



**[4910-13]**

**DEPARTMENT OF TRANSPORTATION**

**Federal Aviation Administration**

**14 CFR Part 147**

**Docket No. FAA-2015-3901; Notice No. 15-10**

**RIN 2120-AK48**

**Aviation Maintenance Technician Schools**

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

**ACTION:** Notice of proposed rulemaking (NPRM).

**SUMMARY:** The FAA proposes to amend the regulations governing the curriculum and operations of FAA-certificated Aviation Maintenance Technician Schools. These amendments would modernize and reorganize the required curriculum subjects in the appendices of the current regulations. They would also remove the course content items currently located in the appendices and require that they be placed in each school's operations specifications so they could more easily be amended when necessary. The amendments are needed because the existing curriculums are outdated, do not meet current industry needs, and can be changed only through notice and comment rulemaking. These amendments would ensure that aviation maintenance technician students receive up-to-date foundational training to meet the demanding and consistently changing needs of the aviation industry.

**DATES:** Send comments on or before [\[INSERT DATE 90 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER\]](#)

**ADDRESSES:** Send comments identified by docket number FAA-2015-3901 using any of the following methods:

- Federal Rulemaking 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 USC 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](http://www.regulations.gov), as described in the system of records notice (DOT/ALL-14 FDMS), which can be reviewed at [www.dot.gov/privacy](http://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 Robert W. Warren, Aircraft Maintenance Division, Federal Aviation Administration, 800 Independence Avenue SW, Washington D.C., 20591; telephone (202) 267-1711; e-mail [Robert.W.Warren@faa.gov](mailto:Robert.W.Warren@faa.gov). For legal questions concerning this action, contact Edmund Averman, Office of the Chief Counsel (AGC-210), Federal Aviation Administration, 800 Independence Avenue SW, Washington, D.C.20591; telephone (202) 267-3147; e-mail [Ed.Averman@faa.gov](mailto:Ed.Averman@faa.gov).

**SUPPLEMENTARY INFORMATION:**

**Authority for this Rulemaking**

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

This rulemaking is promulgated under the authority described in Title 49, Subtitle VII, Part A, Subpart I, Chapter 401, Section 40113 (prescribing general authority of the Administrator of the FAA, with respect to aviation safety duties and powers, to prescribe regulations); and Subpart III, Chapter 447, Sections 44701 (general authority of the Administrator to prescribe regulations and minimum standards in the interest of safety for inspecting, servicing, and overhauling aircraft, engines, propellers, and appliances, including for other practices, methods, and procedures necessary for safety in air commerce); 44702 (authority of the Administrator to issue air agency certificates); 44707 (authority of the Administrator to examine and rate air agencies, including civilian schools giving instruction in repairing, altering, and maintaining aircraft, aircraft engines,

propellers, and appliances, on the adequacy of instruction, the suitability and airworthiness of equipment, and the competency of instructors); and 44709 (authority of the Administrator to amend, modify, suspend, and revoke air agency and other FAA-issued certificates). This proposed regulation is within the scope of that authority.

## **I. Executive Summary**

### **a. Summary of the Proposed Rule**

This proposed rule would amend the regulations governing Aviation Maintenance Technician Schools (14 CFR part 147) to both update the existing curriculums and provide an efficient means of changing specific course items under each main subject heading, when needed, by including them in each school's operations specifications. The proposal sets forth both a description of operations specifications and a process for amending, suspending, or terminating them. In addition, the proposed amendments would clarify existing requirements, remove gender-specific references, and eliminate duplication found in some sections of the current rules.

The FAA has updated its regulations governing aviation maintenance technician schools only infrequently since 1962, when they were re-codified from the former Civil Air Regulations (CAR) part 53 into current Title 14 of the Code of Federal Regulations (14 CFR) part 147. (27 FR 6669, Jul. 19, 1962). The agency last amended part 147 in 2011 to add a new § 147.8 that placed restrictions on the employment of former FAA employees, however the agency has made no curriculum changes since 1992. Based on recent studies and reports (which are discussed below in more detail), the FAA has determined that the current school curriculums are dated and do not provide students with the skills necessary for maintaining modern aircraft.

When the FAA first shaped the basic training curriculum during the 1962 recodification, the use of advanced materials, advanced electronic operating systems, computers, high bypass propulsion systems, and smart aircraft did not exist in civilian aviation. Since the 1992 rule changes, the industry has produced larger, state of the art transport aircraft (such as the Boeing 787 and Airbus A380) that incorporate very advanced technologies and complex systems. Similar advancements in technology have also evolved in all other levels of aircraft such as general aviation aircraft and business aircraft. The FAA has also not updated part 147 to account for recent advances in rotorcraft technology, composites, unmanned aerial vehicles, glass panels, light sport aircraft (LSA), and the spread of electronics into every other aspect of aircraft.

In view of the expected continued rapid pace of technological change in the aviation industry, part 147 curriculums will need to be updated frequently and quickly. However, because these curriculums are currently specified in the part 147 appendices, the FAA can change them only through notice and comment rulemaking, which is a time-consuming and inefficient means of modernizing the curriculum. As a consequence, without the proposed changes, the school curriculums will always be several years behind what is needed to effectively train aviation maintenance technician students. By including the curriculums in each school's operations specifications, they may be updated expeditiously to keep pace with emerging technologies.

**b. Summary of Costs and Benefits**

The FAA finds the proposed rule's benefits would accrue from changing curriculum hours, which would lower the more costly laboratory/workshop time (while

offset by increasing classroom time) and also from eliminating the exemptions currently issued for aviation mechanic testing requirements. The estimated total benefits of this rule are about \$10 million (\$7 million, present value at 7%).

The two major compliance costs of the rule are initial curriculum revisions and subsequent curriculum revisions. The latter may be divided into FAA-proposed recommendations for amendments to the technician school curriculum, and technician school submissions to request amendments to their curriculum. The estimated total costs are about \$4 million (\$3 million, present value at 7%). Net benefits equal approximately \$7 million (\$3 million, present value at 7%).

## **II. Background**

### **a. History of Part 147**

Part 147 specifies the requirements for the certification and operations of FAA-certificated aviation maintenance technician schools, including the course curriculums they must provide. Part 147 originated as Civil Air Regulations (CAR) part 53. As a result of the recodification of the CARs in 1962, CAR part 53 became 14 CFR part 147. In 1970, the FAA revised part 147 to increase the required core curriculum hours from 1,500 to 1,900 and to further define the subject content and teaching guidelines. A minor revision to the curriculum requirements adopted in 1992 included the use of computers in the training environment, composite materials, an introduction to unducted fans, and auxiliary power units. There have been no further revisions.

### **b. General Accounting Office Report and Part 147 Working Group**

While not the only studies/reports that addressed the issues supporting this proposed rulemaking, two were instrumental to its development. First, in March 2003, the

General Accounting Office (GAO)<sup>1</sup> issued a report titled Aviation Safety-FAA Needs To Update the Curriculum and Certification Requirements for Aviation Mechanics (GAO 03-317, March 2003) (GAO Report). The report detailed the following:

1. Serious and growing gaps between the minimum training curriculum required by part 147 and the current and forecast levels of aircraft technology.
2. Concerns that the required curriculums at FAA-approved aviation maintenance technician schools are outdated and are primarily geared to smaller, less complex aircraft that do not transport a significant number of passengers, and may not be relevant to most of the aircraft flown today.
3. Limitations of basic courses that should prepare students to maintain and repair the body and engines of modern commercial aircraft.

The GAO recommended the FAA review the minimum Airframe and Powerplant (A&P) curriculums required for certificated schools to identify courses that do not reflect widely used aircraft technology and materials on commonly flown commercial aircraft. The GAO also recommended that changes to the curriculums be reflected on the mechanic's certification examination. This would ensure the same standards applied to all candidates for the A&P certificate.

Growing recognition of these issues prompted the second study and report instrumental to this rulemaking. In 2007, the FAA tasked the Aviation Rulemaking Advisory Committee (ARAC) to form the Part 147 Aviation Maintenance Technician Schools Curriculum and Operating Requirements Working Group (the Part 147 Working Group). The ARAC subsequently tasked the Part 147 Working Group to study some of the

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<sup>1</sup> In 2004, the GAO Human Capital Reform Act of 2004, Pub. L. 108-271, 118 Stat. 811 (2004), changed GAO's legal name from the General Accounting Office to the Government Accountability Office.

issues raised in the GAO report and to make recommendations to address them. In December 2008, the Part 147 Working Group issued its Final Report (the ARAC Report).

The ARAC Report suggested a solution that could help expedite keeping course content current. The report referenced the process used by training centers certificated by the FAA under 14 C.F.R. part 142 to control course content and other matters related to the centers' providing flight-related training to airmen. Section 142.3 provides for and defines "training specifications" as a document issued by the FAA to a training center that "prescribes that center's training, checking, and testing authorizations and limitations, and specifies training program requirements." Training specifications are similar to "operations specifications" issued by the FAA to certificate holders in other venues (*e.g.*, air carriers) that document basic information and limitations that govern the allowable operations of the certificate holder. Operations specifications are mutually agreed upon between the FAA and the specific certificate holder, and may be amended by procedures specified in the regulations.

Amending training or operations specifications is a more efficient and expeditious means of making changes to a certificate holder's operations than is the process of notice and comment rulemaking for rules of general applicability. The ARAC Report recommended that aviation maintenance technician schools' curriculum procedures documents be placed in what would be new training specifications. These would function similar to operations specifications, thereby facilitating their updating by means of the amendment process. The FAA is proposing that each certificated aviation maintenance technician school would use operations specifications (in lieu of the suggested training specifications) to manage its operations, including its training curriculum.

This proposal addresses several of the recommendations in the ARAC Report<sup>2</sup>, including:

- Placing the subject course items in operations specifications while keeping the required subject area headings in the appendices;
- Updating some of the subject areas and the items under the subject course headings;
- Revising the distribution of curriculum hours among the General, the Airframe, and the Powerplant curriculums;
- Incorporating a distance learning option; and
- Creating a new provision to allow students to take the General written test after completing that curriculum but before meeting the experience requirements of § 65.77.

### **III. Discussion of the Proposal**

Consistent with the recommendations in both the GAO Report and the ARAC Report, and with the FAA's own awareness that the current course curriculums set forth in the part 147 appendices are long overdue to be updated, the FAA proposes to amend some of the subject headings in part 147 appendices B-D to better reflect their appropriate course content. The agency also proposes to remove the course content items currently found under each subject heading in the appendices and include them in each school's operations specifications under the identical subject headings that would remain in the appendices. We also propose to amend some of these course content items to update them and to better reflect the areas to be taught within each subject area. As discussed above, if the course content items are contained in the schools' operations specifications, they can, when

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<sup>2</sup> A copy of the ARAC Report has been placed in the docket.

necessary, be more easily amended through the process provided by this proposal for amending operations specifications.

**a. Curriculum Hours (§ 147.21)**

Section 147.21(b) contains the total minimum number of curriculum hours of instruction (1,900 hours) for the combined Airframe and Powerplant ratings. The ARAC Report recommended retaining this 1,900 hour minimum. The FAA agrees with that recommendation, and also with the report's recommendation that the number of instruction hours for the Airframe and Powerplant ratings should be redistributed as follows:

- General - from 400 hours to 450 hours.
- Airframe - from 750 hours to 800 hours.
- Powerplant - from 750 hours to 650 hours.

With changes in aircraft technologies increasingly emphasizing electricity, electronics, and advanced materials, the FAA concurs with the ARAC Report that adding hours to the General and Airframe curriculum is appropriate. The FAA also agrees that revising the list of required subjects and updating the course content items within the major subject headings would be an important step in meeting industry needs for aviation maintenance technicians who have been trained in up-to-date aircraft materials and systems.

The FAA also proposes to include an option for competency-based training utilizing minimum credit hours based on typical higher education accreditation criteria. The minimum number of credit hours (equivalent to 1,900 training hours) would total 43 credit hours. This would be the combined credit hours for Airframe and Powerplant requirements, which include a minimum of 10 credit hours for the General curriculum, 18

credit hours for the Airframe curriculum, and 15 credit hours for the Powerplant curriculum. Each school would have the option to be approved for either an instructional hours curriculum or a credit hours curriculum, but not both.

A credit hour is a unit of measure that gives value to the level of instruction, academic rigor, and time requirements for a course taken at an educational institution. At its most basic, a credit hour is a proxy measure of a quantity of student learning. The higher education community has long used the credit hour, as defined by the “Carnegie unit,” as part of a process to establish a standard measure of faculty workloads, costs of instruction, and rates of educational efficiencies, as well as a measure of student work for transfer students. A credit hour for purposes of part 147 is an institutionally established equivalency that reasonably approximates some minimum amount of student work reflective of the amount of work expected in a Carnegie unit. A school that chooses to use a credit hour curriculum would be required to determine the clock-to-credit-hour conversion requirements and credit hours to be awarded for coursework under that option.

No matter which of the two options a school would select, it would have to ensure equivalent comprehensive coverage of the General, Airframe, and Powerplant curriculum subjects areas, including the course content items under them.

**b. General Curriculum Subjects Headings (Appendix B)**

As proposed, the “General Curriculum Subjects” headings, including proposed new and revised subject headings, would remain in Appendix B of part 147. In addition, those same subject headings would be included in each school’s Operations Specification B002, captioned “General Curriculum Subjects.” The FAA proposes to delete the course content items currently included under each curriculum subject heading in the appendix. These

course content items, as well as new course content items for the new and revised subject headings, would be included in each school's operations specifications, as recommended by the ARAC Report. These items would be listed in each school's Operations Specification B002 under the corresponding subject heading. Once the course content items were included in a school's Operations Specifications, the FAA and the school could amend them as needed to keep pace with ongoing changes in technology. The proposed "General Curriculum Subjects" headings are as follows:

- A. Fundamental Electricity and Electronics
- B. Aircraft Drawings
- C. Weight and Balance
- D. Fluid Lines and Fittings
- E. Aircraft Materials, Hardware, and Processes
- F. Ground Operations and Servicing
- G. Cleaning and Corrosion Control
- H. Mathematics
- I. Maintenance Forms, Records, and Publications
- J. Physics for Aviation
- K. Inspection Concepts and Techniques
- L. Mechanic Privileges and Limitations
- M. Human Factors
- N. Foreign Object Elimination (FOE)
- O. Alerts, Cautions, and Warning Indications

The above proposed “General Curriculum Subjects” headings differ from the existing subject headings as follows:

- Proposed subject heading “A” (“Fundamental Electricity and Electronics”) would be a change from the existing subject heading “A” (“Basic Electricity”). This revision is needed to better reflect evolving technological changes, with emphasis on electronics required for maintaining current and newer aircraft types.

- Proposed subject heading “E” (“Aircraft Materials, Hardware, and Processes”) would be a change from the existing subject heading “E” (“Materials and Processes”). This revision is needed to highlight the differences between aircraft materials, hardware, and specific processes, such as new nondestructive testing methods and techniques.

- Proposed subject heading “I” (“Maintenance Forms, Records, and Publications”) would be a change from the existing subject heading “I” (“Maintenance Forms and Records”). Items to be covered would include completing miscellaneous forms, using appropriate terminologies, and familiarization with pertinent records and publications. This would also help ensure that students have the ability to read and understand publications and FAA regulations. This heading would also encompass what is in the current subject heading “K” (“Maintenance Publications).” Accordingly, “Maintenance Publications” would be deleted as a separate subject heading.

- Proposed subject heading “J” (“Physics for Aviation”) would be a change from the existing subject heading “J” (“Basic Physics”). This change would better reflect the specifics of aviation physics that should be taught.

- A new subject heading “K” is proposed entitled “Inspection Concepts and Techniques.” This would replace the current subject heading “K” (“Maintenance

Publications”), which is now part of proposed subject heading “I.” Inspections are a key element in any good maintenance practice and require a high degree of knowledge and practical application. Inspections vary from nondestructive testing to general visual and detailed visual inspections—all of which must be performed in accordance with approved or acceptable data.

- A new subject heading “M” is proposed entitled “Human Factors.” Aviation maintenance is always in a state of flux. Evolving aircraft design and manufacturing contain materials, powerplants, and electronic subsystems that did not exist in earlier models. This situation is compounded by the growing number of aging aircraft. Technicians are working longer hours and different shifts. Maintenance technicians are increasingly using sophisticated equipment and procedures to maintain modern aircraft. Human error is the primary, or a contributing factor, in 80% (or more) of aviation incidents/accidents. Workers routinely commit errors that result in injuries, damage to equipment, regulatory non-compliance, breaches of flight safety, and more. The goal of introducing human factors training into the schools’ General curriculum is to help aviation technicians recognize the situations that can lead to error. This training would help identify and address the human factors hazards that jeopardize workers and the safety of flight. The requirement would also help harmonize FAA rules with those of other international authorities.

- A new subject heading “N” is proposed entitled “Foreign Object Elimination (FOE).” Foreign objects have been a major cause of aircraft damage and ad hoc maintenance. This damage has led to disastrous aviation accidents. Raising the awareness

of foreign object elimination principals and techniques in a school's curriculum is a positive first step in foreign object damage elimination.

- A new subject heading "O" is proposed entitled "Alerts, Cautions, and Warning Indications." Current and future flight deck designs incorporate sophisticated flight crew alerting systems. The existing curriculums do not take into consideration this state of the art technology, or associated safety and implementation issues associated with maintaining these alerting systems.

**c. Airframe Curriculum Subjects Headings (Appendix C)**

Similar to the General Curriculum Subjects headings amendments proposed above, the Airframe Curriculum Subject headings, including proposed new and revised subject headings, would remain in part 147, in this case, in Appendix C. In addition, those same subject headings would be included in each school's Operations Specification B003, captioned "Airframe Curriculum Subjects." The FAA proposes to delete the course content items currently included under each curriculum subject heading in the appendix. These course content items, as well as new course content items for the new and revised subject headings, would be included in each school's operations specifications, as recommended by the ARAC Report. These items would be listed in each school's Operations Specification B003 under the corresponding subject heading. Once the course content items were included in a school's operations specifications, the FAA and the school could amend them as needed to keep pace with ongoing changes in technology.

The FAA proposes to eliminate the two Appendix C sub-headings: "I. Airframe Structures" and "II. Airframe Systems and Components." Instead, all subject headings

would be included under the main Appendix C heading “Airframe Curriculum Subjects.”

The proposed “Airframe Curriculum Subjects” headings are as follows:

- A. Metallic Structures
- B. Non-Metallic Structures
- C. Flight Controls
- D. Airframe Inspection
- E. Landing Gear Systems
- F. Hydraulic and Pneumatic Systems
- G. Environmental Systems
- H. Aircraft Instrument Systems
- I. Communication and Navigation Systems
- J. Aircraft Fuel Systems
- K. Aircraft Electrical Systems
- L. Ice and Rain Control Systems
- M. Airframe Fire Protection Systems
- N. Rotorcraft Fundamentals
- O. Water and Waste Systems

The above proposed “Airframe Curriculum Subjects” headings differ from the existing subject headings as follows:

- The proposed new subject heading “Metallic Structures” (proposed subject “A”) would be a change from the existing subject heading (“Wood Structures” – current subject “I.A”). This revision, along with the proposed revision to subject I. B (proposed “Non-Metallic Structures” – proposed subject “B”), is necessary to reflect a more useful division between metallic structures and non-metallic (including wood) structures. Metallic structures would cover aviation-related sheet metals, rivets, hardware, special fasteners, heat treatments, welding, forming, and the importance of using the Structural Repair Manual.

- The proposed new subject heading “Non-Metallic Structures” (proposed subject “B”) would be a change from the existing subject heading (“Aircraft Covering” – current subject “I.B”). This section would incorporate wood structures, aircraft coverings, composites, plastics, and glass. The subject matters currently included in the existing subject heading “Aircraft Finishes” (current subject “I.C”) would be covered in the proposed subject heading “G” titled “Cleaning and Corrosion Control” in the General Curriculum Subjects in Appendix B. The FAA proposes a new subject heading to read “Flight Controls” (proposed subject “C”). This subject heading would cover topics such as primary and secondary flight controls, structure alignment, and control surface indicators. It would also include the assembly and rigging subject matter that is currently listed as subject “I.F” (“Assembly and Rigging”) in Appendix C. Accordingly, “Assembly and Rigging” would be deleted as a separate subject heading.

- The subject matters included in the current subject heading “Sheet Metal and Non-Metallic Structures” (current subject “I.D”) would be covered in the proposed new subject headings “Metallic Structures” and “Non-Metallic Structures” (discussed above). Therefore, the agency proposes to remove that subject heading.

- The subject matters included in the current subject heading “Welding” (current subject “I.E”) would be covered in the proposed subject heading “Metallic Structures” (discussed above). Therefore, the agency proposes to remove that subject heading.

- While the subject matters included in the current heading “Airframe Inspection” would remain in Appendix C, they would no longer be in subject heading “I.G.” Under this proposal, they would be moved to subject heading “D.”

- While the subject matters included in the current heading “Aircraft Landing Gear Systems” would remain in Appendix C, they would no longer be in subject heading “II.A.” Under this proposal, they would move to subject heading “E,” which would be captioned “Landing Gear Systems.”

- While the subject matters included in the current heading “Hydraulic and Pneumatic Power Systems” would remain in Appendix C, they would no longer be in subject heading “II.B.” Under this proposal, they would move to subject heading “F,” which would be captioned “Hydraulic and Pneumatic Systems.”

- While the subject matters included in the current heading “Cabin Atmosphere Control Systems” would remain in Appendix C, they would no longer be in subject heading “II.C.” Under this proposal, they would move to subject heading “G,” which would be captioned “Environmental Systems.” This title better describes the course content, which covers cabin environmental systems, including the inspection, servicing, and troubleshooting of oxygen systems and instrument cooling systems.

- While the subject matters included in the current heading “Aircraft Instrument Systems” would remain in Appendix C, they would no longer be in subject heading “II.D.” Under this proposal, they would move to subject heading “H.”

- While the subject matters included in the current heading “Communication and Navigation Systems” would remain in Appendix C, they would no longer be in subject heading “II.E.” Under this proposal, they would move to subject heading “L.”

- While the subject matters included in the current heading “Aircraft Fuel Systems” would remain in Appendix C, they would no longer be in subject heading “II.F.” Under this proposal, they would move to subject heading “J.”

- While the subject matters included in the current heading “Aircraft Electrical Systems” would remain in Appendix C, they would no longer be in subject heading “II.G.” Under this proposal, they would move to subject heading “K.”

- While the subject matters included in the current heading “Position and Warning Systems” would remain in Appendix C, they would no longer be in subject heading “II.H.” Under this proposal, they would be included in proposed subject heading “E” (“Landing Gear Systems”) because its course content items are appropriate to be covered in that subject. Accordingly, “Position and Warning Systems” would be deleted as a separate subject heading.

- While the subject matters included in the current heading “Ice and Rain Control Systems” would remain in Appendix C, they would no longer be in subject heading “II.I.” Under this proposal, they would move to subject heading “L.”

- While the subject matters included in the current heading “Fire Protection Systems” would remain in Appendix C, they would no longer be in subject heading “II.J.” Under this proposal, they would move to subject heading “M” and be retitled “Airframe Fire Protection Systems.”

- The FAA proposes to add a new subject heading entitled “Rotorcraft Fundamentals” (new subject heading “N”) to address maintenance items such as rotorcraft fundamentals, transmissions, and operation of rotor systems.

- The FAA proposes to add a new subject heading entitled “Water and Waste Systems” (new subject heading “O”) to address the advances in potable water and lavatory waste systems. Additionally, there is the potential for the accumulation of ice if the

systems are not operated, maintained, or serviced properly. This ice could detach from the aircraft causing damage to the aircraft and raising safety issues on the ground.

**d. Powerplant Curriculum Subjects Headings (Appendix D)**

Similar to the General and the Airframe curriculum subjects headings amendments proposed above, the “Powerplant Curriculum Subjects” headings, including proposed new and revised subject headings, would remain in part 147, in this case, in Appendix D. In addition, those same subject headings would be included in each school’s Operations Specification B004, captioned “Powerplant Curriculum Subjects.” The FAA proposes to delete the course content items currently included under each curriculum subject heading in the appendix. These course content items, as well as new course content items for the new and revised subject headings, would be included in each school’s operations specifications, as recommended by the ARAC Report. These items would be listed in each school’s Operations Specification B004 under the corresponding subject heading. Once the course content items were included in a school’s operations specifications, the FAA and the school could amend them as needed to keep pace with ongoing changes in technology.

The FAA proposes to eliminate the two Appendix D sub-headings: “I. Powerplant Theory and Maintenance” and “II. Powerplant Systems and Components.” Instead, all subject headings would be included under the main Appendix D heading “Powerplant Curriculum Subjects.” The proposed “Powerplant Curriculum Subjects” headings are as follows:

- A. Reciprocating Engines
- B. Turbine engines
- C. Engine Inspection

- D. Engine Instrument Systems
- E. Engine Fire Protection Systems
- F. Engine Electrical Systems
- G. Lubrication Systems
- H. Ignition and Starting Systems
- I. Fuel Metering Systems
- J. Reciprocating Engine Induction and Cooling Systems
- K. Turbine Engine Air Systems
- L. Engine Exhaust and Reverser Systems
- M. Propellers

The above proposed “Powerplant Curriculum Subjects” headings differ from the existing subject headings as follows:

- The FAA is proposing to combine the existing subject headings “Fuel Metering Systems” (current subject “II.F”) and “Engine Fuel Systems” (current subject “II.G”) under a new subject heading: “Fuel Metering Systems” (proposed subject “I”).
- The FAA is proposing to combine the existing subject headings of “Induction and Engine Airflow Systems” (current subject “II.H”) and “Engine Cooling Systems” (current subject “II.I”) under a new subject heading: “Reciprocating Engine Induction and Cooling Systems” (proposed subject “J”). This revised subject would incorporate induction and cooling systems designs, components, and inspection practices.
- The FAA proposes to add a new subject heading: “Turbine Engine Air Systems” (proposed subject “K”). This section would address engine anti ice systems, compressor bleed systems, and turbine case cooling.

- The FAA proposes to remove the subject “Unducted Fans” (current subject “I.L.”) from the Powerplant Curriculum Subjects of Appendix D. In the late 1970’s, the unducted fan engine (a type of aircraft engine related in concept to both the turboprop and turbofan, but different from both) was under consideration for use on commercial airliners because of its fuel economy benefits. Since fuel costs became an increasingly significant aspect for commercial aviation, engine designers felt the unducted fan would become a viable solution. For that reason, the FAA added unducted fans to the aviation maintenance technician school powerplant curriculum in 1992. Because unducted fan technology never became popular, the FAA is proposing to remove this subject from the powerplant curriculum.

**e. Curriculum Course Content**

One of the primary objectives of this proposed rulemaking is to establish a regulatory basis for the FAA to issue operations specifications to aviation maintenance technician schools as a tool for their management and oversight. As discussed above, in order to facilitate keeping the schools’ curriculums up-to-date, the FAA proposes to remove the course content items listed under each subject heading in Appendices B-D and place them in each school’s operations specifications. Current § 147.5 provides for the FAA to issue operations specifications to certificate holders who meet the requirements of part 147, and we are not proposing to change that. We are, however, proposing to amend § 147.3 to provide that no person may operate as an aviation maintenance technician school without or in violation of a certificate, rating, or operations specifications. And, the FAA is proposing a new § 147.9 that would provide, among other things, that each school’s operations specifications contain its complete curriculum and the descriptions required

under each of the subjects specified in the part 147 appendices. In addition, in order to facilitate keeping course content and other items included in the schools' operations specifications up to date, we are proposing a new § 147.10 that would provide processes for amending, suspending, or terminating operations specifications, including processes for petitioning for reconsideration of a decision adverse to the certificate holder. Whenever a proposed process states the submission must be written or in writing, the FAA contemplates that the submission could be a paper submission, one filed electronically, or both.

In a case where the certificate-holding district office found, under proposed § 147.10(f), that an emergency existed that required immediate action with respect to safety in air transportation or air commerce, the above-referenced administrative processes would not apply. The affected certificate holder could appeal the action that amended, suspended, or terminated the operation specification to the appropriate United States Court of Appeals as a final order of the Administrator under 49 U.S.C. § 46110(a).

Because the FAA is proposing to remove the course curriculum items from the appendices of part 147 and require that all course curriculum items be placed in each school's operations specifications, all certificated aviation maintenance technician schools would be required to submit new curriculums to the FAA for approval. Current FAA Advisory Circular AC 147-3A (Certification and Operation of Aviation Maintenance Technician Schools) lists the course curriculum items from the appendices, and suggests acceptable options to the curriculums. This Advisory Circular is currently undergoing revision by the FAA. If this proposed rule becomes final, the FAA will further revise this Advisory Circular to provide guidance on how the schools can develop the required

curriculums based on the existing course content items in the current appendices, and also on developing new course content items for the proposed new and revised subject headings. We are also proposing in § 147.21(a) to permit, with FAA approval, a school to teach approved curriculum subjects at levels exceeding those specified in the school's operations specifications. This change reflects that the FAA's rules are considered minimum standards that certificate holders may exceed. It also is consistent with the provision in current § 147.21(c) that the course content items must be taught to **at least** the indicated level of proficiency defined in appendix A. In order to facilitate future curriculum updates, the FAA is considering the creation of a Maintenance Training Review Board (MTRB) that would assess evolving industry needs on a recurring basis. The MTRB would review and recommend subsequent amendments to the curriculums. Under the procedures in proposed § 145.10, certificate holders and the FAA could agree upon appropriate curriculum changes when needed, and the operations specifications could be amended accordingly.

**f. Distance Learning (§ 147.31(g))**

A form of information sharing for educational purposes using computer systems away from the traditional classroom setting has become known as "distance learning." Distance learning (also known by other terms such as E-learning, home study, self-guided training, virtual classroom, distributed training, computer-based training (CBT) and Web-based training (WBT)) can be an effective means of teaching that affords a low cost alternative to classroom training when applied to a select group of curriculum subject areas. It is also an alternative that is timely and appropriate in today's challenging economic environment. Therefore, the FAA is proposing a new paragraph (g) to § 147.31 to provide

the option for distance learning instruction under certain circumstances approved by the FAA.

**g. Change Instructor Requirements (§ 147.23)**

The FAA proposes to revise the instructor requirements for certificated aviation maintenance technician schools to allow specially qualified instructors, who may not be FAA-certificated technicians, to teach certain courses when approved by the FAA. This proposed amendment would alleviate the limitation for non-FAA-certificated instructors to teach only in the General curriculum. This proposal would allow qualified non-FAA-certificated instructors to teach not only in the General curriculum, but also the Airframe, and/or Powerplant curriculums if deemed qualified and subsequently approved by the FAA. Each school would be required to maintain and keep in its operations specifications an up-to-date list of the names and qualifications of all its instructors.

**h. Written Knowledge Test (§ 147.31)**

The FAA proposes to add a new paragraph (f) to §147.31 that would permit a student who had successfully completed the General curriculum to take the general written knowledge test even if the student had not met the experience requirements of 14 CFR § 65.77. Section 65.75(a) provides that applicants for a mechanic certificate or rating must, after meeting the applicable experience requirements of § 65.77, pass a written test. Under this proposal, whenever a certificated aviation maintenance technician school demonstrates to an FAA Aviation Safety Inspector (ASI) with oversight responsibility for the school that a student has made satisfactory progress at the school, the student could take the aviation mechanic written general knowledge test.

**i. Change of Location Requirements (§ 147.41)**

The FAA proposes to amend § 147.41 to retain the requirement that an aviation maintenance technician school certificate holder may not change the school's physical location unless the change is approved in advance by the FAA, and that an application for the change must be made 30 days in advance of the contemplated move. However, the agency proposes to remove the current text that states if a school changes its location without FAA approval, "the certificate is revoked." All certificate holders are entitled to due process before a certificate action could be final. Accordingly, we propose to remove existing text that states: "If he [the certificate holder] changes its location without approval, the certificate is revoked." Because each certificate holder's operations specifications would include the physical address of the primary location of the school, we are proposing that new § 147.41 contain the requirement that the new location be listed in the school's operations specifications. Also, and as discussed below, we propose to remove gender-specific language from this section (e.g., "he") and from other sections of part 147.

**j. Inspection Requirements (§ 147.43)**

The FAA proposes to amend § 147.43 for clarity and to remove inappropriate text related to FAA inspection policies (e.g., on expected frequency of and procedures related to inspections of aviation maintenance technician schools). The section, as proposed, would require only that a school allow the FAA to inspect it at any time to determine compliance with the applicable regulations.

**k. Advertising (§ 147.45)**

The FAA proposes to remove this section in its entirety. The FAA believes that Federal and State laws adequately protect the public from false and misleading advertising.

Moreover, the FAA’s mandate is to regulate aviation safety, not the advertising of the entities it regulates.

**l. Duration of Certificate (§ 147.7)**

The FAA proposes to revise § 147.7 to add a requirement that an aviation maintenance technician school certificate surrender is not complete until the FAA accepts it for cancellation. This new surrender requirement would codify existing FAA policy, and would prevent a school under investigation from attempting to circumvent a possible enforcement action that could result in a revocation of the school’s certificate by surrendering the certificate to stop the investigation before it could be completed.

**m. Gender References**

The FAA proposes to amend several sections of part 147 (specifically, §§ 147.13, 147.15, 147.17, 147.31(c), and 147.41) to remove gender-specific language (“he”) from the current text, and revise the text to use gender-neutral terms.

**n. Miscellaneous**

The FAA proposes to remove current §§ 147.36, 147.37, and 147.38 because they are unnecessary in light of the corresponding initial certification requirements, which are continuing and ongoing. For example, current §§ 147.13, 147.21, and 147.23 each require an “applicant” to have or provide certain things, whereas the sections that would be removed require the continuation the initial requirement.

We also propose to revise §§ 147.13, 147.21, 147.23, and others, where pertinent, to read: “Each certificated aviation maintenance technician school must . . . .” Those requirements then would apply to an applicant for a certificate and would continue to apply to the school while in operation.

We are also proposing minor, non-substantive revisions throughout part 147 for clarity.

#### **IV. Regulatory Notices and Analyses**

##### **A. Regulatory Evaluation**

Changes to Federal regulations must undergo several economic analyses. First, Executive Order 12866 and Executive Order 13563 direct that each Federal agency shall propose or adopt a regulation only upon a reasoned determination that the benefits of the intended regulation justify its costs. Second, the Regulatory Flexibility Act of 1980 (Public Law 96-354) requires agencies to analyze the economic impact of regulatory changes on small entities. Third, the Trade Agreements Act (Public Law 96-39) prohibits agencies from setting standards that create unnecessary obstacles to the foreign commerce of the United States. In developing U.S. standards, this Trade Act requires agencies to consider international standards and, where appropriate, that they be the basis of U.S. standards. Fourth, the Unfunded Mandates Reform Act of 1995 (Public Law 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.

**1. Total Benefits and Costs of this Rule**

Benefits would accrue from changing curriculum hours, which would lower the more costly laboratory time (while offset by increasing classroom time) and also from eliminating the exemptions currently issued for aviation mechanic testing requirements. The estimated total benefits of this rule are about \$10 million (\$7 million, present value at 7%).

The two compliance costs of the rule are initial curriculum revisions and subsequent curriculum revisions. The estimated total costs are about \$4 million (\$3 million, present value at 7%).

Net benefits equal approximately \$7 million (\$3 million, present value at 7%).

Net Benefits

Year	Benefits				Costs			Net Benefits	Present Value Net Benefits
	Exemptions		Changes to the Curriculum Hours	Total Benefits	Initial Curriculum Revisions	Subsequent Curriculum Revisions	Total Costs		
	Private Sector	Government							
2016-2025	\$63,429	\$185,403	\$10,206,000	\$10,454,831	\$3,456,430	\$315,801	\$3,772,230	\$6,682,601	\$3,346,006

**2. Who is Potentially Affected by this Rule?**

Aviation maintenance technician schools and the FAA.

**3. Assumptions**

- The analysis is conducted in constant dollars with 2014 as the base year.
- We calculated the present value of the potential benefit stream by discounting the monetary values using a 7 percent interest rate from 2016 to 2025.
- This final rule will become effective in 2016. We assume the compliance date will be one year after the effective date (2017).
- We assume no growth in the number of Aviation Maintenance Technician Schools.
- As per DOT guidance, we assume that there will be a 1.18 percent projected annual increase in real wages.

#### **4. Benefits**

From 2016 to 2025, the estimated total benefits of this rule to aviation maintenance technician schools, and the FAA are about \$10 million (\$7 million, present value at 7%).

#### **5. Costs**

From 2016 to 2025, the estimated total costs are about \$4 million (\$3 million, present value at 7%).

#### **B. Regulatory Flexibility Determination**

The Regulatory Flexibility Act of 1980 (Public Law 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 FAA identified a total of 20 proprietary technician schools with less than 1,500 employees which are classified as small entities.

The FAA believes that this proposed rule would not have a significant economic impact on a substantial number of entities for the following reason:

The FAA estimates that their ratio of annualized costs to annual revenue is between 0.004% and 0.599%, which is not considered a significant economic impact. Therefore, as provided in section 605(b), the head of the FAA certifies that this rulemaking will not result in a significant economic impact on a substantial number of small entities.

### **C. International Trade Impact Assessment**

The Trade Agreements Act of 1979 (Public Law 96-39), as amended by the Uruguay Round Agreements Act (Public Law 103-465), prohibits Federal agencies from establishing standards or engaging in related activities that create unnecessary obstacles to the foreign commerce of the United States. Pursuant to these Acts, the establishment of

standards is not considered an unnecessary obstacle to the foreign commerce of the United States, so long as the standard has a legitimate domestic objective, such 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 the objective would only affect domestic firms therefore would not create unnecessary obstacles to the foreign commerce of the United States.

#### **D. Unfunded Mandates Assessment**

Title II of the Unfunded Mandates Reform Act of 1995 (Public Law 104-4) requires each Federal agency to prepare a written statement assessing the effects of any Federal mandate in a proposed or final agency rule that may result in an expenditure of \$100 million or more (in 1995 dollars) in any one year by State, local, and tribal governments, in the aggregate, or by the private sector; such a mandate is deemed to be a "significant regulatory action." The FAA currently uses an inflation-adjusted value of \$151 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 proposed rule would impose the following amended information collection requirements. As required by the Paperwork Reduction Act of 1995 (44 U.S.C. 3507(d)), the FAA has submitted these information collection amendments to OMB for its review. Notice of OMB approval for these information collections will be published in a future Federal Register document.

Summary: The FAA proposes to amend the regulations governing the curriculum and operations of FAA-certificated Aviation Maintenance Technician Schools (AMTS). These amendments would modernize and reorganize the required curriculum subjects in the appendices of the current regulations. They would also remove the course content items currently located in the appendices and require that they be placed in each AMTS's operations specifications so they could more easily be amended when necessary.

Respondents (including number of): There are 162 technician schools affected by this rule.

## I. Private Sector Costs and Cost-savings

### A. Initial Curriculum Revisions

All active certificated technician schools will be required to submit a new curriculum to the FAA and issue updated OpSpecs.

We assumed:

- 162 technician schools.
- 320 hours for a manager and 80 hours for an administrative assistant for the initial revision.
- 32 hours for a manager and 8 hours for an administrative assistant for subsequent revisions.

- 10 percent of the curriculums would be rejected in every submission.
- Subsequent submissions would occur in the same year when curriculums are rejected.

#### First Year Costs

Cost = \$0.

Time = 0.

#### Second Year Costs

Cost =  $(162 \times ((320 \text{ hours} \times \$40.79) + (80 \text{ hours} \times \$20.05))) + (18 \times ((32 \text{ hours} \times \$40.79) + (8 \text{ hours} \times \$20.05))) = \$2,400,523.$

Time =  $(162 \times (320 \text{ hours} + 80 \text{ hours})) + (18 \times (32 \text{ hours} + 8 \text{ hours})) = 65,520 \text{ hours}.$

#### Subsequent Year Costs

Cost = \$0.

Time = 0.

#### Total over 10 years

Cost = \$2,400,523.

Time = 65,520 hours.

#### Average per year

Cost =  $\$2,400,523/10 = \$240,052.$

Time =  $65,520 \text{ hours}/10 = 6,552 \text{ hours}.$

### B. Subsequent Curriculum Revisions

#### B.1. Requests for Amendments to the Curriculums

Technician schools would submit requests for amendments to their curriculums.

We assumed:

- 9 requests per year.
- We estimate a technician school manager and an administrative assistant would need 3 hours each.
- A technician school director would need one hour to review and sign each amendment request.
- For the wages we assume that there will be a 1.18 percent annual increase in real wages.

#### First Year Costs

Cost = \$0.

Time = 0.

#### Second Year Costs

Cost = \$0.

Time = 0.

#### Third Year Costs

Cost =  $9 \times ((3 \text{ hours} \times \$41.27) + (3 \text{ hours} \times \$20.29) + (1 \text{ hour} \times \$103.46)) = \$2,593.$

Time =  $9 \times (3 \text{ hours} + 3 \text{ hours} + 1 \text{ hour}) = 63 \text{ hours}.$

#### Fourth Year Costs

Cost =  $9 \times ((3 \text{ hours} \times \$41.75) + (3 \text{ hours} \times \$20.52) + (1 \text{ hour} \times \$104.68)) = \$2,624.$

Time =  $9 \times (3 \text{ hours} + 3 \text{ hours} + 1 \text{ hour}) = 63 \text{ hours}.$

#### Fifth Year Costs

Cost =  $9 \times ((3 \text{ hours} \times \$42.25) + (3 \text{ hours} \times \$20.77) + (1 \text{ hour} \times \$105.92)) = \$2,655.$

Time =  $9 \times (3 \text{ hours} + 3 \text{ hours} + 1 \text{ hour}) = 63 \text{ hours}.$

### Sixth Year Costs

$$\text{Cost} = 9 \times ((3 \text{ hours} \times \$42.74) + (3 \text{ hours} \times \$21.01) + (1 \text{ hour} \times \$107.17)) = \$2,686.$$

$$\text{Time} = 9 \times (3 \text{ hours} + 3 \text{ hours} + 1 \text{ hour}) = 63 \text{ hours}.$$

### Seventh Year Costs

$$\text{Cost} = 9 \times ((3 \text{ hours} \times \$43.25) + (3 \text{ hours} \times \$21.26) + (1 \text{ hour} \times \$108.43)) = \$2,718.$$

$$\text{Time} = 9 \times (3 \text{ hours} + 3 \text{ hours} + 1 \text{ hour}) = 63 \text{ hours}.$$

### Eight Year Costs

$$\text{Cost} = 9 \times ((3 \text{ hours} \times \$43.76) + (3 \text{ hours} \times \$21.51) + (1 \text{ hour} \times \$109.71)) = \$2,750.$$

$$\text{Time} = 9 \times (3 \text{ hours} + 3 \text{ hours} + 1 \text{ hour}) = 63 \text{ hours}.$$

### Ninth Year Costs

$$\text{Cost} = 9 \times ((3 \text{ hours} \times \$44.28) + (3 \text{ hours} \times \$21.76) + (1 \text{ hour} \times \$111.01)) = \$2,782.$$

$$\text{Time} = 9 \times (3 \text{ hours} + 3 \text{ hours} + 1 \text{ hour}) = 63 \text{ hours}.$$

### Tenth Year Costs

$$\text{Cost} = 9 \times ((3 \text{ hours} \times \$44.80) + (3 \text{ hours} \times \$22.02) + (1 \text{ hour} \times \$112.32)) = \$2,815.$$

$$\text{Time} = 9 \times (3 \text{ hours} + 3 \text{ hours} + 1 \text{ hour}) = 63 \text{ hours}.$$

### Total over 10 years

$$\text{Cost} = \$2,593 + \$2,624 + \$2,655 + \$2,686 + \$2,718 + \$2,750 + \$2,782 + \$2,815 =$$

\$21,622.

$$\text{Time} = 8 \times 63 \text{ hours} = 504 \text{ hours}.$$

### Average per year

$$\text{Cost} = \$21,622/10 = \$2,162.$$

$$\text{Time} = 504 \text{ hours}/10 = 50 \text{ hours}.$$

## B.2. Curriculum Revisions

Once the amendments are approved, the technician school curriculums would have to be revised.

We assumed:

- 9 curriculums per year would be revised.
- We estimate a technician school manager and an administrative assistant would need 32 hours and 8 hours, respectively to revise their curriculums.
- For the wages we assume that there will be a 1.18 percent annual increase in real wages.

#### First Year Costs

Cost = \$0.

Time = 0.

#### Second Year Costs

Cost = \$0.

Time = 0.

#### Third Year Costs

Cost =  $9 \times ((32 \text{ hours} \times \$41.27) + (8 \text{ hours} \times \$20.29)) = \$13,345.$

Time =  $9 \times (32 \text{ hours} + 8 \text{ hours}) = 360 \text{ hours}.$

#### Fourth Year Costs

Cost =  $9 \times ((32 \text{ hours} \times \$41.75) + (8 \text{ hours} \times \$20.52)) = \$13,503.$

Time =  $9 \times (32 \text{ hours} + 8 \text{ hours}) = 360 \text{ hours}.$

#### Fifth Year Costs

Cost =  $9 \times ((32 \text{ hours} \times \$42.25) + (8 \text{ hours} \times \$20.77)) = \$13,662.$

$$\text{Time} = 9 \times (32 \text{ hours} + 8 \text{ hours}) = 360 \text{ hours.}$$

#### Sixth Year Costs

$$\text{Cost} = 9 \times ((32 \text{ hours} \times \$42.74) + (8 \text{ hours} \times \$21.01)) = \$13,823.$$

$$\text{Time} = 9 \times (32 \text{ hours} + 8 \text{ hours}) = 360 \text{ hours.}$$

#### Seventh Year Costs

$$\text{Cost} = 9 \times ((32 \text{ hours} \times \$43.25) + (8 \text{ hours} \times \$21.26)) = \$13,986.$$

$$\text{Time} = 9 \times (32 \text{ hours} + 8 \text{ hours}) = 360 \text{ hours.}$$

#### Eight Year Costs

$$\text{Cost} = 9 \times ((32 \text{ hours} \times \$43.76) + (8 \text{ hours} \times \$21.51)) = \$14,151.$$

$$\text{Time} = 9 \times (32 \text{ hours} + 8 \text{ hours}) = 360 \text{ hours.}$$

#### Ninth Year Costs

$$\text{Cost} = 9 \times ((32 \text{ hours} \times \$44.28) + (8 \text{ hours} \times \$21.76)) = \$14,318.$$

$$\text{Time} = 9 \times (32 \text{ hours} + 8 \text{ hours}) = 360 \text{ hours.}$$

#### Tenth Year Costs

$$\text{Cost} = 9 \times ((32 \text{ hours} \times \$44.80) + (8 \text{ hours} \times \$22.02)) = \$14,487.$$

$$\text{Time} = 9 \times (32 \text{ hours} + 8 \text{ hours}) = 360 \text{ hours.}$$

#### Total over 10 years

$$\begin{aligned} \text{Cost} &= \$13,345 + \$13,503 + \$13,662 + \$13,823 + \$14,986 + \$14,151 + \$14,318 + \$14,487 \\ &= \$111,277. \end{aligned}$$

$$\text{Time} = 8 \times 360 \text{ hours} = 2,880 \text{ hours.}$$

#### Average per year

$$\text{Cost} = \$111,277/10 = \$11,128.$$

$$\text{Time} = 2,880 \text{ hours}/10 = 288 \text{ hours.}$$

### C. Exemptions

The proposed rule would eliminate exemptions currently issued for aviation mechanic testing requirements.

We assumed:

- 30 exemptions/extensions per year.
- For each exemption/extension, we estimate 3 hours each for a technician school manager and an administrative assistant to write the exemption/extension letter and for a technician school director 1 hour to review and sign the exemption/extension letter.
- For the wages we assume that there will be a 1.18 percent annual increase in real wages.

#### First Year Cost-savings

Cost-saving = \$0.

Time = 0.

#### Second Year Cost-savings

Cost-saving = \$0.

Time = 0.

#### Third Year Cost-savings

Cost-saving = \$0.

Time = 0.

#### Fourth Year Cost-savings

Cost-saving = 30 x ((3 hours x \$41.75) + (3 hours x \$20.52) + (1 hour x \$104.68)) =  
\$8,745.

Time = 30 x (3 hours + 3 hours + 1 hour) = 210 hours.

Fifth Year Cost-savings

Cost-saving = 30 x ((3 hours x \$42.25) + (3 hours x \$20.77) + (1 hour x \$105.92)) =  
\$8,849.

Time = 30 x (3 hours + 3 hours + 1 hour) = 210 hours.

Sixth Year Cost-savings

Cost-saving = 30 x ((3 hours x \$42.74) + (3 hours x \$21.01) + (1 hour x \$107.17)) =  
\$8,953.

Time = 30 x (3 hours + 3 hours + 1 hour) = 210 hours.

Seventh Year Cost-savings

Cost-saving = 30 x ((3 hours x \$43.25) + (3 hours x \$21.26) + (1 hour x \$108.43)) =  
\$9,059.

Time = 30 x (3 hours + 3 hours + 1 hour) = 210 hours.

Eight Year Cost-savings

Cost-saving = 30 x ((3 hours x \$43.76) + (3 hours x \$21.51) + (1 hour x \$109.71)) =  
\$9,166.

Time = 30 x (3 hours + 3 hours + 1 hour) = 210 hours.

Ninth Year Cost-savings

Cost-saving = 30 x ((3 hours x \$44.28) + (3 hours x \$21.76) + (1 hour x \$111.01)) =  
\$9,274.

Time = 30 x (3 hours + 3 hours + 1 hour) = 210 hours.

### Tenth Year Cost-savings

Cost-saving =  $30 \times ((3 \text{ hours} \times \$44.80) + (3 \text{ hours} \times \$22.02) + (1 \text{ hour} \times \$112.32)) =$   
\$9,383.

Time =  $30 \times (3 \text{ hours} + 3 \text{ hours} + 1 \text{ hour}) = 210 \text{ hours}$ .

### Total over 10 years

Cost-savings =  $\$8,745 + \$8,849 + \$8,953 + \$9,059 + \$9,166 + \$9,274 + \$9,383 = \$63,429$ .

Time =  $7 \times 210 \text{ hours} = 1,470 \text{ hours}$ .

### Average per year

Cost-savings =  $\$63,429/10 = \$6,343$ .

Time =  $1,470 \text{ hours}/10 = 147 \text{ hours}$ .

## II. Government Costs and Cost-savings

### A. Initial Curriculum Revisions

FSDOs will have to review and approve the technician school curriculums.

We assumed:

- 162 curriculums would be submitted.
- 80 hours for a principal inspector to review the curriculums the first time and 16 hours for subsequent revisions.
- 10 percent of the curriculums would be rejected in every submission.
- Subsequent submissions would occur in the same year when curriculums are rejected.

### First Year Costs

Cost = \$0.

Time = 0.

### Second Year Costs

Cost = (162 x 80 hours x \$79.70) + ((16+2) x 16 hours x \$79.70) = \$1,055,907.

Time = (162 x 80 hours) + ((16+2) x 16 hours) = 13,248 hours.

### Subsequent Year Costs

Cost = \$0.

Time = 0.

### Total over 10 years

Cost = \$1,056,907.

Time = 13,248 hours.

### Average per year

Cost = \$1,055,907/10 = \$105,591.

Time = 13,248 hours/10 = 1,325 hours.

## B. Subsequent Curriculum Revisions

### B.1. FAA to Approve or Reject the Requests

The FAA would review and approve every request for amendments.

We assumed:

- The FAA would review and approve 9 requests per year.
- A principal inspector would need 16 hours for each review.
- 10 percent of the curriculums would be rejected in every submission.
- For the wages we assume that there will be a 1.18 percent annual increase in real wages.

First Year Costs

Cost = \$0.

Time = 0.

Second Year Costs

Cost = \$0.

Time = 0.

Third Year Costs

Cost = 9 x 16 hours x \$80.64 = \$11,613.

Time = 9 x 16 hours = 144 hours.

Fourth Year Costs

Cost = 9 x 16 hours x \$81.60 = \$11,750.

Time = 9 x 16 hours = 144 hours.

Fifth Year Costs

Cost = 9 x 16 hours x \$82.56 = \$11,888.

Time = 9 x 16 hours = 144 hours.

Sixth Year Costs

Cost = 9 x 16 hours x \$83.53 = \$12,029.

Time = 9 x 16 hours = 144 hours.

Seventh Year Costs

Cost = 9 x 16 hours x \$84.52 = \$12,171.

Time = 9 x 16 hours = 144 hours.

Eight Year Costs

Cost = 9 x 16 hours x \$85.52 = \$12,314.

Time = 9 x 16 hours = 144 hours.

#### Ninth Year Costs

Cost = 9 x 16 hours x \$86.52 = \$12,459.

Time = 9 x 16 hours = 144 hours.

#### Tenth Year Costs

Cost = 9 x 16 hours x \$87.55 = \$12,607.

Time = 9 x 16 hours = 144 hours.

#### Total over 10 years

Cost = \$11,613 + \$11,750 + \$11,888 + \$12,029 + \$12,171 + \$12,314 + \$12,459 + \$12,607  
= \$96,830.

Time = 8 x 144 hours = 1,152 hours.

#### Average per year

Cost = \$96,830/10 = \$9,683.

Time = 1,152 hours/10 = 115 hours.

### B.2. Curriculum Revisions

The FAA would need to approve the technician school curriculums.

We assumed:

- 8 curriculums per year would be approved.
- A principal inspector would need 16 hours for each review.
- 10 percent of the curriculums would be rejected in every submission.
- For the wages we assume that there will be a 1.18 percent annual increase in real wages.

First Year Costs

Cost = \$0.

Time = 0.

Second Year Costs

Cost = \$0.

Time = 0.

Third Year Costs

Cost = 8 x 16 hours x \$80.64 = \$10,322.

Time = 8 x 16 hours = 128 hours.

Fourth Year Costs

Cost = 8 x 16 hours x \$81.60 = \$10,444.

Time = 8 x 16 hours = 128 hours.

Fifth Year Costs

Cost = 9 x 16 hours x \$82.56 = \$10,567.

Time = 8 x 16 hours = 128 hours.

Sixth Year Costs

Cost = 9 x 16 hours x \$83.53 = \$10,692.

Time = 8 x 16 hours = 128 hours.

Seventh Year Costs

Cost = 9 x 16 hours x \$84.52 = \$10,818.

Time = 8 x 16 hours = 128 hours.

Eight Year Costs

Cost = 9 x 16 hours x \$85.52 = \$10,946.

Time = 8 x 16 hours = 128 hours.

#### Ninth Year Costs

Cost = 9 x 16 hours x \$86.52 = \$11,075.

Time = 8 x 16 hours = 128 hours.

#### Tenth Year Costs

Cost = 9 x 16 hours x \$87.55 = \$11,206.

Time = 8 x 16 hours = 128 hours.

#### Total over 10 years

Cost = \$10,322 + \$10,444 + \$10,567 + \$10,692 + \$10,818 + \$10,946 + \$11,075 + \$11,206  
= \$86,071.

Time = 8 x 128 hours = 1,024 hours.

#### Average per year

Cost = \$86,071/10 = \$8,607.

Time = 1,024 hours/10 = 102 hours.

#### C. Exemptions

The proposed rule would eliminate exemptions currently issued for aviation mechanic testing requirements.

We assumed:

- 30 exemptions/extensions per year.
- 1 hour each for a Rule making director, an Office of Primary Responsibility (OPR) director and a Rule making manager.
- 2 hours each for an FAA attorney, a Rule making analyst, and an OPR administrative assistant

- 4 hours for a Rule making administrative assistant.
- For the wages we assume that there will be a 1.18 percent annual increase in real wages.

First Year Cost-savings

Cost-saving = \$0.

Time = 0.

Second Year Cost-savings

Cost-saving = \$0.

Time = 0.

Third Year Cost-savings

Cost-saving = \$0.

Time = 0.

Fourth Year Cost-savings

Cost-saving =  $30 \times ((4 \text{ hours} \times \$33.23) + (2 \text{ hours} \times \$55.50) + (1 \text{ hour} \times \$97.51) + (1 \text{ hour} \times \$124.59) + (2 \text{ hour} \times \$97.51) + (1 \text{ hour} \times \$124.59) + (2 \text{ hours} \times \$33.23)) = \$25,563.$

Time =  $30 \times (4 \text{ hours} + 2 \text{ hours} + 1 \text{ hour} + 1 \text{ hour} + 2 \text{ hours} + 1 \text{ hour} + 2 \text{ hours}) = 390$  hours.

Fifth Year Cost-savings

Cost-saving =  $30 \times ((4 \text{ hours} \times \$33.62) + (2 \text{ hours} \times \$56.15) + (1 \text{ hour} \times \$98.66) + (1 \text{ hour} \times \$126.06) + (2 \text{ hour} \times \$98.66) + (1 \text{ hour} \times \$126.06) + (2 \text{ hours} \times \$33.62)) = \$25,865.$

Time =  $30 \times (4 \text{ hours} + 2 \text{ hours} + 1 \text{ hour} + 1 \text{ hour} + 2 \text{ hours} + 1 \text{ hour} + 2 \text{ hours}) = 390$  hours.

Sixth Year Cost-savings

Cost-saving = 30 x ((4 hours x \$34.02) + (2 hours x \$56.82) + (1 hour x \$99.83) + (1 hour x \$127.55) + (2 hour x \$99.83) + (1 hour x \$127.55) + (2 hours x \$34.02)) = \$26,170.

Time = 30 x (4 hours + 2 hours + 1 hour + 1 hour + 2 hours + 1 hour + 2 hours) = 390 hours.

#### Seventh Year Cost-savings

Cost-saving = 30 x ((4 hours x \$34.42) + (2 hours x \$57.49) + (1 hour x \$101.01) + (1 hour x \$129.06) + (2 hour x \$101.01) + (1 hour x \$129.06) + (2 hours x \$34.42)) = \$26,479.

Time = 30 x (4 hours + 2 hours + 1 hour + 1 hour + 2 hours + 1 hour + 2 hours) = 390 hours.

#### Eight Year Cost-savings

Cost-saving = 30 x ((4 hours x \$34.83) + (2 hours x \$58.16) + (1 hour x \$102.20) + (1 hour x \$130.58) + (2 hour x \$102.20) + (1 hour x \$130.58) + (2 hours x \$34.83)) = \$26,791.

Time = 30 x (4 hours + 2 hours + 1 hour + 1 hour + 2 hours + 1 hour + 2 hours) = 390 hours.

#### Ninth Year Cost-savings

Cost-saving = 30 x ((4 hours x \$35.24) + (2 hours x \$58.85) + (1 hour x \$103.40) + (1 hour x \$132.12) + (2 hour x \$103.40) + (1 hour x \$132.12) + (2 hours x \$35.24)) = \$27,107.

Time = 30 x (4 hours + 2 hours + 1 hour + 1 hour + 2 hours + 1 hour + 2 hours) = 390 hours.

#### Tenth Year Cost-savings

Cost-saving = 30 x ((4 hours x \$35.65) + (2 hours x \$59.55) + (1 hour x \$104.63) + (1 hour x \$133.68) + (2 hour x \$104.63) + (1 hour x \$133.68) + (2 hours x \$35.65)) = \$27,427.

Time = 30 x (4 hours + 2 hours + 1 hour + 1 hour + 2 hours + 1 hour + 2 hours) = 390 hours.

Total over 10 years

Cost-savings = \$25,563 + \$25,865 + \$26,170 + \$26,479 + \$26,791 + \$27,107 + \$27,427 = \$185,403.

Time = 7 x 390 hours = 2,730 hours.

Average per year

Cost-savings = \$185,403/10 = \$18,540.

Time = 2,730 hours/10 = 273 hours.

Summary

The total paperwork impact averages \$352,340, taking 8,013 hours annually, as shown in the following table.

	Summary Table											
	Over 10 years						Average per Year					
	Private Sector		Government		Total		Private Sector		Government		Total	
Cost	Total Time	Cost	Total Time	Cost	Total Time	Cost	Total Time	Cost	Total Time	Cost	Total Time	
A. Initial Curriculum revisions	\$2,400,523	65,520	\$1,055,907	13,248	\$3,456,430	78,768	\$240,052	6,552	\$105,591	1,325	\$345,643	7,877
B. Subsequent Curriculum revisions												
B.1 Requests	\$21,622	504	\$96,830	1,152	\$118,452	1,656	\$2,162	50	\$9,683	115	\$11,845	166
B.2 Curriculum Revisions	\$111,277	2,880	\$86,071	1,024	\$197,349	3,904	\$11,128	288	\$8,607	102	\$19,735	390
C. Exemptions (Savings)	-\$63,429	-1,470	-\$185,403	-2,730	-\$248,831	-4,200	-\$6,343	-147	-\$18,540	-273	-\$24,883	-420
<b>Total</b>	<b>\$2,469,993</b>	<b>67,434</b>	<b>\$1,053,406</b>	<b>12,694</b>	<b>\$3,523,399</b>	<b>80,128</b>	<b>\$246,999</b>	<b>6,743</b>	<b>\$105,341</b>	<b>1,269</b>	<b>\$352,340</b>	<b>8,013</b>

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

## **V. Executive Order Determinations**

### **A. Executive Order 13132, Federalism**

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

### **B. Executive Order 13211, Regulations that Significantly Affect Energy Supply, Distribution, or Use**

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

## **VI. Additional Information**

### **A. Comments Invited**

The FAA invites interested persons to participate in this rulemaking by submitting written comments, data, or views. The agency also invites comments relating to the economic, environmental, energy, or federalism impacts that might result from adopting

the proposals in this document. The most helpful comments reference a specific portion of the proposal, explain the reason for any recommended change, and include supporting data. To ensure the docket does not contain duplicate comments, commenters should send only one copy of written comments, or if comments are filed electronically, commenters should submit only one time.

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

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

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

processes such a request under Department of Transportation procedures found in 49 CFR part 7.

## **B. Availability of Rulemaking Documents**

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

1. Searching the Federal eRulemaking Portal (<http://www.regulations.gov>);
2. Visiting the FAA's Regulations and Policies web page at

[http://www.faa.gov/regulations\\_policies](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 in 14 CFR Part 147**

Aircraft, Airmen, Educational facilities, Reporting and recordkeeping requirements, Schools.

## **The Proposed Amendment**

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

## **PART 147-AVIATION MAINTENANCE TECHNICIAN SCHOOLS**

1. The authority citation for part 147 would read as follows:

Authority: 49 U.S.C. 106(g), 40113, 44701-44702, 44707, 44709.

2. Revise § 147.1 to read as follows:

**§ 147.1 Applicability.**

This part describes how to obtain an aviation maintenance technician school certificate and associated ratings. This part also contains the rules each FAA-certificated school must follow in conducting its operations.

3. Revise § 147.3 to read as follows:

**§ 147.3 Certificate and operations specifications requirements.**

No person may operate as a certificated aviation maintenance technician school without, or in violation of, an aviation maintenance technician school certificate, rating, or operations specifications issued under this part.

4. Revise § 147.5 to read as follows:

**§ 147.5 Application and issue.**

(a) An application for a certificate and rating, or for an additional rating, must be made in a format acceptable to the FAA and must include the following:

- (1) A description of the proposed curriculum;
- (2) A list of the facilities, including their physical addresses, and the materials and equipment to be used;
- (3) A list of the instructors to be used, including the kind of certificate and ratings held by each, and their certificate numbers; and
- (4) The maximum number of students to be enrolled at any one time.

(b) An applicant who meets the requirements of this part is entitled to an aviation maintenance technician school certificate and associated ratings prescribing such operations specifications and limitations as are necessary in the interest of safety.

5. Amend § 147.7 by revising paragraph (a) to read as follows:

**§ 147.7 Duration of certificate.**

(a) An aviation maintenance technician school certificate or rating is effective from the date of issue until the certificate holder surrenders the certificate and the FAA accepts it for cancellation, or the FAA suspends or revokes it.

\*\*\*\*\*

6. Add § 147.9 to read as follows:

**§ 147.9 Operations Specifications**

(a) Except for operations specifications paragraphs specifying ratings, operations specifications are not part of a certificate.

(b) The operations specifications issued to an aviation maintenance technician school must be available at the school for inspection by the public and the FAA at the address required by paragraph (c) (1) of this section.

(c) Each certificate holder's operations specifications must contain—

(1) The physical address of the certificate holder's primary location for operation of the school. The address shall also serve as the address for mailed paper correspondence between the FAA and the certificate holder.

(2) The ratings held.

(3) The complete curriculum and the descriptions required under each of the subjects specified in the appendices.

- (4) Any exemption granted by the FAA to the school.
- (5) Lists of the facilities, equipment, and materials used by the school to meet the requirements of §§ 147.15 through 147.19.
- (6) The maximum number of students to be enrolled at any one time.
- (7) A current list of instructors and their qualifications.
- (8) Any other information the Administrator determines is necessary.

7. Add § 147.10 to read as follows:

**§ 147.10 Amendment, suspension, and termination of operations specifications.**

(a) The FAA may amend any operations specifications issued under this part if—

- (1) The operations specification was issued erroneously;
- (2) The FAA revises the operations specifications template;
- (3) The FAA determines that safety in air commerce and the public interest require the amendment; or
- (4) The certificate holder applies for the amendment and the FAA determines that safety in air commerce and the public interest allows the amendment.

(b) Except for an amendment involving a rating, which would be considered a certificate action, the FAA may amend, suspend, or terminate any operations specification issued under this part if the certificate-holding district office determines that safety in air commerce and the public interest require the amendment, suspension, or termination.

(c) Except as provided in paragraph (f) of this section for an amendment, suspension, or termination of an operations specification in which the certificate-holding district office finds that an emergency exists requiring immediate action, when the FAA initiates an

amendment, suspension, or termination of an operations specification, the following procedure applies:

(1) The certificate-holding district office notifies the certificate holder in writing of the proposed amendment, suspension, or termination.

(2) The certificate-holding district office sets a reasonable period (but not less than 7 days) within which the certificate holder may submit written information, views, and arguments on the proposed amendment, suspension, or termination.

(3) After considering the material presented, the certificate-holding district office notifies the certificate holder of—

(i) The adoption of the proposed amendment, suspension, or termination;

(ii) The partial adoption of the proposed amendment, suspension, or termination; or

(iii) The withdrawal of the proposed amendment, suspension, or termination.

(4) If the certificate-holding district office issues an amendment, suspension, or termination of an operations specification, it becomes effective not less than 30 days after the certificate holder receives notice of it unless—

(i) The certificate-holding district office finds under paragraph (f) of this section that there is an emergency requiring immediate action with respect to safety in air commerce; or,

(ii) The certificate holder petitions for reconsideration of the amendment, suspension, or termination under paragraph (e) of this section.

(d) If the certificate holder applies for an amendment to its operations specifications, the following procedure applies:

(1) The certificate holder must file an application to amend its operations specifications at least 30 days before the date proposed by the applicant for the amendment to become effective.

(2) The application must be submitted to the certificate-holding district office in a form and manner prescribed by the FAA.

(3) After considering the material presented, the certificate-holding district office notifies the certificate holder of—

(i) The adoption of the applied for amendment;

(ii) The partial adoption of the applied for amendment; or

(iii) The denial of the applied for amendment. The certificate holder may petition for reconsideration of a denial or partial adoption under paragraph (e) of this section.

(4) If the certificate-holding district office approves the amendment following coordination with the certificate holder regarding its implementation, the amendment is effective on the date the FAA approves it.

(e) When a certificate holder seeks reconsideration of a decision from the certificate-holding district office concerning the denial or partial adoption of the certificate holder's applied for amendment, or of an FAA-initiated amendment, suspension, or termination of an operations specification, the following procedure applies:

(1) The certificate holder must petition for reconsideration of that decision within 30 days of the date that the certificate holder receives a notice of denial or partial adoption of the applied for amendment to its operations specifications, or of the date it receives notice of an FAA-initiated amendment, suspension, or termination of one or more of its operations specifications, whichever circumstance applies.

(2) The certificate holder must address its petition to the applicable Flight Standards Regional Division Manager.

(3) A petition for reconsideration, if filed within the 30-day period, suspends the effectiveness of any amendment, suspension, or termination issued by the certificate-holding district office unless the certificate-holding district office has found, under paragraph (f) of this section, that an emergency exists requiring immediate action with respect to safety in air transportation or air commerce.

(4) If a petition for reconsideration is not filed within 30 days, the effective date of the amendment, suspension, or termination shall be as specified under paragraphs (c) or (d) of this section.

(f) If the certificate-holding district office finds that an emergency exists requiring immediate action with respect to safety in air commerce or air transportation that makes the procedures set out in paragraphs (c) and (e) of this section impracticable or contrary to the public interest:

(1) The certificate-holding district office amends, suspends, or terminates the operations specification(s) and makes the amendment, suspension, or termination effective on the day the certificate holder receives notice of it.

(2) In the notice to the certificate holder, the certificate-holding district office specifies the reasons for its finding that an emergency exists requiring immediate action with respect to safety in air commerce and air transportation or that makes it impracticable or contrary to the public interest to stay the effectiveness of the amendment, suspension, or termination.

8. Revise § 147.13 to read as follows:

**§ 147.13 Facilities, equipment, and material requirements.**

(a) Each certificated aviation maintenance technician school must provide and maintain at least the facilities, equipment, and materials specified in §§ 147.15 through 147.19 that are appropriate to the ratings held.

(b) A school may not make a significant change to its facilities, equipment, or materials used to comply with paragraph (a) of this section unless the change is approved in advance by the FAA. The approved changes must be listed in the certificate holder's operations specifications.

9. Amend § 147.15 by revising the introductory paragraph and paragraph (f) to read as follows:

**§ 147.15 Space requirements.**

Each certificated aviation maintenance technician school must provide and maintain properly heated, lighted, and ventilated facilities for the rating or ratings held that the FAA determines are appropriate for the maximum number of students expected to be taught at any time for the following areas and classrooms:

\*\*\*\*\*

(f) A suitable area and space with adequate equipment, including benches, tables, and test equipment, to disassemble, service, and inspect:

\*\*\*\*\*

10. Amend § 147.17 by revising paragraph (a) to read as follows:

**§ 147.17 Instructional equipment requirements.**

(a) Each certificated aviation maintenance technician school must provide and maintain the following instructional equipment appropriate to the ratings held:

\*\*\*\*\*

11. Revise § 147.19 to read as follows:

**§ 147.19 Materials, special tools, and shop equipment requirements.**

Each certificated aviation maintenance technician school must provide and maintain an adequate supply of materials, special tools, and shop equipment appropriate to the school's FAA-approved curriculum that are used in constructing and maintaining aircraft, to assure that each student will be properly instructed. The special tools and shop equipment must be in satisfactory working condition for their intended purpose.

12. Revise § 147.21 to read as follows:

**§147.21 General curriculum requirements.**

(a) Each certificated aviation maintenance technician school must have and use an FAA-approved curriculum that meets the minimum requirements set forth in the school's operations specifications. The curriculum must be designed to qualify students to meet the minimum requirements of subpart D of 14 CFR part 65. With FAA approval, a school may teach approved curriculum subjects at levels exceeding those specified in the school's operations specifications.

(b) The curriculum required by paragraph (a) of this section must offer at least the number of instructional hours or credit hours for the rating sought as set forth in paragraph (b)(1) or (b)(2) as follows:

(1) For instructional hours, each instruction unit hour may not be less than 50 minutes—

(i) Airframe - 1,250 hours (450 general plus 800 airframe).

(ii) Power plant - 1,100 hours (450 general plus 650 power plant).

(iii) Combined airframe and power plant - 1,900 hours (450 general plus 800 airframe and 650 powerplant).

(2) For credit hours, each credit unit hour must be based on higher education accreditation criteria—

(i) Airframe - 28 credit hours (10 general credit hours plus 18 credit hours airframe).

(ii) Powerplant - 25 credit hours (10 general credit hours plus 15 credit hours power plant)

(iii) Combined airframe and power plant – 43 credit hours (10 credit hours general plus 18 credit hours airframe and 15 credit hours power plant).

(c) The curriculum must cover the subjects and items prescribed in appendices B, C, or D, and the items included under those subject headings in each school's operations specifications as applicable for the school's ratings. Each item must be taught to at least the indicated level of proficiency, defined in Appendix A and set forth in the corresponding operations specification item.

(d) Notwithstanding the provisions of paragraphs (a) through (c) of this section and §147.11, the holder of a certificate issued under subpart B of this part may apply for and receive approval of special courses in the performance of special inspection and preventive maintenance programs for a primary category aircraft type certificated under §21.24(b) of this chapter. The school may also issue certificates of competency to persons successfully completing such courses provided that all other requirements of this part are met and the certificate of competency specifies the aircraft make and model to which the certificate applies.

13. Revise § 147.23 to read as follows:

**§ 147.23 Instructor requirements.**

Each certificated aviation maintenance technician school must provide the number of instructors holding appropriate mechanic certificates and ratings that the FAA

determines necessary to provide adequate instruction and supervision of the students, including at least one FAA-certificated instructor for each 25 students in each shop or class. However, a school may, with FAA approval, provide specially qualified instructors who are not FAA certificated mechanics to teach general, airframe, powerplant, or specialized subjects. This provision does not relieve the school from having one instructor who holds an FAAmechanic certificate with ratings for Airframe, Powerplant, or both, as appropriate for each 25 students. Each school must maintain and keep current a list of the names and qualifications of all its instructors in its operations specifications.

14. Amend § 147.31 by revising paragraphs (c) through (e) and adding new paragraph (f) to read as follows:

**§ 147.31 Attendance and enrollment, test, and credit for prior instruction or experience.**

\* \*\*

(c) A school may not graduate a student unless the student has completed all of the appropriate curriculum requirements. However, the school may credit a student with instruction or previous experience as follows:

(1) A school may credit a student with instruction satisfactorily completed at-

(i) An accredited university, college, community college, or junior college;

(ii) An accredited vocational, technical, trade, or high school;

(iii) A military technical school, or

(iv) A certificated aviation maintenance technician school

(2) A school may determine the amount of credit to be allowed-

(i) By an entrance test equal to one given to the students who complete a

comparable required curriculum subject at the crediting school;

(ii) By an evaluation of an authenticated transcript from the student's former school;

or

(iii) In the case of a student from a non-accredited military technical school,

credit allowed may be determined based only on the successful completion of an entrance test.

(3) A school may credit a student with previous aviation maintenance experience comparable to required curriculum subjects. It must determine the amount of credit to be allowed by documents verifying that experience, and by giving the student a test equal to the one given to students who complete the comparable required curriculum subject at the school.

(4) A school may credit a student seeking an additional rating with previous satisfactory completion of the general portion of another school's curriculum.

(d) A school may not have more students enrolled at any one time than the number of students specified on its FAA-issued operations specifications.

(e) A school must use an FAA-approved system for determining final course grades and for recording student attendance. The system must show hours of absence allowed, and show how the missed material and hours will be made available to the student.

(f) Whenever an aviation maintenance technician school demonstrates to the FAA that a student has made satisfactory progress at the school, the student may take the aviation mechanic written general knowledge test after completing the corresponding portion of the curriculum, even if the student has not met the experience requirements of § 65.77. The school must prepare and issue a Certificate of Completion to identify students who are

eligible to take the written general knowledge test. An official of the school must authenticate the certificate. The certificate must show the completion date and the approved curriculum title under which the student was enrolled.

(g) A certificated aviation maintenance technician school may use distance learning as an alternative instructional delivery method under certain circumstances approved by the FAA. Prior to implementation, the school must obtain initial and final FAA approval of the distance learning training program and must adopt policies and procedures for managing its distance learning program. The distance learning program must show that it will achieve a level of competency equal to, or greater than, that required by § 145.37.

15. Revise § 147.33 to read as follows:

**§ 147.33 Records.**

(a) Each certificated aviation maintenance technician school must keep current records for each student enrolled, showing—

(1) The student's attendance, tests, and grades received on the subjects required by this part;

(2) The instruction credited to the student under § 147.31(c), if any; and

(3) The authenticated transcript of the student's grades from that school.

(b) Each school must retain the records required by paragraph (a) for at least two years after the end of the student's enrollment, and must make each record available for inspection by the FAA during that period.

(c) Each school must keep a current progress chart or individual progress record for each of its students, showing the practical projects or laboratory work completed, or to be completed, by the student in each subject.

16. Revise § 147.35 to read as follows:

**§ 147.35 Transcripts and graduation certificates.**

(a) Each certificated aviation maintenance technician school must, upon request by a student who has graduated from the school, or by a student who leaves the school before being graduated, provide a transcript of the student's grades to the student. An official of the school must authenticate the transcript. The transcript must state the curriculum in which the student was enrolled, whether the student satisfactorily completed that curriculum, and the final grades the student received.

(b) Each school must provide a graduation certificate or certificate of completion to every student it graduates. An official of the school must authenticate the certificate. The certificate must show the date of graduation and the approved curriculum.

**§ 147.36 [Removed and Reserved].**

17. Remove and reserve § 147.36.

18. Revise § 147.37 to read as follows:

**§ 147.37 Quality of instruction.**

(a) Each certificated aviation maintenance technician school must provide instruction of sufficient quality that its graduates achieve the pass rates described in this section. For the school's graduates who apply for a mechanic certificate or for an additional rating within 60 days after they are graduated, the percentage of those passing the applicable FAA written tests on their first attempt during any period of 24 calendar months must be at least the percentage figured as follows:

(1) For a school graduating fewer than 51 students during that period—the national passing norm minus the number 20.

(2) For a school graduating at least 51, but fewer than 201, students during that period—the national passing norm minus the number 15.

(3) For a school graduating more than 200 students during that period—the national passing norm minus the number 10.

(b) The failure of a school to maintain the quality of instruction specified in paragraph (a) of this section may be the basis for suspending or revoking that school's certificate.

(c) As used in this section, "national passing norm" is the number representing the percentage of all graduates (of a curriculum for a particular rating) of all certificated aviation maintenance technician schools who apply for a mechanic certificate or additional rating within 60 days after they are graduated and pass the applicable FAA written tests on their first attempt during the period of 24 calendar months described in this section.

**§§ 147.38 and 147.38(a) [Removed and Reserved].**

19. Remove and reserve §§147.38 and 147.38(a)

20. Revise § 147.39 to read as follows:

**§ 147.39 Display of certificates.**

Each certificated aviation maintenance technician school must display the school's certificate, along with its associated ratings, at a place in the school that is normally accessible to the public and where its view is not obscured. The certificate must be available for inspection by the FAA.

21. Revise § 147.41 to read as follows:

**§ 147.41 Change of location.**

The holder of an aviation maintenance technician school certificate may not make any change in the school's physical location unless the change is approved by the FAA in

advance. If the certificate holder desires to change the school's location, the holder must notify the FAA, in writing, at least 30 days before the date of the contemplated change.

The new location must be listed in the certificate holder's operations specifications.

22. Revise § 147.43 to read as follows:

**§ 147.43 FAA Inspection.**

A certificated aviation maintenance technician school must allow the FAA to inspect the school at any time to determine compliance with this part.

**§ 147.45 [Removed and Reserved].**

24. Remove and reserve § 147.45.

25. Amend Appendix A by revising paragraph (c) to read as follows:

**Appendix A to Part 147-Curriculum Requirements**

**This appendix defines terms used in appendices B, C, and D of this part, and describes the levels of proficiency at which items under each subject in each curriculum must be taught.**

\*\*\*\*\*

(c) Teaching Materials and Equipment. The curriculum may be presented utilizing currently accepted educational materials and equipment, including but not limited to: calculators, computers, distance learning delivery equipment/methods and audio-visual equipment.

\*\*\*\*\*

26. Revise Appendix B to read as follows:

A. Fundamental Electricity and Electronics

B. Aircraft Drawings

C. Weight and Balance

- D. Fluid Lines and Fittings
  - E. Aircraft Material, Hardware, and Processes
  - F. Ground Operations and Servicing
  - G. Cleaning and Corrosion Control
  - H. Mathematics
  - I. Maintenance Forms, Records, and Publications
  - J. Physics for Aviation
  - K. Mechanic Privileges and Limitations
  - L. Inspection Concepts and Techniques
  - M. Human Factors
  - N. Foreign Object Elimination (FOE)
  - O. Alerts, Cautions, and Warning Indications
27. Revise Appendix C to read as follows:
- A. Metallic Structures
  - B. Non-Metallic Structures
  - C. Flight Controls
  - D. Airframe Inspection
  - E. Landing Gear Systems
  - F. Hydraulic and Pneumatic Systems
  - G. Environmental Systems
  - H. Aircraft Instrument Systems
  - I. Communication and Navigation Systems
  - J. Aircraft Fuel Systems

K. Aircraft Electrical Systems

L. Ice and Rain Control Systems

M. Airframe Fire Protection Systems

N. Rotorcraft Fundamentals

O. Water and Waste Systems

28. Revise Appendix D to read as follows:

A. Reciprocating Engines

B. Turbine engines

C. Engine Inspection

D. Engine Fire Protection Systems

E. Engine Instrument Systems

F. Engine Electrical Systems

G. Lubrication Systems

H. Ignition and Starting Systems

I. Fuel Metering Systems

J. Reciprocating Engine Induction and Cooling Systems

K. Turbine Engine Air System

L. Engine Exhaust and Reverser Systems

M. Propellers

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