part 121 air carriers were contacted. These air carriers provided the agency with estimated aircraft operating costs per hour, the time needed to train and check pilots for those requirements that, under the present rule, cannot be performed in a Level C simulator, and the number of pilots that it expects to train in the next 10 years.

Potential Operational Efficiency Benefits

The potential benefits of the proposed rule would be generated in the form of increased operational efficiency. In the full regulatory evaluation placed in the docket, these potential efficiency benefits are presented qualitatively. These benefits are difficult to estimate quantitatively due, at present, to the lack of available cost information.

Initial Regulatory Flexibility Determination

The Regulatory Flexibility Act of 1980 (RFA) was enacted by Congress to ensure that small entities are not unnecessarily and disproportionately burdened by government regulations. The RFA requires government agencies to determine whether rules will have "a significant economic impact on a substantial number of small entities" and, in cases where they will, conduct a Regulatory Flexibility Analysis.

Accordingly to FAA Order 2100.14A (Regulatory Flexibility and Guidance), a substantial number of small entities is defined as a number which is not less than eleven and which is more than one-third of the small entities subject to a proposed or existing rule. A significant economic impact on a small entity is an annualized net compliance cost which, when adjusted for inflation, equals or exceeds the significant cost threshold for the entity type under review.

The entities that potentially would be affected by the proposed rule are small part 121 operators that own, but do not necessarily operate, nine or fewer aircraft. As discussed in the cost section of this evaluation summary, the proposed rule would not impose any costs on these operators because it is cost-relieving in nature. Therefore, the proposed rule would not impose a significant economic impact on a substantial number of small aircraft operators.

International Trade Impact Assessment

The proposed rule would have little, if any, impact on the competitive posture of either U.S. carriers doing business in foreign countries or foreign carriers doing business in the United States. This assessment is based on the fact that the proposed rule would not impose any cost on part 121 operators because it is cost-relieving in nature. These operators do not compete directly with air carriers engaged in foreign operations (part 129).

Federalism Implications

The regulations proposed herein would not have substantial direct effects on the States, on the relationship between the national government and the States, or on the distribution of power and responsibilities among the various levels of government. Therefore, in accordance with Executive Order 12866, it is determined that this proposal would not have federalism implications requiring the preparation of a Federalism Assessment.

International Civil Aviation Organization and Joint Aviation Regulations

In keeping with U.S. obligations under the Convention on International Civil Aviation, it is FAA policy to comply with ICAO Standards and Recommended Practices (SARP) to the maximum extent practicable. The FAA is not aware of any differences that this proposal would present if adopted. Any differences that may be presented in comments to this proposal, however, will be taken into consideration.

Paperwork Reduction Act

This proposed rule contains no information collection requests requiring approval of the Office of Management and Budget pursuant to the Paperwork Reduction Act (44 U.S.C. 3507 et seq.).

Conclusion

For the reasons discussed in the preamble, and based on the findings in the Initial Regulatory Flexibility Determination and the International Trade Impact Analysis, the FAA has determined that this proposed regulation is not significant under Executive Order 12866. In addition, it is certified that this proposal, if adopted, will not have a significant economic impact, positive or negative, on a substantial number of small entities under the criteria of the Regulatory Flexibility Act. This proposal is not considered significant under DOT Regulatory Policies and Procedures (44 FR 11034; February 26, 1979).

List of Subjects in 14 CFR Part 121

Air carriers, Aircraft, Airmen, Aviation safety, Safety, Transportation.

The Proposed Rule

In consideration of the foregoing, the Federal Aviation Administration proposes to amend part 121 of the Federal Aviation Regulations (14 CFR part 121) as follows:

PART 121—CERTIFICATION AND OPERATIONS: DOMESTIC, FLAG, AND SUPPLEMENTAL AIR CARRIERS AND COMMERCIAL OPERATORS OF LARGE AIRCRAFT

1. The authority citation for Part 121 continues to read as follows:

Authority: 49 U.S.C. 1354(a), 1355, 1356, 1357, 1401, 1421–1430, 1472, 1485, and 1502; 49 U.S.C. 106(g) (Revised Pub. L. 97–449, January 12, 1983).

2. Section 121.434 is amended by revising paragraphs (c)(2) and (f) to read as follows:

§ 121.434 Operating experience.

* * * * *

(c) * * *

(2) A second-in-command pilot must perform the duties of a second in command as follows:

(i) For a second-in-command pilot who received training for second-in-command duties for the relevant type airplane pursuant to any appropriate provision of this part other than paragraph 4 of "Level C Training and Checking Permitted" in Appendix H of this part, he or she must perform those duties under the supervision of a check

pilot or observe the performance of those duties on the flight deck.

(ii) For a second-in-command pilot who received training in a Level C simulator in accordance with Appendix H of this part, he or she must perform—

- (A) Those duties under the supervision of a check pilot; and
- (B) At least four takeoffs and four landings as sole manipulator of the controls under the supervision of a check pilot.

* * * * *

(f) Except for second-in-command pilots who were trained for the airplane type in a Level C simulator in accordance with Appendix H of this part, the hours of operating experience for flight crewmembers may be reduced to 50 percent of the hours required by this section by the substitution of one additional takeoff and landing for each hour of flight.

* * * * *

3. Appendix H is amended by replacing the words "Phase I", "Phase II", and "Phase III" with the words "Level B", "Level C", and "Level D" respectively, wherever they appear; by replacing the words "Phase I, II, and III" with the words "Level B, C, and D", wherever they appear; by replacing the words "Phase II or III" with the words "Level C or D", wherever they appear; by replacing the words "Phase I, II, or III" with the words "Level B, C, or D",

wherever they appear; by replacing the words "Phase II, IIA, or III" with the words "Level C or D", wherever they appear; by replacing the word "phase" with the word "level", wherever it appears; and by replacing the word "phases" with the word "levels" wherever it appears.

4. The section entitled "Advanced Simulation Training Program" in Appendix H is amended by removing paragraph 7 and revising paragraph 3 to read as follows:

Appendix H to Part 121—Advanced Simulation Plan

* * * * *

Advanced Simulation Training Program

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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.

* * * * *

5. Appendix H, "Phase II, Training and Checking Permitted" is amended by revising paragraph 2. and adding paragraphs 3. and 4. to read as follows:

* * * * *

Level C—Training and Checking Permitted

1. * * *

2. Upgrade to pilot-in-command training and the certification check when the pilot—

- a. Has previously qualified as second in command in the equipment to which the pilot is upgrading;
- b. Has at least 500 hours of actual flight time while serving as second in command in an airplane of the same group; and
- c. Is currently serving as second in command in an airplane in this same group.

3. Initial pilot-in-command training and the certification check when the pilot—

- a. Is currently serving as second in command in an airplane of the same group;
- b. Has a minimum of 2,500 flight hours as second in command in an airplane of the same group; and
- c. Has served as second in command on at least two airplanes of the same group.

4. For all second-in-command pilot applicants who meet the aeronautical experience requirements of § 61.155 of this chapter in the airplane, the initial and upgrade training and checking required by this part, and the certification check requirements of § 61.157 of this chapter.

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6. Appendix H, "Phase IIA, Interim Simulator Upgrade Plan for Part 121 Operators" is removed in its entirety.

Issued in Washington, DC, on January 31, 1995.

William J. White,

Acting Director, Flight Standards Service.
[FR Doc. 95-3132 Filed 2-13-95; 8:45 am]

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