



P.O. BOX 234
JENKS, OK 74037

703.548.2030
ATEC@ATEC-AMT.ORG
ATEC-AMT.ORG

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Docket Operations, M-30
U.S. Department of Transportation
1200 New Jersey Avenue, SE
Room W12-140, West Building Ground Floor
Washington, DC 20590-0001

Re: Aviation Maintenance Technician Schools Supplemental Notice of Proposed Rulemaking
Docket ID: FAA-2015-3901; Document ID: FAA-2015-3901-0095; FR 2019-06399

To Whom It May Concern:

The Aviation Technician Education Council (ATEC) represents Federal Aviation Administration (FAA) certificated Title 14 Code of Federal Regulations (CFR)¹ part 147 aviation maintenance technician schools (AMTS). As such, the supplemental notice of proposed rulemaking (SNPRM) referenced above directly impacts ATEC members and their day-to-day operations.

General comments to the SNPRM are included in this letter. The council's specific, section-by-section comments on the proposed language is included as Attachment 1.

Deference to Accreditation Standards

The council reiterates its plea for FAA deference in all matters concerning the quality of education, an element that falls squarely in the Department of Education's (ED) purview. Higher institutions of learning are overseen by accreditors that ensure educational outcomes are achieved through annual audits and regular oversight. The agency's proposals duplicate—and often contradict—these accreditation requirements. As it did in its comments to the November 2015 notice of proposed rulemaking (NPRM), ATEC asks that the agency focus its oversight on elements specific to a certificated aviation maintenance program that are not otherwise driven by ED requirements.

For example, the agency certainly has a vested interest to ensure an AMTS has appropriate facilities, equipment, and material, and that their instructors are uniquely qualified to impart the skill and knowledge required of aviation mechanics. Oversight of those elements can and should

¹ All regulatory references are to Title 14 CFR unless otherwise indicated

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be retained by the FAA, along with the ability to assess a program's quality based on student performance of the mechanic tests.

The FAA should defer to education experts for oversight of programmatic elements specific to *education*. Accreditors already oversee many of the elements the agency insists on "approving" in its part 147 proposals, to include teaching ratios, grading systems and criteria, the number of instructional hours or credit hours appropriate, competency determinations, teaching methods, and order of instruction. Insistence that the inspector workforce—with little to no experience in education—oversee these elements wastes resources and creates a bureaucratic system of approvals that will only stifle the already inadequate mechanic pipeline.

Outcomes-Based Approach

The education community is in dire need of an outcomes-based regulatory approach, whereby schools have the flexibility to develop individualized programs that meet local employer needs. New mechanic airman certification standards (ACS)—a development that came about since the FAA released its original part 147 NPRM—provide the method of compliance. In other words, the ACS sets forth the minimum knowledge and skill required for an individual to hold an FAA mechanic certificate. Given the agency controls the standard, the mechanic test, and associated guidance material, it need not micromanage how an AMTS will ensure students are properly prepared to meet the standard.

As dictated in the recent FAA reauthorization bill, the agency must "ensure [AMTS curriculum is] revised and updated in correlation with aviation maintenance technician airman certification standards as necessary to reflect current technology and maintenance practices..." The mandated system is simple. Schools should have the flexibility to freely develop and modify curriculum—subject to accreditation standards but free from duplicative FAA approvals—in line with the ACS such that students are prepared to successfully obtain a mechanic certificate. Through evaluation of passage rates, the FAA can enforce a school's adherence to the standard and schools will continuously adjust their curriculum as the ACS is revised and evolves. The system will support quality programs and utilize less government resources.

We understand that a 2008 Aviation Rulemaking Advisory Committee part 147 working group—made up of several individuals that also participated in the creation of these comments—recommended creation of a review board that would develop and oversee training curriculum standards.² While the council continues to strongly support the intent of the recommendation—to ensure AMTS curriculum keeps up with industry workforce needs as

² See Part 147 Aviation Maintenance Technician Schools Curriculum and Operating Requirements Working Group recommendation, available at https://www.faa.gov/regulations_policies/rulemaking/committees/documents/media/ECamtsT1-6122007.pdf

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technology evolves—it is absolute in its opposition to development of two sets of standards, one for testing and one for training.

The ACS working group made formal recommendation to the FAA that the ACS be used as the basis for both testing and training, to ensure correlation between the two. ATEC wholeheartedly agrees with and supports those sentiments. Instead of repeating them in their entirety here, the recommendation and subsequent correspondence is included in these comments as Attachment 3.

SNPRM Provisions

While the council appreciates the agency addressing two items of critical importance in this supplemental rule, its comments to the original NPRM were misconstrued. The FAA's supplemental proposal layers in a complicated web of duplicative requirements and approvals for competency-based programs and satellite locations. The added elements would create more bureaucracy and disincentivize schools looking to expand reach to high schools and provide competency-based programs.

As further outlined in our section-by-section analysis, enclosed as Attachment 1, the council clarifies its original position and recommendation and asks that the agency—

- Utilize additional fixed locations in lieu of the proposed satellite system.
- Remove all contact and credit hour requirements from the regulation to *allow for* competency-based programs.

Given the council's sweeping recommended changes to the agency's proposal, this submission does not provide comment to the draft Advisory Circular 147-3C. The council will propose language consistent with these comments and submit to the agency for its consideration at a later date.

Given the time that has lapsed since the original NPRM was published, and to ensure its position is clearly communicated, the council also provides specific recommended language for part 147 in Attachment 2. The language is largely consistent with ATEC's comments to the 2015 NPRM and therefore, does not repeat reasonings communicated in the previous submission.

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On behalf of the aviation maintenance education community thank you for your consideration of these comments.

Sincerely,



Crystal Maguire
Executive Director

Attachments 1: Section-by-section analysis
 2: Recommended part 147 language
 3: ACS working group recommendation (dated June 28, 2017), agency
 response (dated March 7, 2018), and working group rebuttal (dated March
 12, 2018)
 4: Letter re additional fixed locations (dated May 18, 2017)

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Attachment 1: Section by Section Analysis

Section by Section Analysis

Sections of the proposal is reproduced below in italics, followed by the council's observations in bold. When alternative regulatory language is offered, it is represented in bold italics.

§ 147.14 Satellite training locations.

(a) Except as specified in paragraph (c)(5) of this section, the holder of an aviation maintenance technician school certificate may, with FAA approval, conduct training at either a dependent satellite training location in accordance with paragraph (b) of this section, or at an independent satellite training location in accordance with paragraph (c) of this section, provided the following requirements are met—

(1) The parent aviation maintenance technician school must make an application for a satellite training location in a form and manner prescribed by the FAA at least 60 days prior to the intended start date of training. The application must include the scheduled training start date and the content specified in § 147.5(a)(1) through (4) of this part;

(2) The parent aviation maintenance technician school's operations specifications must include the name and physical address of the satellite training location and the person with responsibility for operations at the satellite training location;

(3) The parent aviation maintenance technician school must develop adequate procedures describing satellite operations acceptable to the FAA, and make them available to each satellite location;

(4) The satellite training location must use the curriculum and procedures of the parent aviation maintenance technician school, and the curriculum must meet the applicable requirements of this part;

(5) The satellite training location may share personnel and equipment from the parent aviation maintenance technician school and from each of the satellite training location(s), unless the FAA indicates otherwise; and

(6) The facilities, equipment, and personnel of the satellite training location must meet the applicable requirements of this part.

(b) Dependent satellite training location. Except as specified in paragraph (c)(5) of this section, the holder of an aviation maintenance technician school certificate may conduct training in accordance with its FAA-approved curriculum at a satellite training location away from the school's primary location, provided the following requirements are met—

(1) The certificate holder's operations specifications must include the course curriculum to be offered at the dependent satellite training location;

(2) The certificate holder must ensure the dependent satellite training location complies with the applicable requirements of this part; and

(3) The dependent satellite training location must allow the FAA to inspect its facility to determine compliance with this part.

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(c) Independent satellite training locations. A certificated aviation maintenance technician school may serve as an independent satellite training location of another certificated school, provided the independent satellite training location operates under its own certificate issued by the FAA. An independent satellite training location –

- (1) Must operate using the curriculum and procedures of the parent aviation maintenance technician school, except for any documented differences that have been accepted or approved by the FAA as applicable;*
- (2) May not hold a rating not held by the parent aviation maintenance technician school;*
- (3) Must meet the requirements for each rating it holds;*
- (4) Must ensure compliance with the applicable requirements of this part independent of the parent aviation maintenance technician school; and*
- (5) May not conduct training at another satellite training location.*

As the agency acknowledges in its preamble to the SNPRM, AMTS are facing unprecedented demand for program graduates. To meet the growing need for technicians and mechanics, these institutions are seeking opportunities to expand their capacity and enrollment through dual enrollment programs whereby AMTS provide course instruction at local high schools, allowing students to earn credit towards an airframe and powerplant (A&P) program.

While the current regulation does not prohibit AMTS from providing courses at another location, flight standards district office (FSDO) opinion on what is allowable under the regulation varies considerably, with some expressly forbidding the practice.³ Local office personnel that prohibit dual enrollment generally cite language in FAA Advisory Circular 147-3B, which states that an AMTS “may not operate as a satellite facility” and that “all AMTS must be FAA-certificated as separate facilities.”⁴

Notwithstanding the fact that an AC cannot impose requirements or prohibitions, the guidance material and regulatory infrastructure generally discourages offering of AMTS course content away from the location listed on the part 147 certificate. Therefore, the ability for current AMTS to provide pathway opportunities at local high schools, whereby high school students receive A&P credit, is greatly limited.

³ See Richmond FSDO [letter denying](#) dual enrollment program approval, stating that “there are no provisions in Part 147 to allow a certificated school to have any type of satellite facility. As a matter of fact, Advisory Circular 147-3A, Certification and Operation of Aviation Maintenance Technician Schools, Chapter 2, paragraph 16, specifically addresses this issue...”

⁴ See [AC 147-3B](#), Certification and Operation of Aviation Maintenance Technician Schools

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While the council appreciates the agency’s recognition of the problem, and that it proffers a solution, it does not believe the proposed regulatory language will meet the intended objective.

The “working away” concept is utilized differently amongst air agencies and largely misunderstood. For example, part 145 requires repair station satellites to apply for and maintain their own, separate FAA certificate. Part 141 describes satellites that are under the complete control of the “main operation base,” in line with how part 145 additional fixed locations are managed.

The part 147 SNPRM introduces yet another concept, one that utilizes “independent” and “dependent” satellites. The language is overly-cumbersome and creates a new set of approvals that will dissuade most AMTS from utilizing the scheme.

A TEC instead proposes—as it did in a memo sent to the agency on May 18, 2016 (see Attachment 4)—that the agency adopt a system consistent with part 145 repair station operations, a concept familiar to local inspectors and many AMTS administrators. The council recommends that the agency allow part 147 certificate holders to utilize currently available operations specifications (OpSpecs) templates for paragraphs A101 and D100.⁵ This simple solution would use infrastructure already in place to allow schools to provide content away from its primary location and subject to FAA oversight.

Suggested language will ensure that additional fixed locations are subject to all part 147 requirements. While it is the council’s position that the current regulation would not prohibit the agency’s adoption of the system prior to rule change, it would ensure the “privilege” is clearly understood by both the certificate holder and regulators.

A TEC recommended language:

§ 147.14 Work performed at another location.

A certificated aviation maintenance technician school may conduct operations at any additional location that meets the requirements of this part and is listed in the certificate holder’s operations specifications.

§ 147.17 Instructional equipment requirements.

(a) * * *

(1) * * *

⁵ See OpSpecs standard templates, defined in the Flight Standards Information Management System (FSIMS), Order 8900.1, Volume 3, Chapter 18, Section 1, available at <http://fsims.faa.gov/PICDetail.aspx?docId=8900.1,Vol.3,Ch18,Sec1>

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(2) At least one aircraft type-certificated by the FAA with powerplant, propeller, instruments, navigation and communications equipment, landing lights, and other equipment and accessories on which a maintenance technician might be required to work and with which the technician should be familiar.

* * * * *

The council has no objection to the recommended language.

§ 147.21 General curriculum requirements.

* * * * *

(b) Except as provided in § 147.22 of this part, 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) of this section as follows:

* * * * *

We understand that this supplemental amendment only makes changes to account for a new § 147.22, further discussed below. However, ATEC would like to take the opportunity to reassert its request for the agency to remove all credit and hour requirements from part 147 and defer to ED on all matters involving quality of education. It therefore offers the following recommended language for this entire section.

§ 147.21 Curriculum requirements.

Each certificated aviation maintenance technician school must establish and maintain curriculum designed to continually align with mechanic airman certification standards and ensure students are eligible for a mechanic certificate and associated ratings under 14 CFR part 65 subpart D.

§ 147.22 Competency-based training curriculum.

(a) General. The FAA-approved curriculum required by § 147.21(a) may include competency-based training. A certificated aviation maintenance technician school may use a competency-based training curriculum provided the school obtains FAA approval of its competency-based training program through an operations specification and has shown the requirements of this section are met. Except for the hour requirements of § 147.21(b), all other requirements of this part apply to a competency-based training program.

(b) Structure and content.

(1) The competency-based training curriculum must cover the subjects prescribed in appendixes B, C, or D, as appropriate to the course being approved, the course content items and teaching levels included under those subject area headings in the school's operations specifications, and the applicable competencies for each of those items.

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(2) *Each competency-based training curriculum must define the competencies, to include knowledge, skills, and observable behaviors, that apply to each course content item and associated teaching level, which are prescribed in the school's operations specification. The students will be trained and assessed to the competencies defined in the curriculum.*

(3) *The certificated aviation maintenance technician school may develop additional course content items in its curriculum for FAA approval. For each additional course content item, the certificated aviation maintenance technician school must define the applicable competencies, to include the knowledge, skills, and observable behaviors, that the student will be trained and assessed to.*

(c) *Training.*

(1) *The certificated aviation maintenance technician school must train each student to achieve the applicable competencies, with respect to each course content item as defined in the competency-based training curriculum. A competency-based training program may be defined to include—*

- (i) *A variety of teaching methods; and*
- (ii) *Group instruction, individualized instruction, or any combination thereof.*

(2) *For each course content item, the certificated aviation maintenance technician school must describe the following:*

- (i) *Theory requirements in classroom or by distance learning;*
- (ii) *Laboratory or shop requirements, including a description of the practical projects to be completed;*
- (iii) *The order of instruction;*
- (iv) *Whether the instruction will be individualized or given in a group;*
- (v) *The applicable competencies, to include knowledge, skills, and observable behaviors;*
- (vi) *Objective testing and grading criteria; and*
- (vii) *Schedule of required tests and assessments that shows the sequence of examinations for each subject in the curriculum.*

(d) *Competency assessments.*

(1) *The competency-based training curriculum must describe how and when the school will assess whether the student can demonstrate the applicable competencies (knowledge, skills, and observable behaviors) for each course content item. The assessments must—*

- (i) *Assess each course content item;*
- (ii) *Determine whether the student can demonstrate all applicable competencies (the knowledge, skills, and observable behaviors); and*
- (iii) *Be consistent with the required teaching levels specified in the operations specification.*

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- (2) *The competency-based training curriculum must describe what each competency assessment will consist of, including proportions of theory to be tested, a list of tests or assessments to be given, and a description of practical projects to be completed.*
 - (3) *For each competency assessment described in the competency based training curriculum, the school must develop a scoring guide that its instructors will use to conduct the assessment.*
 - (4) *The school may find a student competent when the student can demonstrate each applicable competency, with respect to the course content item being assessed, at a minimum of 70 percent.*
 - (5) *A graduation certificate or certificate of completion will be issued only when the student competency, as defined in paragraph (d)(4) of this section, can be shown for each competency outlined in the student's individual curriculum. The certificate must meet the requirements of § 147.35.*
- (e) *Remedial training. For a student who fails to demonstrate competency of a course content item in accordance with paragraph (d)(4) of this section—*
- (1) *The school must provide additional training and reassessment in areas of deficiency until the student can demonstrate the knowledge, skills, and observable behaviors that reflect the competencies at a minimum of 70 percent; and*
 - (2) *Where order of instruction requirements are specified in an approved competency- based training program, the student may not progress to a subsequent related course content item or subject area until the student has demonstrated competency in the subject matter in which they were found deficient.*
- (f) *Students with prior aviation maintenance training or experience.*
- (1) *Pre-training assessment. For students that have prior aviation maintenance training or experience in a subject area, the school may conduct a pre-training assessment of the student's initial competencies. The assessment must meet the requirements specified in paragraph (d)(1) of this section, as applicable to the subject areas and/or course content item(s) being assessed. The school must describe how it will assess the student's knowledge, skills and observable behaviors, including for each course content item:*
 - (i) *The proportions of theory to be tested;*
 - (ii) *A list of tests or assessments to be given; and*
 - (iii) *A description of the practical projects to be completed.*
 - (2) *Individualized Training. The result of the pre-training assessment is the student's individual curriculum. The individual's curriculum must include the subject areas and course content items for which the student did not demonstrate competency. For each subject area and course content item, the certificated aviation maintenance technician school must satisfy paragraph (c)(2) of this section.*
 - (3) *Competency Assessments and Remedial Training. The school must conduct competency assessments that satisfy the requirements of paragraph (d) of this section. If*

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the student fails to demonstrate competency in a course content item or subject area in accordance with paragraph (d)(4) of this section, the school must satisfy the remedial training requirements of paragraph (e) of this section.

(g) *Instructors.*

(1) The competency-based training program must describe the following—

(i) How the school's method ensures that instructors used to deliver competency-based training curriculum material are trained on the school's competency-based training program requirements, including delivery methods and assessment techniques; and

(ii) How the school will evaluate the instructors' competencies to ensure they are qualified to provide competency-based training and assessments.

(2) The competency-based training program must meet the requirements of § 147.23 and describe the instructor to student ratios that will apply to group instruction in the laboratory or shop.

(h) *Data collection and analysis process. The certificated aviation maintenance technician school must establish and maintain a data collection and analysis process on its students and instructors that will enable the school and the FAA to determine whether the competency-based training program is accomplishing its objectives. The school must maintain records of outputs of the data collection and analysis process. Such records must be retained for a minimum of 2 years.*

(i) *Recordkeeping requirements. In addition to meeting the record requirements specified in § 147.33, each certificated aviation maintenance technician school conducting an approved competency-based training curriculum must establish and maintain for each student enrolled records that show the student's progression through the student's individual curriculum, including documentation of any pre-training assessments and competency assessments.*

(j) *Revisions. Whenever the FAA finds that revisions are necessary for the continued adequacy of a competency-based training program that has been granted FAA approval, the certificate holder shall, after notification, make any changes in the program that are found necessary by the FAA.*

ATEC recommends that this section be removed in its entirety.

In its original comments, ATEC asked the agency to relocate time and credit hour requirements to the operations specifications, which would allow for competency-based programs. Supplemental comments requested and filed by ATEC provided more information on competency-based programs were misconstrued.⁶ ATEC did not and does not believe that

⁶ Available at <https://www.atec-amt.org/news/atec-submits-supplemental-part-147-nprm-comments>

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the agency should define or oversee competency-based programs. Indeed, it beseeches the agency to leave that obligation to DE and accrediting agencies.

While the concept—allowing students that already have the requisite skills and knowledge to move through a program at a faster pace—is broadly supported, the FAA proposal sets forth a complicated web of mandates and approvals for any school seeking the opportunity. While we appreciate that the agency acknowledges the need for competency-based programs, the proposed scheme would make it very arduous for an AMTS to adopt.

AMTS oversight needs a more wholistic view. Under the current proposal, myriad elements create silos based on method of delivery. A competency-based program—or distance learning platform for that matter—need not necessitate agency approval. No matter the delivery or assessment method, the content, driven through the FAA-controlled ACS, is the same. Schools should have the flexibility to teach the requisite content in whatever means best imparts the skill and knowledge required.

For example, the proposal duplicates provisions—such as crediting a student with previous experience or instruction—already addressed elsewhere in the agency’s proposal. Schools should not have to have a separate procedure for the same element just because the method of delivery is different (i.e., traditional vs. competency-based).

Provisions in the proposed language are reminiscent of those ATEC recommended for removal in its comments to the NPRM, given similar quality standards already dictated by ED. Education-related elements, including methods of instruction (i.e., one-on-one vs. group setting), the order content is offered, and testing schedules are already subject to review by ED and the National Advisory Committee on Institutional Quality and Integrity—which oversee all A&P programs with access to federal student aid. Schools must adhere to accreditation standards that ensure learning outcomes are met and that appropriate policies and procedures are in place.

For instance, the Accrediting Commission of Career Schools and Colleges (ACCSC)—the accreditor of several A&P schools—sets forth its quality standards in a 154-page manual. Among other things, the Commission evaluates “inputs (the kinds of students in the school and the recruiting, admission, and testing procedures that produce them); resources (instructors, equipment, library, etc.), and processes (how the school actually operates).” Accredited schools go through a rigorous application process and demonstrate continuous compliance with the ACCSC standards through on-site and self-evaluations.

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The council reasserts its recommendation that the agency defer to ED on all items related to quality of education, and instead focus on elements not addressed through accreditation, such as equipment, materials, and instructor qualifications.

For any future non-accredited schools (the council does not know of any current AMTS that are not accredited) proffered language recommends that those schools be subject to additional FAA approval and oversight of their quality system.

Again, the council's recommendation is that this section be removed in its entirety; however, if the agency insists on including language addressing competency-based programs, the council suggests adding the following language as § 147.21(b):

Each certificated aviation maintenance technician school may design curriculum based on clock hours, credit hours, and/or demonstrated competencies, as provided for in the certificate holder's operations specifications.

§ 147.37 Quality of instruction.

On a quarterly basis, each certificated aviation maintenance technician school must have provided instruction of a sufficient quality that, in the prior 24 calendar months, at least 70 percent of its graduates passed on the first attempt within 60 days of graduation each written knowledge test leading to a certificate or rating. As set forth in § 65.17 of this chapter, the minimum passing grade is 70 percent.

The council is not convinced that the "improved" methodology will adequately measure the quality of an AMTS program, any more than the current method. Like the current rule, the proposal does not take into account practical test results and considers only a subset of the graduate population since not all A&P students take the mechanic test. And schools with only a handful of graduate applicants a year are at greater risk of non-compliance by chance.

That said, the council understands that the agency desires to have a standard to use to measure instructional quality, even if the method is not ideal. To that end, we agree and appreciate the agency's proposal to eliminate language it introduced in the 2015 NPRM that would specifically provide for enforcement action in the event a school failed to meet norm standards.

ATEC welcomes the testing assessment as a tool for both the agency and schools to help create better quality programs. To that end, the council offers a few suggested edits to the proffered language—

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- **Change the rolling average to three years instead of two. This would help combat the impact of a few bad results for smaller schools that may only have a couple individuals taking the mechanic test a year.**
- **Include practical testing results in the assessment. The rule currently just looks at knowledge test results. Assessment of the entire mechanic test, to include the written, oral and practical, would give schools a more wholistic view of graduate success.**

Recommended language for proposed § 147.37 (the language has been added as § 147.31(c) in the suggested part 147 language provided in Attachment 2):

Each certificated aviation maintenance technician school must provide instruction of such quality to ensure that at least 70% of those that take an FAA mechanic test (written, oral and/or practical) within 60 days of graduation over the last three years, pass on the first attempt.

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Attachment 2: Recommended Part 147 Language

Recommended Part 147 Language

§147.1 Applicability.

This part prescribes the requirements for issuing aviation maintenance technician school certificates and associated ratings and the general operating rules for the holders of those certificates and ratings.

§ 147.3 Certificate and operations specifications requirements.

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

§ 147.5 Application for certificate.

(a) An application for a certificate must include the following:

- (1) A description of the facilities, including the physical address of the certificate holder's primary location for operation of the school, and the equipment and materials to be used.
 - (2) A description of the manner in which the school's curriculum will ensure students are capable of attaining a mechanic certificate and associated ratings under 14 CFR part 65 subpart D.
 - (3) A description of the manner in which the school will ensure it provides the necessary qualified personnel.
- (b) An application for an additional rating or amended certificate must include only that information necessary to substantiate the change.

§ 147.7 Duration of certificate.

An aviation maintenance technician school certificate is effective from the date of issue until the certificate is surrendered, suspended or revoked.

§ 147.11 Ratings.

The following ratings are issued under this part:

- (a) Airframe.
- (b) Powerplant.
- (c) Airframe and Powerplant.

§ 147.13 Facilities, equipment, and material requirements.

Each certificated aviation maintenance technician school must provide and maintain the facilities, equipment, and materials that are appropriate to the rating(s) held and the number of students taught at any one time.

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Attachment 2: Recommended Part 147 Language

§ 147.14 Work performed at another location.

A certificated aviation maintenance technician school may conduct operations at any additional location that meets the requirements of this part and is listed in the certificate holder's operations specifications.

§ 147.21 Curriculum requirements.

Each certificated aviation maintenance technician school must establish and maintain curriculum designed to continually align with mechanic airman certification standards and ensure students are eligible for a mechanic certificate and associated ratings under 14 CFR part 65 subpart D.

§ 147.23 Instructor requirements.

Each certificated aviation maintenance technician school must provide qualified personnel to teach in a manner that ensures educational outcomes are achieved. When necessary to perform the duties assigned, personnel must hold a mechanic certificate.

§ 147.31 Quality control system.

(a) Each certificated aviation maintenance technician school must either be accredited, meeting the definition of an institution of higher learning as provided for in Title 20 U.S. Code § 1001, or establish and maintain a quality control system that is approved by the FAA.

(b) An FAA-approved quality control system must provide procedures for recordkeeping, assessment, issuing credit for experience, issuing of final course grades, ensuring sufficient number of instructors, granting of graduation documentation, and corrective action for addressing deficiencies.

(c) Each certificated aviation maintenance technician school must provide instruction of such quality to ensure that at least 70% of those that take an FAA mechanic test (written, oral and/or practical) within 60 days of graduation over the last three years, pass on the first attempt.

§ 147.43 FAA inspection.

A certificated aviation maintenance technician school must allow the FAA to inspect its location(s) to determine compliance with this part.

§ 147.47 Early testing.

Each certificated aviation maintenance technician school may issue documentation demonstrating a student's satisfactory progress and preparedness to take the aviation mechanic written general knowledge test, even if the student has not met the experience requirements of § 65.77. Documentation must evidence the program and completion date.



June 28, 2017

Mr. Kevin Morgan, Supervisory Aviation Safety Inspector
Flight Standards Service, General Aviation Branch, Aircraft Maintenance Division (AFS-350)
Federal Aviation Administration
800 Independence Ave SW
Washington DC 20591-0001
kevin.morgan@faa.gov

Dear Mr. Morgan,

The Aviation Rulemaking Advisory Committee's (ARAC) Airman Certification System Working Group submits for Federal Aviation Administration's (FAA) consideration, recommendations to align training regulation and guidance with the airman testing standards.

The ARAC working group was tasked with developing recommended testing standards, training guidance, test management, and reference materials for the aircraft mechanic certificate with airframe and powerplant (A&P) ratings. The Aviation Maintenance Technician (AMT) Airman Certification Standards (ACS) will replace current practical test standards (PTS), and clearly define minimum knowledge, risk management and skill requirements for A&P mechanics. Once completed, it will provide the framework for the Knowledge Exam (written), oral and practical mechanic tests; and subsequently, a guide for revising handbooks, oral questions, practical projects and the knowledge test bank.

As you know, 14 Code of Federal Regulations (CFR) part 147 governs certification requirements for aviation maintenance technician schools (AMTS). Completion of an AMTS program is one way to satisfy experience requirements for an A&P certificate (see [§ 65.77](#)). In the absence of a comprehensive testing standard, training standards (i.e., curriculum requirements) provided in part 147 has effectively provided the framework for the skill and knowledge required of an A&P mechanic. While we understand and appreciate how we got to this point, it is the working group's opinion that the standard is misplaced.

Title 14 CFR part 65 sets forth the knowledge, experience and skill requirements for a mechanic certificate (see [§65.75](#), [§65.77](#) and [§65.79](#)). Requisite knowledge and skill is verified through written, oral and practical tests (see [§65.75\(b\)](#) and [§65.79](#)). The AMT ACS is the guidance that sets forth specifics on what a candidate must know, consider and do to successfully pass those tests. Part 65 is therefore the impetus for testing *and* training. In contrast, part 147 should be reserved for dictating AMTS certification and operating requirements, not mechanic knowledge and skill standards.

The working group therefore makes the following recommendations:

- 1. Revise part 65 to provide the baseline standard for mechanic knowledge and skill requirements**

Incorporating general knowledge and skill elements in part 65 would ensure that testing and training standards fall directly out of the regulation.

Until formal rulemaking can take place, the AMT ACS would provide the requisite specificity. The standard would be “enforceable” through part 65, which requires applicants to pass an agency-developed and -controlled mechanic test.

2. Remove any reference to curriculum requirements or subject areas from part 147

As stated above, part 65 is the impetus for testing *and* training. The inclusion of required curriculum or subject headings in part 147 creates a separate, inflexible, and inconsistent standard that training organizations will be forced to reconcile for decades to come.

3. Reference the AMT ACS in AMTS operations specifications to ensure that training and testing are directly correlated

Utilizing the AMT ACS as the basis for curriculum ensures that the agency can enforce AMTS adherence to the standard, requires schools to adjust their curriculum as mechanic knowledge and skill requirements evolve, and utilizes less government resources to maintain and update separate training specifications.

If the agency elects to dictate any specific curriculum requirements through the part 147 operation specification, it should directly mirror the subject areas provided for in the AMT ACS (see attachment 1). The agency should also ensure there is a mechanism available to update AMTS operations specifications as the AMT ACS periodically evolves.

4. Utilize the ARAC Airman Certification System Working Group as the driver for changes to training requirements

The working group will periodically review and update the AMT ACS to ensure it is in line with mechanic knowledge and skill requirements as technology evolves. The working group would therefore be the vehicle to ensure that training and testing keeps up with ever-evolving safety considerations.

We thank you for your consideration of these recommendations and stand by to provide support and expertise as needed.

Sincerely,



David Oord, ACSWG Chair
Senior Director, Regulatory Affairs
Aircraft Owners and Pilots Association



Jackie Spanitz, AMT ACS Subgroup Co-chair
Curriculum Director
Aviation Supplies & Academics, Inc.



Janeen Kochan, PhD, FRAeS, AMT ACS Subgroup Co-chair
Human Factors Scientist/Designated Pilot
Examiner/Instructor Pilot
Aviation Research, Training, and Services, Inc.

Attachment 1 AMT ACS subjects

cc: robert.w.warren@faa.gov
 tim.shaver@faa.gov
 john.s.duncan@faa.gov

Attachment 1 AMT ACS (FAA-S-ACS-1) Subjects

General

Fundamentals of Electricity and Electronics
Aircraft Drawings
Weight and Balance
Fluid Lines and Fittings
Aircraft Materials, Hardware, and Processes
Ground Operations and Servicing
Cleaning and Corrosion Control
Mathematics
Regulations, Maintenance Forms, Records, and Publications
Physics for Aviation
Inspection Concepts and Techniques
Human Factors

Airframe Structures

Metallic Structures
Non-Metallic Structures
Aircraft Finishes
Flight Controls
Airframe Inspection

Airframe Systems

Landing Gear Systems
Hydraulic and Pneumatic Systems
Environmental Systems
Aircraft Instrument Systems
Communication and Navigation Systems
Aircraft Fuel Systems
Aircraft Electrical Systems
Ice and Rain Control Systems
Airframe Fire Protection Systems
Rotorcraft Fundamentals

Powerplant Theory and Maintenance

Reciprocating Engines
Turbine Engines
Engine Inspection

Powerplant Systems and Components

Engine Instrument Systems
Engine Fire Protection Systems
Engine Electrical Systems
Lubrication Systems
Ignition and Starting Systems
Fuel Metering Systems
Engine Fuel Systems
Engine Induction Systems
Engine Cooling Systems
Engine Exhaust and Reverser Systems
Propellers

U.S. Department
of Transportation
**Federal Aviation
Administration**

800 Independence Ave., S.W.
Washington, D.C. 20591

March 7, 2018

Mr. David Oord
ACS WG Chair

Dear Mr. Oord:

In reference to your letter on the Aviation Rulemaking Advisory Committee's (ARAC) Airman Certification Standards (ACS) Working Group (WG) recommendations to align mechanic training and testing, the Aircraft Maintenance Division, General Aviation Branch, has reviewed your comments and provides the following discussion and response:

The ACS WG submitted four recommendations, listed below, which you state are based on the position that both the A&P mechanic training and testing standards should be contained in part 65, and that having those standards contained in part 147 as the regulations currently provide, is misplaced:

1. *Revise part 65 to provide the baseline standard for mechanic knowledge and skill requirements.*
2. *Remove any reference to curriculum requirements or subject areas from part 147.*
3. *Reference the AMT ACS in AMTS operations specifications to ensure that training and testing are directly correlated.*
4. *Utilize the ARAC Airman Certification System Working Group as the driver for changes to training requirements.*

This office recognizes that, as you stated in your letter, the minimum curriculum requirements for general, airframe and powerplant contained in part 147 (i.e. training standards) are being used to derive the knowledge and skill standards for airframe and powerplant mechanic applicants requesting certification under part 65 (i.e. testing standards).

As you are aware, this office is currently working on rulemaking for part 147. As discussed in the part 147 Notice of Proposed Rulemaking (NPRM) issued on 10/02/2015, this rulemaking is based on recommendations from the 2008 Aviation Rulemaking Advisory Committee (ARAC) Part 147 Working Group Report, and finalized based on comments received during the NPRM comment period. The comment period closed on February 1, 2016. The ACS WG recommendations 1 & 2 were not part of the ARAC recommendations and no similar comments were received during the comment period. Therefore, those recommendations cannot be considered in the current part 147 rulemaking process. The ACS WG recommendations 1 and 2 could be considered in future rulemaking efforts.

The ACS WG concerns relating to recommendations 3 & 4 are being addressed by the following proposals associated with the current rulemaking project:

- Minimum course content (previously in the part 147 appendices), and associated teaching levels will be contained in the part 147 Operations Specifications (OpSpecs) issued to each Aviation Maintenance Technician School (AMTS). An AMTS will be able to teach additional course content with FAA approval.
- The initial minimum course content items that the NPRM proposes to be placed in the OpSpecs are derived from recommendations from the ARAC Part 147 Working Group Report.
- The FAA plans to establish a Maintenance Training Review Board (MTRB) Aviation Rulemaking Committee (ARC) that would commence two years after the effective date of the part 147 final rule. The MTRB ARC will discuss and provide curriculum recommendations to the FAA every two years.

The above proposals were based on recommendations by the ARAC Part 147 working group to facilitate revision of part 147 minimum training requirements both in a timely manner, and based on evolving technology and industry needs. We recognize that alignment of the minimum training curriculum outlined in the OpSpecs, with any testing standards developed by the ACS WG, will require collaboration and coordination between responsible offices to ensure appropriate consistency between those requirements.

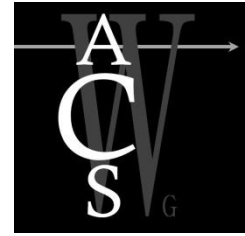
In summary, we appreciate the recommendations the ACS Working Group has provided. Unfortunately, the recommendations can not be considered for the part 147 rulemaking that is currently in progress as they are out of scope of the already proposed rule change. However, the recommendations could be taken into consideration during future rulemaking efforts, particularly with part 65. We advise that a petition for rulemaking under part 11 be submitted for any potential rulemaking recommendations.

We appreciate the opportunity to assist you. If you have any additional questions regarding this letter, please contact the Aircraft Maintenance Division at (202) 267-1675.

Sincerely,



Jackie L. Black
Manager, Aircraft Maintenance Division



March 12, 2018

Jackie Black
Manager Aircraft Maintenance Division
Federal Aviation Administration
800 Independence Ave SW
Washington DC 20591-0001

Dear Mr. Black,

In response to your March 7, 2018 letter to the Aviation Rulemaking Advisory Committee (ARAC) Airman Certification Standards working group's (ACS WG) June 28, 2017 recommendation, we wish to clarify the points on which you base your claim that the recommendations are misplaced.

Your letter repeatedly references a Dec. 5, 2008 ARAC part 147 working group (WG) report¹ as the basis for agency decision making. With all due respect, that recommendation was made more than a decade ago, prior to the conception of the ACS. Reliance on old information to the detriment of new initiatives does a disservice to the industry and all hard-working ARAC ACS WG volunteers and agency participants. We therefore respectfully request that the agency give credence to the newer ARAC recommendation.

We also refute the contention that the agency did not receive comment to a notice of proposed rulemaking (NPRM) requesting removal of specific curriculum requirements from part 147. That recommendation is clearly on record in the rulemaking docket.²

Further, utilization of pre-ACS "recommendations from the ARAC part 147 working group report" as the basis for part 147 operations specifications, and establishment of a "maintenance training review board to discuss and provide curriculum recommendation" will unnecessarily create two standards, one for testing (via the ACS) and one for training (via the MTRB). As you point out, "collaboration and coordination between responsible offices to ensure appropriate consistency between those requirements" would be required, creating unnecessary inconsistencies, undue burdens for training organizations, and waste of government resources.

The ACS is a true collaborative effort and partnership between the FAA and industry stakeholders. The working group includes contributors from a cross-section of the

¹ See Part 147 Aviation Maintenance Technician Schools Curriculum and Operating Requirements Working Group recommendation, available at https://www.faa.gov/regulations_policies/rulemaking/committees/documents/media/ECamtsT1-6122007.pdf

² Aviation Technical Education Council comments state, "The council... recommends that appendices B, C and D be removed in their entirety to allow government and industry to consider the curriculum structure as a whole, via OpSpecs templates, without the need for formal rulemaking." Available at <https://www.regulations.gov/document?D=FAA-2015-3901-0072>

industry—including two representatives from the aircraft maintenance division. Current industry needs were considered in its creation, as well as all recommendations made by the 2008 ARAC part 147 WG. We are confident that the ACS will provide the necessary vehicle to ensure testing and training are correlated, while maintaining the opportunity for continued growth and development as technology and industry needs evolve.

We respectfully request more careful and meaningful consideration of the recommendations made in our June 28, 2017 letter. We stand by to provide support and expertise as needed.

Sincerely,



David Oord
ARAC Vice-Chair
ACSWG Chair
Senior Director, Regulatory Affairs
Aircraft Owners and Pilots Association



Jackie Spanitz
AMT ACS Subgroup Co-chair
General Manager
Aviation Supplies & Academics, Inc.



Janeen Kochan, PhD, FRAeS
AMT ACS Subgroup Co-chair
Human Factors Scientist/Designated Pilot
Examiner/Instructor Pilot
Aviation Research, Training, and Services,
Inc.

Attachments: FAA response to ARAC ACS WG recommendation, dated March 7, 2018
ARAC ACS WG recommendation, dated June 28, 2017

Cc: John Duncan
Robert Warren
Tim Shaver
Kevin Morgan
Rick Domingo
Lawrence Fields

May 18, 2017

Delivered by email: kevin.morgan@faa.gov

Mr. Kevin Morgan
Supervisory Aviation Safety Inspector
Federal Aviation Administration
800 Independence Ave SW
Washington DC 20591-0001

Re: Additional fixed locations for part 147

Aviation maintenance technician schools (AMTS) certificated under Title 14 Code of Federal Regulations (CFR)¹ part 147 are facing unprecedented demand for graduates of their airframe & powerplant (A&P) programs. To meet the growing need for technicians and A&P mechanics,² these institutions are seeking opportunities to increase their enrollment. One method proven successful is dual enrollment programs whereby AMTS provide course instruction at local high schools, allowing students to earn credit towards an A&P program.

The current regulation does not prohibit AMTS from providing courses at another location; nevertheless, flight standards district office (FSDO) opinion on programs allowable under the regulation varies considerably, with some expressly forbidding the practice.³ Local office personnel that prohibit dual enrollment generally cite language in FAA Advisory Circular 147-3B, which states that an AMTS “may not operate as a satellite facility” and that “all AMTS must be FAA-certificated as separate facilities.”⁴

Notwithstanding the fact that an AC cannot impose requirements or prohibitions, the utilization of satellite facilities for AMTS, without clearly defined protocols, is discouraged. The concept is utilized differently amongst air agencies (i.e., part 141, 142 and 145 certificate holders) and therefore largely misunderstood. If applied as provided for in [§145.107](#), it would offer little in the way of efficiencies and preclude most non-AMTS institutions from participating in dual enrollment programs since that regulation requires repair station satellites to apply for and maintain their own, separate FAA certificate.

¹ All regulatory references are to Title 14 CFR unless otherwise indicated

² See Boeing report predicting future demand, available at <http://www.boeing.com/commercial/market/long-term-market/pilot-and-technician-outlook/#/economic-expansion>, and Oliver Wyman forecasts that demand will soon outstrip supply: <http://www.oliverwyman.com/content/oliver-wyman/ow-v2/en/our-expertise/insights/2017/apr/mro-survey-2017.html>

³ See Richmond FSDO [letter denying](#) dual enrollment program approval, stating that “there are no provisions in Part 147 to allow a certificated school to have any type of satellite facility. As a matter of fact, Advisory Circular 147-3A, Certification and Operation of Aviation Maintenance Technician Schools, Chapter 2, paragraph 16, specifically addresses this issue...”

⁴ See [AC 147-3B](#), Certification and Operation of Aviation Maintenance Technician Schools

If the agency intends to utilize satellites in the manner provided for in part 141 and 142, ATEC asks that the term be clearly defined and the guidance material updated to ensure inspectors—that most often have a background in part 145 enforcement—have clear direction that ensures AMTS can utilize satellite locations in an efficient and practical manner.

Alternatively, ATEC suggests utilizing current operations specifications (OpSpecs) standard templates⁵ to introduce additional fixed locations—OpSpecs paragraph A101—and course work provided at those locations—OpSpecs paragraph D100. Keeping in line with standard practice for other air agencies that hold OpSpecs (as opposed to training specifications), the additional locations would be under the control of the AMTS primary location and subject to FAA oversight.

Thanks for allowing us the opportunity to weigh in on this important issue. ATEC is standing by to support in whatever manner required.

Sincerely,

A handwritten signature in blue ink that reads "Crystal Maguire". The signature is written in a cursive, flowing style.

Crystal Maguire
Executive Director

cc: robert.w.warren@faa.gov

⁵ See OpSpecs standard templates, defined in the Flight Standards Information Management System (FSIMS), Order 8900.1, Volume 3, Chapter 18, Section 1, available at <http://fsims.faa.gov/PICDetail.aspx?docId=8900.1,Vol.3,Ch18,Sec1>