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Federal Aviation Administration

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This advisory circular (AC) provides guidance to assist persons in obtaining and maintaining Federal Aviation Administration (FAA) certification of an Aviation Maintenance Technician School (AMTS). This AC is not mandatory and does not constitute a regulation. This AC describes acceptable means, but not the only means, to meet the requirements of Title 14 of the Code of Federal Regulations (14 CFR). However, if you choose to follow this AC as the means to meet the provisions of 14 CFR part 147, then you must follow the AC in its entirety. New content in AC 147-3B will provide part 147 AMTS applicants and currently certificated AMTSs with information concerning comprehensive detail of AMTS operations to include Distance Learning and Operations Specifications (OpSpec) informational guidance for industry.

ORIGINAL SIGNED by

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Deputy Director, Flight Standards Service

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CHAPTER 1. INTRODUCTION

1-1. PURPOSE.

a. General. This advisory circular (AC) provides guidance to assist persons in obtaining and maintaining Federal Aviation Administration (FAA) certification of an Aviation Maintenance Technician School (AMTS). This AC is not mandatory and does not constitute a regulation. This AC describes acceptable means, but not the only means, to meet the requirements of Title 14 of the Code of Federal Regulations (14 CFR). However, if you choose to follow this AC as the means to meet the provisions of 14 CFR part 147, then you must follow the AC in its entirety.

b. Additional Information. All definitions and references relevant to this AC are listed in the appendices. In addition, Appendix 3, Frequently Asked Questions (FAQ) Regarding AMTS Certification and Operation, contains a list of FAQ regarding AMTS certification and operation.

1-2. CANCELLATION. AC 147-3A, Certification and Operation of Aviation Maintenance Technician Schools, dated January 18, 2005, is canceled.

1-3. PRINCIPAL CHANGES. This AC was edited to apply the formatting and language requirements of the current edition of FAA Order 1320.46C, Advisory Circular System. This revised AC includes new language regarding an optional Aviation Maintenance Technician (AMT) curriculum that would be acceptable to the FAA, which is included as Appendix 5, Optional AMT Curriculum. In addition, this AC includes distance learning delivery method guidance.

1-4. APPLICABILITY. Currently certificated AMTSs should use this AC to increase the understanding of part 147. This AC also provides information on suggested curriculum modifications. A person seeking FAA certification for an AMTS program should use this AC as a tool to understand the certification process and the requirements of part 147.

1-5. BACKGROUND.

a. Part 147. Part 147 specifies requirements for the certification and operation of an AMTS. The regulation includes both the curriculum requirements and the operating rules for all certificated AMTS. The regulation's origin was in Civil Air Regulations (CAR) part 53. When the CARs were recodified in 1962, CAR part 53 became 14 CFR part 147. In 1970, part 147 was completely revised. The revision increased the required core curriculum hours from 1,650 to 1,900 and further defined the subject content and teaching guidelines.

b. Exception. Frequently, the FAA-approved program is only part of a school's overall instruction program (for example, bachelor degrees that include an FAA Airframe and Powerplant (A&P) mechanic certificate). The requirements of part 147 should not be interpreted as applicable for any courses other than those required by the part 147 curriculum.

1-6. DISCUSSION. An AMTS is an educational facility certificated by the FAA to train the AMT for careers in the airline industry, in aviation maintenance facilities, and in commercial and General Aviation (GA). The knowledge, skills, and abilities required of AMTs are considerable and demand high quality training. Therefore, the FAA requires high standards of AMTS.

a. Time and Capital. From the initiation of the AMTS certification process to the issuance of the certificate, the amount of time and capital for required facilities, equipment, and curriculum development can be significant.

b. Exceed FAA Minimums. AMTS applicants are encouraged to exceed the FAA minimum standards for facilities, curriculum, and teaching levels. AMTS applicants are encouraged to teach subjects beyond those required by the regulations; for example, make enhancements in composite material repair, solid-state electronics, nondestructive inspection (NDI) techniques, and built-in test equipment, and add courses in human factors and inspection principles. (See Appendix 6 for additional course material recommendations.) Whenever an AMTS desires to change location, facilities, or ratings, it must first notify the FAA to ensure recertification procedures are followed.

c. Satisfying Requirements. Because an AMTS is certificated and inspected by the FAA, satisfying part 147 requirements should be the primary concern of an AMTS. When local and state educational requirements conflict with the FAA's regulation of an AMTS, FAA regulations take precedence over those requirements.

NOTE: For distance learning information on requirements see Appendix 11.

CHAPTER 2. CERTIFICATION REQUIREMENTS FOR SCHOOLS CERTIFICATED UNDER PART 147

2-1. AMTS RATINGS. An AMTS may be FAA-certificated for the following ratings: airframe, powerplant, or combined A&P. The general portion of the curriculum is not a rating, but it is a required part of all the ratings. Schools certificated for only combined A&P ratings cannot grant single ratings such as airframe or powerplant. Students enrolled in a combined curriculum are required to finish the entire combined curriculum before becoming eligible for FAA certification testing.

2-2. OPERATIONS SPECIFICATIONS (OpSpecs). OpSpecs will be issued utilizing the following paragraphs, as appropriate and applicable to the AMTS ratings.

- A001, Issuance and Applicability (Mandatory).
- A002, Definitions and Abbreviations (Mandatory).
- A003, Rating(s) (Mandatory).
- A004, Summary of Special Authorizations and Limitations (Mandatory).
- A005, Exemptions (Optional).
- A006, Management Personnel (Mandatory).
- A007, Designated Persons (Mandatory).
- A012, Affiliated Designated Mechanic Examiners (DME) (Optional).
- A013, Instructors (Mandatory).
- A025, Recordkeeping System (Mandatory).
- A026, Authorizations/Limitations (Optional).
- B002, Required Minimum Curriculum for General (Part 147 Appendix B) (Mandatory).
- B003, Required Minimum Curriculum for Airframe (Part 147 Appendix C) (Optional).
- B004, Required Minimum Curriculum for Powerplant (Part 147 Appendix D) (Optional).

a. Web-Based Operations Safety System (WebOPSS). All AMTS OpSpecs are initially prepared and maintained by the FSDO using standard paragraphs and an FAA automated system known as Web-based Operations Safety System (WebOPSS). Industry can gain access to WebOPSS by contacting their local office and requesting training on WebOPSS. They should also request a login password for future use.

b. Relevant Information. If the certificated entity does not choose to have access to the WebOPSS program, or does not have the resources to do so, they must provide the relevant information necessary to the FSDO to process the AMTS OpSpecs. The FSDO will then provide the AMTS with a hard copy of the OpSpecs with the following information:

- Primary points of contact (POC) and their contact information;
- Management personnel and their contact information;

- Location of the AMTS's recordkeeping system; and
- Person(s) at the AMTS designated to receive OpSpecs. The AMTS must have one person (or more) identified in OpSpec A007 as a designated person authorized to receive OpSpecs. The authorized designated person will sign and date the OpSpec once issued.

c. Two Copies for Signature. An AMTS can be issued OpSpecs by the FSDO manually. Two copies will be provided to the AMTS for signature. One copy must be kept at the AMTS for review and display; the other copy must be returned to the FSDO.

NOTE: OpSpecs are legal documents which indicate FAA approval. Any additional language in the OpSpecs should clearly specify the authorizations, ratings, and/or limitations being approved.

2-3. DURATION OF CERTIFICATE. An AMTS's FAA certificate remains in effect until it is surrendered, suspended, or revoked. Whenever an AMTS desires to change location, facilities, or ratings, it must first notify the FAA to ensure recertification procedures are followed.

2-4. DISPLAY OF CERTIFICATE. An AMTS is required to display its FAA certificate in a prominent location that is accessible and visible to the public. The AMTS must also make the certificate available for FAA inspection.

2-5. ADVERTISING. The holder of an AMTS certificate may not make any statement relating to itself that is false or designed to mislead any person considering school enrollment. Course literature must clearly distinguish between those courses that have been approved by the FAA, and those that have not. For example, an FAA-certificated AMTS that is part of a college or university system may offer other aviation courses, such as aviation management. These other aviation courses must clearly state in their literature that they are not FAA-approved.

2-6. INSPECTION REQUIREMENTS. When a formal application is made to the FAA for certification, the applicant must be ready for the FAA to inspect its facilities and equipment. After certification, FAA inspections are conducted annually to determine whether the school continues to meet its certification requirements. However, the FAA will perform more inspections if required (refer to part 147, § 147.43).

2-7. CURRICULUM REQUIREMENTS. The AMTS curriculum is comprised of the courses needed to meet part 147 requirements. The curriculum is the single most important document an AMTS applicant will submit. Once approved by the FAA, the curriculum shows how the AMTS will train students for AMT certification while meeting regulatory requirements. Elements comprising an AMTS curriculum can vary widely. However, many AMTS include all or some of the required operating rule compliance documents in their curriculums. Because these documents must be supplied to the FAA, this has an advantage in that it incorporates all part 147 school requirements in a single document. Curriculum revisions that must be approved by the FAA are indicated by a stamp on the List of Effective Pages (LEP). All revisions should be listed for future reference on a page that serves as a log of revisions indicating the page location of each revision, revision insertion date, revision number, and initials of who inserted the revision.

a. Curriculum Structure. Section 147.21 provides an overview of the curriculum requirements. Maintenance of the curriculum requirements is covered in § 147.38.

(1) An AMTS is required to adhere to its approved curriculum. Any part 147 course material the school wishes to add must be incorporated into the approved curriculum and approved by the FAA before it may be used. This does not prohibit an AMTS from teaching non-FAA-approved courses such as refresher courses or academic courses required to complete a degree program. However, those courses must be clearly distinguishable from FAA-approved AMTS courses.

(2) An AMTS should strive to keep its approved AMTS curriculum current to meet industry needs by revising courses as appropriate. These revisions require FAA approval before implementation.

(3) Practical projects, referred to in § 147.21(d), include all functions specified in the curriculum that involve hands-on tasks. Therefore, practical projects include any task taught at level 2 or level 3, because all of these require some practical application, as specified in part 147 appendices.

b. Curriculum Development. Curriculum development generally progresses through several stages, as discussed below. Practical examples may be found in Appendices 4 and 6 of this AC.

(1) Stage 1. The first stage of the curriculum development is to conceptualize the knowledge, skills, and abilities an aviation mechanic must acquire to become certificated by the FAA. To determine the knowledge, skills, and abilities requirements, the FAA commissioned a study of the AMT occupation. Some of the results of the study, A Survey of the "Aviation Mechanic Occupation," were used in developing part 147. This study is often called "The Allen Study," after the chief researcher, Dr. David Allen. Although it does not constitute an AMTS curriculum, the Allen Study does provide a partial foundation for developing a sound curriculum that addresses the requirements of the regulations. The study also identifies the training, knowledge, skills, and abilities a student must acquire to qualify as an A&P mechanic.

NOTE: Additional information can be obtained from the Allen Study from the late 1960s; the U.S. Office of Education survey of the National Aviation Mechanics Occupation (1970); the University of California, Los Angeles National Study of the Aviation Mechanics Occupation (1974); the Northwestern University Study from the 1990s; and the General Accounting Office Report Number GAO-03-317 entitled "Aviation Security: FAA Needs to Update Curriculum and Certification Requirements for Aviation Mechanics (2003).

(2) Stage 2. The second stage of the curriculum development involves identifying which specific tasks must be performed, determining specific performance standards that must be reached for each task and subject area, and ensuring the proper amount of instructional time for theory, laboratory, and shop to achieve that performance standard. For this phase, the aviation safety inspector (ASI) reviewing and approving the curriculum is specifically looking for all

subjects to be taught to the stated proficiency as directed by 14 CFR part 147 appendices B, C, and D. In this phase, most of Level (2) and all of Level (3) incorporates a demonstrated hands-on task performance and completion.

(3) Stage 3. The third stage in curriculum development must produce a curriculum that contains all the elements required to teach, test, and conform to the rule. Stage 3 must also develop practical projects and objective project grading criteria. The AMTS may present practical projects and associated tests within the main body of the curriculum or in associated workbooks, workbook supplements, or project guides. Wherever the practical projects are presented, they ultimately must be submitted to the FAA for approval and become part of an FAA-approved curriculum. The testing and evaluation of practical projects may represent the most difficult task in curriculum development. No one method is "best." Instead, there are a number of methods used by AMTS that have proven to be valid. Appendix 7, Sample Curriculum Outlines, offers a brief description of practical project guides and the various methods AMTSs use to objectively grade practical projects. Minimally, a complete curriculum should:

- Conform to part 147;
- Provide a method to teach the knowledge, skills, and abilities an AMT student is required to learn;
- Have clearly expressed objectives;
- Provide objective test criteria that conform to subjects studied in the laboratory, shop, and in the classroom;
- Show the appropriate teaching level and number of required laboratory, shop, and theoretical hours to complete the program for a given rating;
- Include a complete description of each practical project and the methods and materials required to accomplish each one; and
- Show the relationship of practical projects to the required subjects.

c. Curriculum Components. An acceptable part 147 curriculum consists of at least the following elements:

- Subjects conforming to part 147 appendices B, C, and D;
- Course content conforming to part 147 appendices A, B, C, and D;
- Teaching level requirements conforming to part 147 appendices A, B, C, D, and to part 147;
- Objective testing and grading criteria;
- Classroom or theory hours conforming to § 147.21;
- Laboratory or shop hours conforming to § 147.21;
- Total number of hours conforming to § 147.21;
- A schedule of required tests that shows the sequence of examinations for each subject in the curriculum; and
- The order of instruction for each subject.

d. Additional Requirements.

(1) Each subject item must be taught at least at the indicated level of proficiency as defined in part 147 appendices. When the school wishes to teach a subject item to a level beyond the requirements, the teaching level must be approved by the FAA and made part of the FAA-approved curriculum. Subject items cannot be taught at a level less than that shown in the FAA-approved curriculum, or less than those shown in the part 147 appendices. Subject items may be taught at a higher level than the minimum required if the school's curriculum allows for it.

(2) Additional subjects/courses required by the school for its own purposes, e.g., degree program subjects such as geography, should not be submitted for FAA approval as part of the curriculum.

(3) Subjects such as basic aerodynamics or theory of flight can be taught within pertinent, related subjects such as physics and aircraft rigging. This would not necessarily increase required instruction hours.

(4) The teaching of additional subject material beyond the requirements of appendices B, C, and D to part 147 may require additional instruction hours beyond those required to be offered by § 147.21.

e. Curriculum Focus.

(1) Many AMTSs enhance portions of their curriculums to develop graduates who are directed toward particular areas of the aviation industry. Examples are schools that tend to train graduates specifically for employment at commercial airlines, helicopter operations, repair stations, or agricultural aircraft operations. Enhancement of the curriculum generally results in a curriculum with more hours of instruction than the minimum that must be offered under § 147.21 for A&P ratings. The FAA may permit schools with focused curriculums to reduce teaching hours (but not teaching levels) in areas they want to deemphasize, and increase teaching hours (and sometimes teaching levels) in areas targeted for enhancement. The following are two examples of focused curriculums:

NOTE: In addition to meeting the minimum requirements in all tasks and subject matters in part 147, an AMTS may add course subject matter to enhance skills based on local aviation industry opportunities.

(a) Example 1. A small AMTS in a rural area may wish to concentrate on preparing AMT students for GA and aircraft operations such as agricultural operations. A rural area is a geographic area that is located outside metropolitan cities and towns. Typical rural areas have a low population density and small settlements. Agricultural areas are commonly rural, though so are others such as forests. In this case, airframe subjects such as wood, dope, fabric, welding, rigging, and corrosion control would be emphasized by increasing the teaching hours and perhaps teaching levels for these subjects. Powerplant courses such as propellers and reciprocating powerplants, including radial and opposed, would also be emphasized in the same ways and further by exploring better or more efficient instruction and/or methods. On the other

hand, turbine engines, electronics, and air conditioning may be reduced in teaching hours. Part 147 does not permit a reduction in teaching level.

(b) Example 2. A large AMTS in a metropolitan area may concentrate on preparing AMT students for employment at major airlines. This AMTS would tend to emphasize areas such as turbine engines, nondestructive inspection, air conditioning systems, autoflight, electronics, and airline maintenance systems. This AMTS may want to reduce its teaching hours in wood, dope, fabric, welding, and reciprocating engine subjects.

(2) In both examples, the number of teaching hours for certain subjects may be either reduced or increased, as appropriate. However, course content cannot be lowered in teaching levels and the number of teaching hours for each subject would require FAA approval. It is obvious from this discussion that it is permissible to concentrate curriculums toward certain areas to prepare the students for the appropriate service market. It is recommended that the AMTS develop its curriculum direction during the initial certification.

(3) It is important to note that the teaching level of each subject in the curriculum directly affects the number of hours required to teach that subject. An AMTS must offer a sufficient number of hours for each subject to permit an average student to perform at the required subject level.

f. Curriculum Format. There is not a format specifically required for a curriculum. However, as testing is part of the teaching validation process, the curriculum is required to show testing and grading, as stated in § 147.21(d)(3).

g. Hours of Instruction. The number of hours of instruction offered for any rating must be at least the minimum specified by § 147.21. The school may offer more hours of instruction than the FAA requires. The following blocks of time are not to be included in calculating the minimum number of instructional hours specified in § 147.21:

(1) Time used to take the FAA oral and practical test.

(2) Time spent in taking the FAA knowledge test or time spent registering for the test.

(3) Time set aside for FAA test review and testing at the conclusion of the course. This is not to preclude review and testing for curriculum courses but to differentiate between the time spent in learning approved curriculum material and that spent in review for the FAA certification test.

(4) Time used for meals, breaks, class changes or maintenance of lab/shop equipment.

h. Order of Instruction. The curriculum should list the order of course progression in a logical sequence for each rating offered. For example, basic electricity would be completed before taking aircraft electrical systems. The FAA will discuss with the AMTS applicant the need to develop AMTS operating policy and procedure addressing allowances to deviate from the approved curriculum order of instruction on a case-by-case basis due to unexpected interruptions, such as inoperative mock-ups or hospitalized instructor, etc. The FAA will also discuss with the AMTS applicant the need for the AMTS to incorporate policy and procedure

addressing the reporting interruptions that cause deviations in the order of instruction in the approved curriculum to the principal inspector (PI).

i. Curriculum Structure. An AMTS offering separate ratings of airframe or powerplant, but not combined A&P, is required to have a clearly defined general subject curriculum. It is recommended that the general curriculum follow the format prescribed in appendix B to part 147. This ensures a student graduating from one rating curriculum meets the FAA requirements to receive the same general curriculum courses a student graduating from another rating curriculum receives (see Appendix 8, Maintenance of the General Curriculum).

NOTE: For distance learning information on requirements, see Appendix 11.

j. Testing and Grading. Testing must be included as part of the required curriculum hours and must be directly related to the subject matter covered (see sample 3 in Appendix 7).

(1) Passing grades must be sufficient to achieve the required teaching level in part 147. Within the requirements, an AMTS can set its own standards for passing grades in the laboratory, shop, and classroom. Theoretical portions may have different grading standards from those required in laboratory and shop classes. A common academic standard for passing is a minimum score of 70 percent. FAA written tests also use the 70 percent standard. An AMTS may choose to require a different minimum passing grade, although many AMTSs elect to use the 70 percent passing standard.

(2) Students must pass all theoretical and practical portions of each subject listed in the curriculum based on the AMTS-approved grading standard. While theory and practical portions must be tested separately, the grades may be averaged before assessing passage. Students must complete all required laboratory and shop projects with passing grades. Practical project testing and grading criteria must be explicit. The requirements for successful completion must be sufficient to maximize objective grading and reduce any subjective project grading to a minimum.

(3) Upon completion of each curriculum subject, a test must be scheduled. In addition, at the school's discretion, quizzes may be scheduled at any time. From an educational standpoint, it is more effective and appropriate to schedule a test after a subject unit such as welding, rather than after a comprehensive subject such as airframe structures that contains welding and six other subject units. When testing for subjects that have many hours of instruction (for example, sheet metal structures), an AMTS should consider planning more than one test or quiz during the instructional unit.

(4) The AMTS should have a system to provide test security. This system may include provisions for regular test changes and secure storage of tests and quizzes.

k. Practical Application Projects.

(1) The curriculum must list each of the practical projects that must be completed for each subject item. There must be a sufficient number of practical projects to address the requirements of appendices B, C, and D to part 147, as applicable. The curriculum should

include enough detail to identify the practical projects for the correct teaching level and to clearly define performance standards and objective grading criteria.

(2) The AMTS must specify the teaching level (2 or 3) for each practical project to be covered in each subject item. The minimum teaching level is specified in part 147 appendices. If the teaching level for practical projects is to exceed those requirements, it must be specified as such in the curriculum.

(3) The curriculum should show an appropriate amount of time for an average student to complete each project. Although there is no set time by rule, it is good to establish time parameters for curriculum development and class scheduling. Data contained in the Allen Study provides useful information on project completion times. However, the Allen Study guidelines are only suggestions.

(4) The curriculum should be designed so that each task in each subject item is accomplished. For example, if a subject element listed in the appendices requires that the student inspect and repair to accomplish a level 2 or level 3 subject, a project requirement for both inspection and repair must be included in the curriculum. It is possible that one project may satisfy all the requirements for that subject element.

l. Absence and Missed Material. Section 147.31(e) requires an approved system for recording student attendance. The system must show hours of absence allowed and how the missed material will be made available to the student. The system must ensure that all graduates will have completed all appropriate curriculum requirements (see § 147.31(c)).

(1) Instructors shall supervise and verify completion of practical project requirements; other missed materials may be made available through:

(a) Communication of subjects and/or chapters covered in a course textbook;

(b) Availability of an instructor presentation;

(c) Availability of class materials; and

(d) Assignments directly attributable to the missed subject matter, such as:

- Supplementary reading assignments;
- Student completion of a written essay;
- Student completion of questions, answers, and references;
- A student oral presentation based on an outline; and/or
- Any other method acceptable to the Administrator.

(2) All makeup assignments, class assignments, and exams missed in a module must be completed before any written, oral, or practical test can be administered.

(3) Failure of a student to complete all makeup assignments and material within the school’s approved allotted time period may result in the student being required to repeat that subject.

m. Revisions to the Curriculum. Changes to an approved curriculum must be approved by the FAA before an AMTS can implement the revision. Changes in the curriculum may include changes in any of the following:

- Teaching level (Appendix A to part 147);
- Hours of instruction;
- Business hours during which instruction is conducted;
- Testing/grading criteria;
- Makeup procedures;
- Course content;
- Equipment or facilities affecting instruction in theoretical subjects or the accomplishment of practical projects;
- Order of instruction, such as changes in the logical sequence of instruction;
- Addition or deletion of a rating;
- Changes in the student-to-teacher ratio; or
- Distance learning.

NOTE: For distance learning information on requirements, see Appendix 11.

n. Crediting Procedures for Previous Instruction or Experience. The AMTS should use either a reliable method of evaluating a student's instruction or an entrance test to ensure previous instruction is comparable to that offered by the crediting school. When not using an entrance test, an AMTS should use authenticated transcripts, along with catalog reference course descriptions, and other documents to determine the credit to be granted.

(1) Credit for the General Curriculum. When a student successfully completes a course of study for one rating and obtains that rating, that course of study will have included the general portion of the curriculum. When that student returns to the AMTS to study for a second rating after having graduated from the course and obtained the first rating, the student will not have to retake the general portion of the curriculum. This benefit applies provided the general portion is clearly separate and distinct from either the airframe or the powerplant portions, and conforms to the requirements of appendices A and B to part 147. (See Appendix 7.)

(2) Credit for Previous Instruction from Other Schools (Accredited Non-Aviation Schools). In general, at schools that are not certificated under part 147, credit may be granted only for a limited range of subjects that apply to the general portion of the curriculum; that is, mathematics, basic physics, and similar subjects.

(3) Credit for Previous Instruction from U.S. Military Technical Schools. If an AMTS chooses to grant credit for previous instruction from U.S. military technical schools, it may be granted only on the basis of an entrance test, as specified in § 147.31(c)(2)(iii).

(4) Credit for Previous Experience (Military and Civilian). As a rule, creditable previous mechanic experience must be aviation maintenance experience comparable to the required AMTS curriculum subjects. For example, a person applying for credit for powerplant experience gained while working in the military or at an airline could be considered as previous experience.

(5) Exceptions to Crediting Procedures for Previous Instruction or Experience.

(a) Except for certain mitigating circumstances, if a certificated AMTS is under suspension by the FAA, courses taught during the suspension period cannot be credited retroactively, even if the school becomes recertificated later.

(b) An AMTS applicant may not teach students as an AMTS before receiving the FAA certification and then give credit for that training after the school becomes certificated.

(c) With discretion, an AMTS may credit a student with prior instruction received for certain non-aviation courses with content similar to the part 147 curriculum.

2-8. FACILITIES.

a. General Guidelines for Facility Development and Maintenance. The instructional aids, laboratory and shop equipment, and physical layout of the building must meet the requirements outlined in §§ 147.15, 147.17, and 147.19. The applicant should keep in mind that the facility must constitute an environment suitable for learning. Distractions from learning, such as excessive noise, dust, fumes, heat, cold, and clutter must be considered during development of the AMTS facility.

(1) Facilities must be of adequate size for the number of FAA-authorized students to accomplish any of the laboratory or shop projects designated for that area, and all classroom instruction.

(2) Facilities must be located and classes scheduled so that students can travel between classes without cutting into instructional time. An AMTS should avoid scheduling situations in which the students cannot go from one class to another within the time the school specifies for class transit.

(3) The school should ensure the laboratory and shop floors are free from clutter, such as extension cords and air hoses.

b. Facility Layout. All facilities must conform to local, state and federal codes. Discussion of those requirements is beyond the scope of this AC. The layout of the AMTS facilities will be influenced by the ratings the school plans to obtain. The following sections provide basic information on facility layout according to the requirements of each subject area (see Appendix 9, Sample Facility Layout).

(1) General Subjects (Appendix B to Part 147). The facility layout should ensure lead acid and nickel-cadmium battery charging stations are appropriately isolated from each other. Laboratory storage facilities and electrical/laboratory work stations must be appropriate. Heat

treatment furnaces and metal working equipment must be safe and well ventilated. NDI (including magnetic particle inspection equipment) should be a design suitable for inspection of aircraft components. High-pressure fluid line and pressure hose test devices must be safe to use.

(2) Airframe Subjects (Appendix C to Part 147). The shop layout must provide painting facilities that are force-ventilated. Paint spray booths should meet state, local, federal and industry standards. The aircraft assembly area should be adequate and clean. The equipment for gear retraction demonstration and service (whether live aircraft or an instructional aid) should be in a clear area, safe to use, and accessible to a maximum of eight students. The sheet metal area must have a sufficient number of benches, air supply connections, and vises to accommodate the number of students for which the training area has been approved. Facility layout should incorporate doors adequate to move aircraft in and out. This facility should constitute a learning environment appropriate for simulation of return to service.

(3) Powerplant Subjects (Appendix D to Part 147). The layout of the facility must provide appropriate and ventilated cleaning facility areas. A clean area for powerplant and accessory inspection and repair must be provided. There must be a safe engine run-up area and an engine test cell or engine run-up stand with appropriate test monitoring instrumentation. A propeller service and balancing area should be provided. As in the case of the airframe facility, the powerplant shop facility should constitute a learning environment appropriate for simulation of return to service.

2-9. TECHNICAL DATA LIBRARY REQUIREMENTS. An AMTS must provide a suitable technical data reference facility or area. The technical data reference area should have appropriate facilities for study and data examination. It should have an area isolated from high noise levels. The technical data must be of a type appropriate for the AMTS ratings. At a minimum, the technical data should include the following:

- Title 14 of the Code of Federal Regulations (14 CFR) parts 1 through 199.
- Aircraft, engine, propeller, and Type Certificate Data Sheets (TCDS) and specifications.
- Airworthiness Directives (AD).
- Supplemental Type Certificates (STC).
- Maintenance manuals.
- ACs.
- Other instructional materials, such as textbooks on basic physics, math, hydraulics, and powerplants.

2-10. INSTRUCTIONAL AIDS AND AIRCRAFT.

a. Scope and Depth. The instructional aids required by § 147.17 must be appropriate for the scope and depth of the curriculum of the school. The applicant should ensure the complexity of instructional aids is appropriate to the specific teaching level of the subject item. An inventory of instructional aids is required.

b. FAA Type-Certification Aircraft. Section 147.17(a)(2) requires a school to have (for instructional purposes) an aircraft of a type currently certificated by the FAA. In this case, certification refers to FAA type-certification. While many schools use surplus military aircraft to

show compliance with this rule, at least one aircraft must be a type eligible for an FAA type certificate (TC). As an example, many light observation military aircraft have FAA TCs but most fighter aircraft do not; therefore, fighter aircraft would not meet the rule requirements. In some situations, an AMTS may choose to use an airworthy aircraft for certain instructional purposes in shop classes. This is permissible as long as the aircraft is on the school premises at the time of instruction. Active aircraft used to comply with § 147.17(d) become part of the approved instructional equipment; therefore, the aircraft must be listed in the instructional aids inventory.

c. Instructional Aids to Student Ratio. An AMTS must comply with the requirements for the ratio of instructional aids to students in each shop course. Section 147.17(c) permits no more than eight students to work on any one unit of equipment at a time. This does not necessarily mean that a school must have each type of instructional aid for at least every eight students enrolled. However, as an example, if a school has an enrollment of 30 students in the powerplant course of study and has only two turbine engines, the school must clearly demonstrate in the curriculum what project the students who exceed the 16 permitted on the turbine engines at any one time will be doing, for example, projects on piston engines or carburetors. However, the FAA or the AMTS may determine that eight students are too many in number to safely and competently conduct a certain project. As an example, instruction on a currently certificated aircraft used for the demonstration of gear retraction systems, eight students may be deemed as too many students involved in this training event.

2-11. SHOP EQUIPMENT REQUIREMENTS.

a. Equipment Quantity and Condition. An AMTS is required to have enough shop equipment in place and in satisfactory operating condition to adequately serve the student enrollment and meet shop/project subject requirements.

b. Equipment Placement. The equipment must be located so students can operate it in a safe and efficient manner. Large, standing equipment must be securely installed. Placement of large shop equipment should provide sufficient aisle space so that students can move about freely. The equipment must be listed and the list maintained in the shop where the equipment is located.

2-12. SPECIAL TOOLS STANDARDS. The AMTS must provide an inventory of special tools required to provide instruction. For subjects taught at level 3, when meeting return to service standards, all special tools must be in satisfactory working condition, maintained in accordance with § 147.19, and of the proper kind for the purpose for which they are intended. When meeting simulated return to service standards, all special tools must be in satisfactory working condition for the purpose for which they are to be used. Section 147.19 requires the AMTS to furnish an adequate supply of special tools appropriate to the ratings and curriculum of the AMTS. Special tools may be custom fabricated for the intended purpose and furnished by the AMTS.

2-13. STUDENT HAND TOOL REQUIREMENTS. The AMTS may either provide common hand tools or require students to furnish their own. In either case, the school must establish a policy on provision of common hand tools. The school must provide a list of required hand tools to the students. Any tools the school requires the student to furnish must be listed specifically in the curriculum and that list must be provided to students.

2-14. MATERIAL REQUIREMENTS. The AMTS must provide a list of materials required for instruction. The school must have sufficient materials in stock and properly stored to provide for the approved student enrollment. To ensure adequate instruction, the amount and variety of stocks should directly reflect the requirements of the curriculum. For example, sufficient quantities of rivets, hydraulic fluid, gaskets, and sheet metal are needed to complete a course of study.

2-15. INSTRUCTOR REQUIREMENTS AND RESPONSIBILITIES.

a. Instructor Requirements. Individuals listed as instructors must be FAA-certificated with an FAA mechanic certificate having ratings appropriate to those subjects taught in A&P subject areas as identified in Appendix C and D. The AMTS may provide specialized instructors that are not certificated mechanics to teach general subject areas such as mathematics, physics, basic electricity, basic hydraulics, drawing, and similar subjects. The suitability of noncertificated instructors to teach certain general courses is evaluated by the FAA on an individual basis. As an example, a school may propose to use a non-FAA-certificated, but experienced, engineering instructor to teach the mathematics and physics requirements of the general curriculum.

b. Student/Teacher Ratios. Section 147.23 requires at least 1 certificated instructor for every 25 students in each laboratory or shop class. The AMTS may choose to provide a lower student to teacher ratio according to the needs of the class or subject. The AMTS must have procedures to maintain the required minimum instructor ratios when regular instructors are on leave.

2-16. FOREIGN SCHOOLS. Part 147 does not make any provisions for FAA certification or surveillance of aviation mechanic schools located outside the United States. Foreign AMTS applicants are not eligible for FAA certification.

2-17. SATELLITE SCHOOLS. An AMTS may not operate as a satellite facility. All AMTS must be FAA-certificated as separate facilities.

CHAPTER 3. OPERATING RULES

3-1. CHANGE OF LOCATION.

a. Notification. An AMTS may not make any change in the school's location unless the FAA reviews and approves the changes in advance. The AMTS is required to notify the FAA in writing at least 30 days before the location change is to be executed. During the change in location, no disruption may be made to student instruction or normal classroom attendance. Equipment, facilities, and instructors must be at least at the same level as the standards approved for the vacated facilities or revised and explained as part of the application process. Application for a change of location is made by completing FAA Form 8310-6, Aviation Maintenance Technician School Certificate and Ratings Application.

b. Amendment to or Transfer of Certificate. The AMTS must apply for a change to its certificate if changing the location of the AMTS. The air agency must notify the FAA in writing at least 30 days before the date of the change. The FAA may prescribe conditions the air agency must follow while moving to the new address/location. If the AMTS location is changed without approval, the air agency certificate will be revoked. (Refer to § 147.41.)

(1) Change of FAA District. When the location is a change to another FAA district office or region, the application for approval must go to the district office and receive coordination through each respective region that has current and/or future certificate responsibility. The originating district office will contact and coordinate directly with the receiving district office while maintaining close coordination with the affected Regional Office(s) (RO). The school remains the responsibility of the originating district office until approval of the change or transfer. Refer to Volume 2, Chapter 1, Section 2 for additional information.

(2) Sale or Transfer of Assets. The privileges of an AMTS Air Agency certificate are not transferable. If the holder of the Air Agency certificate sells or transfers its assets, the new owner must apply for an amended certificate in accordance with § 147.41. There are occasions when AMTS ownership changes without a corresponding change in location, facilities, or personnel.

(3) The Freedom of Information Act (FOIA). The inspector should recommend a new certificate number due to the FOIA and liability issues. ASIs should inform prospective owners that they may be held liable for the work performed under previous management if they keep the same certificate number. New owners must stipulate in writing that they clearly understand the potential of release of information under the FOIA before receiving permission to retain the old certificate number.

(4) Retaining or Re-issuing the Certificate Number. If the new owner elects to retain the original certificate number, the revised air agency certificate (FAA Form 8310-6) will show the original certification date in the "Date issued" field. If issuing a new certificate number, prepare a new air agency certificate using the effective date of the new certificate. The "Date issued" should always reflect the original certification date for the certificate number identified on the air agency certificate.

(5) Change in Ownership. A change in ownership may or may not affect the status of an AMTS. If the operational relationship that established an AMTS continues unchanged, a change to the certificate number may not be required. If that relationship no longer exists, the certificate number identifying the AMTS cannot be retained by the new owner.

(6) Regional General Counsel Office. ASIs should contact their regional general counsel office when faced with questions concerning whether limited liability corporations or changes in stockholder ownership constitute a transfer of AMTS assets.

3-2. TIME AND ATTENDANCE. An AMTS must specify in the approved curriculum the number of instructional hours the school intends to offer. An AMTS must ensure typical time loss items do not affect approved curriculum hours. Student attendance requirements are specified in § 147.31(a). Some typical time loss items are as follows:

- Instructors ill or on leave. In small schools, this could result in canceled classes or students sent to a study room;
- Teachers' strikes;
- Weeks scheduled for private study and/or testing outside of the approved curriculum;
- Class outings, not related to aviation maintenance, that take time away from instructional hours;
- Student achievement days, sports days, and special event days;
- Teachers' meetings and grading days;
- Student absences beyond those permitted in the FAA-approved curriculum;
- Classroom or laboratory and shop time spent on non-instructional activities such as school administrative work and pep rallies, cleaning, painting, repair and maintenance of instructional aids; and
- Any other activity that intrudes on instructional time.

3-3. ENROLLMENT. An AMTS applicant cannot have more students enrolled than the number stated on the certificate application. As enrollment increases or decreases, an AMTS may choose to change either the number of certificated or noncertificated instructors, or the subjects to be taught by each. However, when instructors are changed or if enrollment exceeds the FAA-approved figures, the school must notify the FAA in advance.

3-4. RECORDS, TRANSCRIPTS, AND GRADUATION CERTIFICATES. An AMTS must maintain and, upon request, make available to the FAA documents that show records on each student. (New AMTS applicants must also show the proposed method of meeting FAA records requirements.)

a. Records. Records must clearly show attendance, tests, quizzes, and practical projects grades received on subjects required. Student records should clearly distinguish between successful performance and unsuccessful performance. The record should show how credit was granted for previous experience and/or previous instruction. Progress records or charts do not need to show student grades for practical projects or laboratory work if those grades are available in another record at the school. However the progress record should show the practical projects and lab work completed and/or to be completed. Student attendance records should show the number of hours of absences. Section 147.33 requires schools to retain student records for

2 years. This does not refer to each student's personal tests but to the grades received on tests given to the student for each subject. Examples of the forms used for these records should be in a document such as the curriculum.

b. Transcripts. Upon request, each certificated AMTS shall provide a transcript of the student's grades to each student who is graduated from that school or who leaves it before being graduated. An official of the school shall 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.

c. Graduation Certificates or Certificates of Completion. An official of the AMTS must authenticate all student certificates issued. This should be accomplished by verifying the student has passed the specified courses or has received prior credit based on the AMTS approved curriculum requirements. The certificate cannot be issued unless all curriculum requirements have been completed for the certificate sought. All students meeting the AMTS graduation or completion requirements must be issued the appropriate certificate. Each school shall give a graduation certificate or certificate of completion to each student that it graduates. The certificate must show the date of graduation or completion and the approved curriculum title. The certificates should contain the name of the AMTS, its certificate number, the approved course name, and date of graduation.

d. Student Graduation Lists. Schools with affiliations must provide a student graduation list to the assigned Flight Standards District Office (FSDO), Designated Mechanic Examiner (DME), and the Testing Center with the following content:

- Name and certificate number of the AMTS,
- Graduation date,
- Curriculum from which the applicant graduated (i.e., Airframe and/or powerplant),
- Name of the applicant, and
- Signature of the authorized school official.

3-5. MAINTENANCE OF FACILITIES. Under part 147, an AMTS is required to continuously maintain the same standards as those under which it was certificated originally. This includes the maintenance of all facilities and equipment required for initial certification.

3-6. MAINTENANCE OF INSTRUCTOR REQUIREMENTS. After an AMTS is certificated or has added or dropped a rating, the AMTS must continue to provide an appropriate number of instructors with the ratings and certificates required by the FAA. The AMTS must continue to provide at least one FAA-approved instructor for each 25 students in each laboratory or shop class.

3-7. MAINTENANCE OF INSTRUCTIONAL AIDS. An AMTS must continue to maintain all instructional aids and equipment in good working order and in a condition for safe operation. Examples of instructional aids include diagrams, visual aids, computers, interactive software, aircraft, and mock-ups of aircraft, engines, and components, as well as actual components, such as magnetos and fuel controls. An instructional aid is not required to meet return to service standards. Broken or deteriorated instructional aids must be repaired or replaced. The school

must continue to provide sufficient instructional aids so that there will not be more than eight students per instructional aid unit at any one time.

3-8. MAINTENANCE OF TECHNICAL DATA REFERENCE MATERIALS. An AMTS should provide a system that identifies the individual by position responsible for updating the technical data/reference materials. The procedure must clearly show the methods for maintaining and upgrading the data.

3-9. MAINTENANCE OF SHOP EQUIPMENT. Shop equipment should be maintained in good working order and be in a condition for safe operation. A system should be in place for routine preventive maintenance and component replacement on all shop equipment.

3-10. MAINTENANCE OF TOOLS AND SPECIAL TOOLS SUPPLY. The school must continue to provide all tools, as required. During school operation, tools may not be removed from the AMTS inventory without being replaced. A system should also be in place to maintain special tools in satisfactory working condition.

3-11. MAINTENANCE OF INSTRUCTIONAL MATERIALS. The AMTS must continue to provide required materials specified in the instructional materials list.

3-12. MAINTENANCE OF QUALITY OF INSTRUCTION. An AMTS must continue to provide instructions of the same quality as it demonstrated to the FAA, during and ongoing after certification. The instrument used by the FAA to measure AMTS instruction quality is a document titled “School Norms vs. National Passing Norms”. The national norm is a measure of the performance of AMTS graduates from each school who are taking the FAA A&P Mechanic Test measured against the performance of other applicants taking the FAA A&P Mechanic Test. This information is available by review of the following reports:

- School Norms vs. National Passing Norms (8080-08); and
- Aviation Maintenance Test Applicant Listing.

a. Corrective Action. Corrective action may need to be initiated if the percentages fall below those specified in § 147.38(a).

b. Test Performance. While poor test performance alone may not indicate poor instruction, it may be an indication that some aspects of the school operation are inadequate or ineffective.

c. AMTS Norm. Use of the AMTS norm.

d. School Norms. When an individual school norm is significantly lower than the national norm, i.e., in excess of the requirements of § 147.38(a), an asterisk (*) will appear next to the 2 year school norm score on the 8080-08 report. The responsible region/district office may obtain more detailed performance information to assist in determining problem areas by requesting an Aviation Maintenance Test Applicant Listing from the Airman Testing Standards Branch, AFS-630. The 8080-08 report and the Aviation Maintenance Test Applicant Listing data may be shared freely with the school to which it refers.

3-13. AMTS NORM VS. NATIONAL PASSING NORMS, AC FORM 8080-08, AND ASSOCIATED REPORTS IN THE SERIES. This series of reports provides information to the school and the responsible FAA region and district offices about the test performance of school graduates. The reports are used to monitor school performance and to determine whether schools meet the quality of instruction provisions of § 147.38(a). The reports are posted quarterly (6 weeks after the end of each calendar year quarter) to the publicly accessible FAA Norms Web site at http://www.faa.gov/data_research/aviation_data_statistics/test_statistics/. Two years of norms reports are maintained and available on the Web site. The report data is available to the public and may be shared freely with the school to which it refers as well as any other party.

a. 8080-08 Report. The 8080-08 is the basic report of the series. It contains a record of test activity and performance of graduates of the subject schools who apply for a mechanic written test for the first time within 60 days after graduation.

b. Applicant Listing. Aviation Maintenance Test Applicant Listing contains a record by applicant name of the test performance for graduates from a subject school for a time period specified by the requestor and is produced on request by AFS-630.

c. Non-School Reports. "Non-school" reports are quarterly reports arranged by the region in which the testing occurred. These reports are made for the following:

- Applicants who graduate from a certificated school and who take the mechanic tests for the first time within 60 days of graduation (8080-09);
- Applicants who graduate from a certificated school, but who take the mechanic tests for the first time more than 60 days after graduation (8080-07), and
- Applicants who qualify for testing through actual experience and are not graduates of a certified school (8080-04).

3-14. AVAILABILITY OF TYPE-CERTIFICATED AIRCRAFT. Section 147.17(a)(2) requires an AMTS to provide a type-certificated aircraft for student instruction. Specific requirements are discussed in Chapter 2, par 2-10, Instructional Aids and Aircraft.

CHAPTER 4. CERTIFICATION PROCEDURES

4-1. GENERAL INFORMATION ON CERTIFICATION PROCEDURES.

a. Certification Process. The AMTS certification process is an interaction between the AMTS applicant and the FAA. The certification process extends from the initial inquiry by the school applicant, to the final issuance of the Air Agency Certificate and OpSpecs. This process ensures the school's curriculums, programs, policies, facilities, and methods of compliance with the regulations are thoroughly reviewed, evaluated, and validated. A certification schedule flowchart for the AMTS certification process is shown in Appendix 10, Certification Process Flowchart. Figure 4-1, AMTS Certification Process Guide, provides a certification checklist as an aid to ensure all documents and procedures are complied with and recorded.

FIGURE 4-1. AMTS CERTIFICATION PROCESS GUIDE

AMTS CERTIFICATION PROCESS GUIDE				
NAME OF SCHOOL:	INSPECTION			
	Date	SAT.	UNS.	NA
1. Initial inquiry to FAA				
2. Obtain copy of regulations/FAA Form 8400-6				
3. Develop Form 8400-6				
4. Submit Form 8400-6 to FAA				
5. Preapplication meeting with FAA				
6. Develop formal application				
• Detailed curriculum • Distance learning Process and Procedures (if applicable)				
• Grade/credit/record system				
• Attendance system				
• Library and text requirements				
• Tool/instructional aids inventory				
• Complete FAA Form 8310-6				
• Facility description				
• List of instructors/qualifications				
• Statement of maximum number of students				
• Draft the OpSpecs in Web-based Operations Safety System (WebOPSS)				
7. Formal application meeting				
8. Curriculum evaluation				

9. AMTS facility inspection by FAA				
• Basic facility check				
• Instructional aids check				
• Shop equipment check				
• Special tool/calibration				
10. Discrepancy meeting, if applicable				
11. FAA certification				

b. Five Phases. The FAA certification process consists of the five separate phases listed below:

- Preapplication phase;
- Formal application phase;
- Document compliance phase;
- Demonstration and inspection phase; and
- Certification phase.

NOTE: These phases may often overlap and can proceed concurrently. As an example, the document compliance phase may begin as soon as documents are received, before or during the formal application phase. The AMTS applicant is highly encouraged to review Volume 2, Chapter 12, Section 1 in order to be informed of the guidance the ASI is required to follow to complete the part 147 Air Agency certification process.

4-2. PREAPPLICATION PHASE.

a. Initial Inquiry. An applicant seeking to develop an AMTS for certification must contact the local FAA FSDO and advise the office of the intent to pursue part 147 school certification. The FAA will advise the applicant of the necessity for a preapplication meeting as well as provide the AMTS certification applicant with a blank copy of FAA Form 8400-6, Preapplication Statement of Intent, (see Figures 4-2 and 4-3), and an explanation of where to send the form after completion. The FAA should provide the applicant with information on how to obtain regulatory requirements and guidance associated with acquiring an FAA part 147 certification. Information on additional guidance material associated to the part 147 certification process such as orders and ACs may also be provided to the applicant at this time. The FAA informs the applicant of the necessity to review the regulatory requirements and return the completed Preapplication Statement of Intent (PASI) to the FSDO before a preapplication meeting can be scheduled.

b. PASI. An applicant should submit copies of the PASI only after reviewing the appropriate regulations and advisory materials. Before PASI submission, the applicant should consider the personnel, facility, equipment, and regulatory requirements for certification and operation.

FIGURE 4-2. PREAPPLICATION STATEMENT OF INTENT (FRONT)

Form Approved
OMB No. 2120-0008

PREAPPLICATION STATEMENT OF INTENT

US Department of Transportation
Federal Aviation Administration

Agency Display of Estimated Burden: The FAA estimates that the average burden for this report form is 5 hours for the requirements in FAR Part 121.26 and 40 hours for the requirements in FAR Part 121.47 for each response. You may submit any comments concerning the accuracy of this burden estimate or any suggestions for reducing the burden to the Office of Management and Budget. You may also send comments to the Federal Aviation Administration, Air Transportation Division, AFS-200, 800 Independence Avenue, SW, Washington, DC 20591, Attention: OMB number 2120-0008.

Section 1A. To Be Completed By All Applicants

1. Name and mailing address of company

2. Address of principal base where operations will be conducted
(do not use post office box)

3. Proposed Start-up date

4. Requested three-letter company identifier in order of preference
1. 2. 3.

5. Management Personnel

Name (Last, first, middle)	Title	Telephone (including area code)

Section 1B. To Be Completed By Air Operators

6. Proposed type of operation (check as many as applicable)

- ☐ Air Carrier Certificate
- ☐ Operating Certificate
- ☐ Part 121
- ☐ Part 125
- ☐ PArt135
- ☐ Passengers and Cargo
- ☐ Cargo Only
- ☐ Scheduled Operations
- ☐ Nonscheduled Operations
- ☐ Single Pilot Operator
- ☐ Single Pilot-in-Command Operator
- ☐ Basic Part 135 Operator

Section 1C. To Be Completed By Air Agencies

7. Proposed type of agency and rating(s)

- ☐ Part 145 Repair Station
  - ☐ Domestic
  - ☐ Foreign ☐ *New* ☐ *Renew*
  - ☐ Satellite
    - ☐ Airframe
    - ☐ Powerplan
    - ☐ Propeller
    - ☐ Radio
    - ☐ Instrument
    - ☐ Accessory
    - ☐ Specialized Service
- ☐ Part 147 Maintenance Technical School
  - ☐ Airframe
  - ☐ Powerplant
  - ☐ Both
- ☐ Part 149 Parachute Loft

Section 1D. To Be Completed By Air Operators

8. Aircraft Data

Numbers and types of aircraft (by make, model, and series)

Number of passenger seats or cargo payload capacity

9. Geographic area of intended operations

FAA Form 8400-6 (6-95) Supersedes Previous Edition NSN: 0052-00-889-4002

FIGURE 4-3. PREAPPLICATION STATEMENT OF INTENT (BACK)

Section 1A. To Be Completed By All Applicants		
10. Additional information that provides a better understanding of the proposed operation or business *(attach additional sheets, if necessary)*		
11. The statements and information contained on this form denote an intent to apply for FAA certification.		
Signature	Date	Name and Title

Section 2. To Be Completed By FAA District Office	
Received by (district office):	**Date forwarded to Region:**
Date:	**For:** ☐ Action ☐ Information only
Remarks	

Section 3. To Be Completed By Regional Office	
Received by:	**Precertification Number:**
Date:	**Date coordinated with AVN-120:**
District office assigned responsibility:	**Date forwarded to district office:**
Remarks	

FAA Form 8400-6 (6-95) Supersedes Previous Edition NSN: 0052-00-889-4002

c. Preapplication Meeting. Following receipt of the completed PASI, the FAA will contact the AMTS applicant and arrange a preapplication meeting. During this meeting, the applicant should ask any questions that he or she may have concerning FAA certification. The following events take place during the preapplication meeting:

(1) FAA personnel will brief the applicant on the regulatory requirements and policies regarding certification and operation of an AMTS.

(2) The applicant informs the FAA as to which of the three types of ratings are sought: airframe, powerplant, or combined A&P.

NOTE: Because of the complexity and costs involved in certification, many AMTS applicants initially choose to seek certification for only one rating to reduce certification time and to get classes under way.

(3) The applicant is given a blank FAA Form 8310-6, to complete. See Figure 4-4.

NOTE: For distance learning information on requirements see Appendix 11.

FIGURE 4-4. FORM 8310-6, AVIATION MAINTENANCE TECHNICIAN SCHOOL CERTIFICATE AND RATINGS APPLICATION (FRONT)

Form Approved. OMB No. 2120-0040

US Department of Transportation
Federal Aviation Administration

AVIATION MAINTENANCE TECHNICIAN SCHOOL CERTIFICATE AND RATINGS APPLICATION

INSTRUCTIONS: Type or print in ink. Submit original and two copies of this form (complete this side ONLY) and two copies of all attachments to the nearest FAA General Aviation District Office or Air Carrier District Office as set forth in Federal Aviation Regulations, Part 147.

	2. TELEPHONE NO.
3. ADDRESS *(Number, street, city, state & ZIP Code)*	4. TRAINING DIRECTOR

5. APPLICATION SUBMITTED FOR *(Check as applicable)*

- [ ] ORIGINAL CERTIFICATE
- [ ] CHANGE IN RATING *(Specify)*
- [ ] CHANGE IN OWNERSHIP *(Specify)*
- [ ] CHANGE IN LOCATION, FACILITIES, AND EQUIPMENT *(Specify)*
- [ ] CHANGE IN ENROLLMENT *(Specify)*
- [ ] OTHER *(Specify)*

6. RATING(S) APPLIED FOR AND TOTAL HOURS PER COURSE

	RATINGS	TOTAL HOURS
	AIRFRAME (A)	
	POWERPLANT (P)	
	A & P	

7. MAXIMUM NO. OF STUDENTS ENROLLED AT ANY ONE TIME

DAY	EVENING

7A. MAXIMUM TOTAL SCHOOL ENROLLMENT

8. SCHOOL STATUS *(Check as applicable)*

- [ ] PUBLIC
- [ ] PRIVATE
- [ ] NON-PROFIT
- [ ] ON AIRPORT
- [ ] IN CITY
- [ ] IN SUBURBS

10. COURSE CHARACTERISTICS

RATINGS	HOURS PER WEEK		WEEKS PER COURSE		INSTRUCTION HOURS PER		ENROLLMENT PERIODS PER YEAR FOR									
									DAY		EVENING		DAY		EVENING	
	DAY	EVENING	DAY	EVENING	DAY	EVENING	DAY	EVENING	YES	NO	YES	NO	YES	NO	YES	NO
AIRFRAME (A)																
POWERPLANT (P)																
A & P																

11. ATTACHMENTS *(Check applicable items)*

- [ ] A. PROPOSED CURRICULUM
- [ ] B. LIST OF FACILITIES AND EQUIPMENT TO BE USED
- [ ] C. PHOTOGRAPHS OF FACILITIES
- [ ] D. LIST OF INSTRUCTORS, NAMES, CERTIFICATE NOS., TYPE, AND RATINGS HELD, AND SUBJECTS TO BE TAUGHT
- [ ] E. LIST OF REQUIRED PRACTICAL PROJECTS
- [ ] F. SCHEDULE OF REQUIRED TESTS
- [ ] G. COPY OF STUDENT RECORD SYSTEM

12. APPLICANT'S CERTIFICATION

NAME OF OWNER *(Include name(s) of individual owner, all partners, or corporation name giving State and date of incorporation)*

I hereby certify that I have been authorized by the school identified in item 1 to make this application and that statements and attachment hereto are true and correct to the best of my knowledge.

DATE	TITLE	AUTHORIZED SIGNATURE

13. CERTIFICATION ACTION *(FOR FAA USE ONLY)*

ACTION	CERTIFICATE NO. ASSIGNED	RATINGS	INDICATE RATING(S) ISSUED		APPROVED MAXIMUM ENROLLMENT FOR	
			DAY	EVENING	DAY	EVENING
[ ] APPROVED		AIRFRAME (A)				
[ ] DISAPPROVED	FAA FORM 8310-4 FORWARDED ON	POWERPLANT (P)				
		A & P				

REMARKS

14. DATE CERTIFICATE ISSUED	15. OFFICE IDENTIFICATION	16. ISSUING OFFICIAL'S SIGNATURE

FAA Form 8310-6

FIGURE 4-5. FORM 8310-6, AVIATION MAINTENANCE TECHNICIAN SCHOOL CERTIFICATE AND RATINGS APPLICATION (BACK)

RIS: FS 8310-4

AVIATION MAINTENANCE TECHNICIAN SCHOOL INSPECTION REPORT

(FOR FAA USE ONLY)

INSTRUCTIONS: The items listed below are applicable to certification inspection and/or to surveillance. Complete each item. If an item is not applicable indicate entry as "NA".

1. NAME OF SCHOOL	2. CERTIFICATE NO.	3. TYPE OF INSPECTION AND DATE		
		SESSION	SURVEILLANCE	CERTIFICATION
		DAY		
		EVENING		

4. SCHOOL CHARACTERISTICS

SESSION	a. PRESENT ENROLLMENT			b. TOTAL NUMBER OF INSTRUCTORS		c. MAXIMUM HRS. TRAINING PER WEEK PER STUDENT *(Exclusive of lunch or rest periods)*			d. RATINGS APPLIED FOR OR NOW IN EFFECT			e. DATE OF APPROVAL FOR CURRICULUM NOW IN USE		
	AIRFRAME	POWER-PLANT	A&P	CERTIF-ICATED	NONCER-TIFICATED	AIR-FRAME	POWER PLANT	A&P	AIR-FRAME	POWER PLANT	A&P	AIR-FRAME	POWER PLANT	A&P
DAY														
EVENING														

		AIRFRAME (A)	POWERPLANT (P)	A&P
5. How many students were graduated during the previous 12 months?				
6. Instructor/student radio.	a. Classroom	1 to	1 to	1 to
	b. Shop	1 to	1 to	1 to
7. Number of hours in approved curriculum.		Hrs.	Hrs.	Hrs.

	YES	NO
8. Is certificate current and properly displayed?		
9. Does the curriculum in use meet the requirements of FAR 147?		
10. Is the approved curriculum actually being followed?		
11. Do facilities and equipment continue to meet the certification requirements of FAR 147?		
12. Are necessary materials, tools, and equipment available and serviceable for training?		
13. Is there a sufficient number of qualified instructors?		
14. Has there been any change in instructor or administrative personnel since the last inspection? *(If "YES, " explain in Remarks)*		
15. Is classroom and shop space suitable for courses given and number of students?		
16. Are the instructional aids *(mockups, projectors, charts, films, etc.)* current, specifically applicable to the curriculum, and sufficient for all phases of training?		
17. Are there sufficient copies of FAR's. manufacturer's instructions, etc.?		
18. Have proper safety measures been taken to insure protection of students operating hazardous equipment including facilities for running engines?		
19. Are student records current and do they reflect: a. Daily actual hours students have been in class?		
b. Progress through courses in the curriculum including accomplishment of laboratory and shop projects?		
c. Grades for all courses including quizzes, tests. and practical projects?		

20. REMARKS AND ITEMS TO FOLLOW UP ON NEXT INSPECTION *(Use additional sheets if more space is needed)*

21. INSPECTION RESULTS		22. OFFICE IDENTIFICATION	23. INSPECTOR'S SIGNATURE
	SATISFACTORY		
	UNSATISFACTORY		
	OTHER		

(4) The applicant is given a thorough briefing on required attachments to the formal application. The applicant is briefed on how to comply with these requirements, because the quality of these documents is a positive determining factor in FAA certification review.

NOTE: These attachments can be presented to the FAA in writing either before or during formal application. The attachment documents needed to be prepared and brought to the formal application meeting and include the following:

(a) A letter of compliance, i.e., statement of compliance (SOC), listing each applicable part 147 section. The statement should provide either a brief narrative or, preferably, a specific reference to a manual, curriculum, or other document that describes the manner of compliance with each part of that regulation.

(b) A Schedule of Events (SOE) to be completed for certification with projected due dates.

(c) Standards for graduation.

(d) An attendance policy, a system for recording student attendance, and subject makeup procedures.

(e) A system providing procedures for maintenance of precision/special tools.

(f) A letter requesting that the application be processed and indicating when the facilities and equipment will be ready for a formal inspection by the FAA.

(g) Two completed copies of FAA Form 8310-6.

(h) A detailed description of the proposed curriculum. Since the curriculum must be approved by the FAA before the school can be certificated, an applicant can save time and money if the proposed curriculum is submitted before the formal application. Typically, a curriculum may take several FAA/AMTS review sessions before approval is granted. See curriculum requirements in Chapter 2, paragraph 2-7.

(i) A written description or diagram of the facility layout to be used for instruction. The applicant should also provide detailed drawings with dimensions of the classrooms, the technical library, and laboratory and shop facilities. Drawings should show the relative location of each school's facilities to each other. If classrooms or laboratories and shops are located at significant distances from each other, the applicant should describe whether and how travel time will affect required class attendance time.

(j) A proposed inventory of the following items:

- Instructional aids that include the numbers and types of mockups, aircraft, aircraft components, charts, or other visual instruction tools;
- All shop equipment;
- All special tools;

- Required student hand tools (the applicant must list in detail which hand tools will be provided by the school and which tools the student will be required to provide); and
- Laboratory and shop instructional materials (for example, rivets and sheet metal).

(k) A list of proposed instructors indicating all required certificate number(s) and rating(s), and the subjects to be taught by each instructor. Every subject in the proposed curriculum must be accounted for on the instructor listing. At least one FAA-approved instructor is required for every 25 students in each laboratory and shop class. This requirement must be reflected in the list of instructors.

(l) A statement indicating the maximum number of students to be taught for each rating during each enrollment period. This information must be shown on the application form as well.

(m) A written description of the contents and location of the proposed technical data reference area, including the appropriate and current technical data necessary for the ratings sought. The description should contain procedures on how, when, and by whom the technical data will be updated.

(n) A written description of the method the school will use to grant credit to students with previous AMT experience. Section 147.31(c)(3) requires that only documentary evidence and testing may be used to grant credit for experience. Previous experience must be aviation maintenance experience and must be comparable to the required curriculum subjects.

(o) A written description of the method the school will use to grant credit to students for previous AMT training. Section 147.31(c)(1) permits several methods to be used for granting credit for previous training. School transcripts, catalog references, and other course documentation may be used to grant credit.

(p) If it is not specifically included in the curriculum, a written description of the method the school will use to record and maintain student time, attendance, and course grades. The system must include a method of determining final course grades, which are a combination of classroom, laboratory, and practical project grades. All required practical projects must be completed to at least the minimum grading standards.

(q) A system that indicates how testing and grading security will be maintained

(r) A listing of any texts that will be used in the approved curriculum. These must be appropriate to the instructional material, curriculum, and the FAA ratings sought.

4-3. FORMAL APPLICATION PHASE.

a. Document Review. After the AMTS submits the required PASI and preapplication information to the FAA, the FSDO will review the documents. When the FSDO has determined that all the documents are complete and acceptable, the FSDO will contact the school and arrange for a formal application meeting.

b. The Formal Meeting. In the formal application meeting, the AMTS applicant's key decision-making personnel should be available to meet with the FAA and discuss the entire application package. Any open questions or discrepancies should be resolved at this time. Based on the document review and the results of these meetings, the FAA will accept or reject the application at that time. The FAA will document the results of the meeting in writing. In the case of a rejected application, the FAA will return the application and attachments to the applicant with the reasons stated for rejection.

4-4. DOCUMENT COMPLIANCE PHASE. This phase generally overlaps the preapplication phase and extends through the formal application phase. It is recommended that this phase be initiated as early as possible in the certification process.

a. Evaluation of Documentation. The FAA will carefully review all documents submitted during the preapplication phase. The FAA can be expected to place particular emphasis on the curriculum content and the methods within the curriculum used to comply with the regulations. The FAA will maintain contact with the applicant during this phase. If deficiencies are found in the curriculum or in any other preapplication documents, the FAA will return these documents to the applicant with a letter outlining the deficient areas. The FAA generally offers suggestions on modifying the product, but will not write the applicant's documents. A future meeting between the FAA and the applicant will be scheduled to discuss each deficiency in detail. If the documents, as a whole, are not of sufficient quality to complete the certification, the FAA will terminate the entire certification process.

b. Termination. In the case of termination of the certification process, the applicant must submit a new PASI to begin the certification process again.

4-5. DEMONSTRATION AND INSPECTION PHASE.

a. Inspection Schedule. Following a successful formal application phase, the FAA will arrange with the applicant to inspect the facility. At this point, the FAA expects the AMTS facility to be complete with all the shop equipment, instructional aids, instructional aircraft, special tools, and other required laboratory or shop installations in place. Before scheduling an inspection, the applicant should be certain the facility is ready to meet the standards.

b. Emphasis. During the inspection, the FAA inspectors will carefully examine the facilities and equipment to ensure that procedures, programs, facilities, and equipment meet FAA requirements and are safe and sufficient for the training program in the shop to be effective.

c. Demonstration Criteria. In particular, the AMTS must demonstrate compliance with the following regulations:

- Facilities must meet the requirements of §§ 147.13 and 147.15;
- Instructional equipment must meet the requirements of § 147.17; and
- All special tools, hand tools, shop equipment, and instructional materials must meet the requirements of § 147.19.

d. Demonstration Deficiencies. When deficiencies in the demonstration arise, the FAA will provide a written list of the discrepancies to the applicant. Depending on the magnitude of the deficiencies, the FAA may schedule a meeting to discuss in detail the appropriate corrective actions that must be taken. At or immediately following the meeting, the applicant must provide the FAA with a list of all corrective actions taken. No AMTS will be FAA-certificated with outstanding discrepancies. All discrepancies must be corrected before certification may be granted. If the discrepancies cannot be resolved and/or the applicant does not demonstrate compliance with the regulations, the FAA will terminate the certification process and send the applicant a letter of rejection and a list of the discrepancies still outstanding.

e. Termination. If the FAA terminates the application, the applicant must correct the discrepancies and submit a new PASI to reinitiate the certification process.

4-6. CERTIFICATION PHASE.

a. Successful Application. When all the regulatory requirements have been met, the school will be issued an AMTS Air Agency certificate and appropriate OpSpecs. The original FAA Form 8000-4, Air Agency Certificate, signed by the district office manager will contain the name of the school and its ratings. At this time, the FAA will return the AMTS curriculum with each page of the LEP signifying FAA approval with a date and the PI's stamp, initials, or signature.

b. Surveillance. A newly certificated school should expect that the FAA will inspect and observe the school frequently during the first 90 days of operation to determine compliance with the applicable regulations. The FAA may also identify needed changes in the methods or techniques of the school's operation.

APPENDIX 1. GLOSSARY OF TERMS

This listing contains clarifications of some of the terms defined in 14 CFR part 147. When used within the context of part 147, these terms apply to Aviation Maintenance Technician School (AMTS) requirements.

1. Accreditation. Accreditation is the process used in U.S. education to ensure that schools, postsecondary institutions, and other education providers meet, and maintain, minimum standards of quality and integrity regarding academics, administration, and related services. This term refers exclusively to schools accredited within the United States.

2. Affiliated. A procedure allowing an AMTS Designated Mechanic Examiner (DME) to administer oral and practical tests to graduates/applicants, without an FAA signature in block V of FAA Form 8610-2, Airman Certificate and/or Rating Application only when a graduation certificate or certificate of completion is presented and the AMTS provides the DME with the certified list of graduates.

3. Asynchronous Learning. The method of teaching that takes place utilizing prerecorded developed training, preserved for the learner to participate in whenever the time is most convenient. Technology such as email, e-courses, online forums, and audio and video recordings make this possible. Asynchronous learning is considered more flexible than synchronous learning.

4. Aviation Safety Inspectors (ASI). FAA aviation safety maintenance inspectors are comprised of two principal inspector (PI) specialties, principal maintenance inspectors (PMI), and principal avionics inspectors (PAI).

a. PMI. The maintenance representative of the FSDO with principal responsibility for the certification and surveillance of a part 147 AMTS.

b. PAI. The avionics representative of the FSDO with principal responsibility for the certification and surveillance of a part 147 AMTS.

5. Aviation Technician Education Council (ATEC). The AMTS industry association.

6. Certificated Instructors. Those instructors who hold FAA mechanic certificates and the ratings appropriate for the AMTS subjects to be taught.

7. Certification. This term refers to AMTSs certificated as an Air Agency by the FAA.

8. Certification Project Manager (CPM). FAA personnel assigned as a team lead during an air carrier or air agency initial certification that provides guidance and written notification to the applicant during each phase of the certification project.

9. Check. To verify proper operation. A check is performed to verify proper operation without the item necessarily qualifying for return to service condition. At an AMTS, the item checked does not have to be the item overhauled.

10. Common Hand Tools. Small, ordinary tools such as ratchets, sockets, and screwdrivers.

11. Distance Education or Distance Learning. A method of delivering education and instruction, often on an individual basis, to students who are not physically present with an instructor in a traditional setting such as a classroom. Distance learning enables participation access to learning when the source of information and the learners are separated physically by time or distance, or both.

12. Flight Standards District Office (FSDO). The FAA office with geographic oversight of a particular part 147 AMTS.

13. Focused Curriculum. Curriculum directed toward a particular area of the aviation industry. An example is rotorcraft, Transport Category Agriculture, etc.

14. Instructional Aids. Equipment used to provide instruction. Examples include diagrams, visual aids, computers, interactive software, aircraft, and mock-ups of aircraft, engines, and components; as well as actual components, such as magnetos and fuel controls. An instructional aid is not required to meet return to service standards.

15. Instruction Hour. The educational unit hour, as used by an AMTS, that consists of a time period of 50 to 60 minutes. This instructional time period conforms to the existing practices at many education institutions.

16. Inspect. An organized examination or formal evaluation by sight, sound, touch, smell or any combination thereof, completed with or without inspection enhancing tools or equipment.

17. Laboratory. Facilities for providing instruction in general principles that may require student demonstrations or participation. Determination of what laboratory equipment is required depends on the subject taught and the teaching level at which it is taught.

18. Letter of Compliance or Statement of Compliance (SOC). A compliance statement listing each applicable part 147 section and providing either a brief narrative or a specific reference within the document(s) describing the manner of compliance with the regulation.

19. Maintenance Training Review Board (MTRB). The MTRB is an advisory board to plan, coordinate, and advise the FAA regarding the certificated AMTS required curriculum specific to part 147 appendices A, B, C, and D.

20. Noncertificated Instructors (Specialized Instructors). Individuals who are not FAA certificated but whom the AMTS has found qualified to teach mathematics, physics, basic electricity, basic hydraulics, drawing, and similar subjects. The applicant is required to maintain a list of the names and qualifications of specialized instructors, and upon request, provide a copy of the list to the FAA.

21. Operations Manual. Document that the institution may use to show compliance with part 147.

22. Operations Specifications (OpSpecs). OpSpecs are approved documents indicating authorizations, limitations, and certain procedures under which each kind of operation is to be conducted. OpSpecs are maintained in an Internet-accessible program known as Web-based Operations Safety System (WebOPSS).

23. Overhaul. To disassemble, inspect, repair as necessary, and check in accordance with FAA-acceptable instructions; that is, manufacturers' maintenance manuals, FAA directives, and Service Bulletins (SB). For an AMTS, the overhaul requirement in a teaching scenario does not require the overhauled component to meet approval for return to service mechanical tolerances. For example, a turbine engine that is not Airworthy or serviceable may be used for instructional purposes associated with component replacements or overhaul practices and techniques, but must not be used for engine run up demonstrations due to potential safety hazards and concerns.

24. Practical Project. A hands-on assignment that requires the use of manipulative skills taught at a teaching level of 2 or 3. A practical project generally does not include non-manipulative activities such as book reports. However, for certain required subjects such as maintenance publications, the use of FAA directives or manufacturers' data constitutes a practical project.

25. Practical Test Standards (PTS). PTS are a guide for students, instructors, FAA, and examiners to know what is expected on a test.

26. Quality Standards. The performance level at which a student understands their responsibilities and can simulate returning an item to service. However, it is not necessary for the item itself to meet "return to service" standards.

27. Ratings. An AMTS may be certificated for the following ratings: airframe, powerplant, or combined Airframe and Powerplant (A&P). The general portion of the required curriculum is not a rating, but it is a required part of all the ratings.

28. Shop. Facilities for providing instruction on projects taught at teaching level 2 or 3. The shop environment should resemble a typical aviation repair facility.

29. Shop Equipment. Machinery, such as fabricating devices, sheet metal equipment, and battery chargers.

30. Simulated Approval For Return to Service. A measured standard of instructing students' academic and manipulative skills in which to prepare them with the needed skills to maintain and properly return aircraft, parts, or components to service.

31. Special Tools. Highly specialized tools, such as tensionometers, micrometers, and torque wrenches.

32. Synchronous Learning. Learning that takes place when two or more people are communicating in real time, "live". Sitting in a classroom, talking on the telephone, and chatting via instant messaging are examples of synchronous communication.

33. Teaching Levels.

a. Level 1. Level 1 requires knowledge of general principles and instruction by lecture, demonstration, and discussion, but no practical application or development of manipulative skill. Teaching aids or instructional equipment may include charts, books, diagrams, or other visual teaching aids. If an AMTS chooses to teach level 1 courses incorporating actual components, the components do not have to be operational.

b. Level 2. Level 2 requires knowledge of general principles, limited practical application, and development of sufficient manipulative skill to perform basic operations, as well as instruction by lecture, demonstration, discussion, and limited practical application. This teaching level requires some hands-on manipulative skills and their accompanying actual or simulated components/equipment; but still may be taught primarily in the classroom environment.

c. Level 3. Level 3 requires knowledge of general principles, performance of a high degree of practical application, development of sufficient manipulative skills to simulate return to service, and instruction by lecture, demonstration, and discussion. This teaching level requires hands-on manipulative skill, as well as sufficient and appropriate instructional aids to train the student to develop manipulative skills sufficient to simulate return to service. At this level, the teaching aids must be similar to, or the actual items of, equipment on which the student is expected to develop required skill levels. A level 3 subject cannot be taught solely by lecture in the classroom; the appropriate training aids and hands-on experience must be used.

34. Troubleshoot. To systematically analyze and identify malfunctions, and to identify the source of trouble in an airframe, powerplant, or aircraft component. For the purposes of AMTSs, the item of equipment or simulator training aids must be in operating condition. For example, a turbine powerplant must be operational for the student to troubleshoot.

APPENDIX 2. RELATED REFERENCES

1. RELATED PUBLICATIONS (current editions). Current Advisory Circulars (AC) are available online at http://www.airweb.faa.gov/rgl.

a. AC 20-37, Aircraft Propeller Maintenance.

b. AC 20-77, Use of Manufacturers' Maintenance Manuals.

c. AC 20-107, Composite Aircraft Structure.

d. AC 43-4, Corrosion Control for Aircraft.

e. AC 43-9, Maintenance Records.

f. AC 43-16, Aviation Maintenance Alerts.

g. AC 43-204, Visual Inspection for Aircraft.

h. AC 43.9-1, Instructions for Completion of FAA Form 337.

i. AC 43.13-1, Acceptable Methods, Techniques and Practices — Aircraft Inspection and Repair.

j. AC 43.13-2, Acceptable Methods, Techniques, and Practices — Aircraft Alterations.

k. AC 65-30, Overview of the Aviation Maintenance Profession.

l. AC 65-31, Training, Qualification, and Certification of Nondestructive Inspection Personnel.

m. AC 91-82, Fatigue Management Programs for In-Service Issues.

n. AC 120-72, Maintenance Resource Management Training.

o. FAA Order 8900.1, Flight Standards Information Management System.

p. FAA Order 8900.2, General Aviation Airman Designee Handbook.

q. FAA-H-8083-30, Aviation Maintenance Technician Handbook—General, Chapter 14, Addendum/Human Factors.

r. FAA-H-8083-32, Aviation Maintenance Technician Handbook—Powerplant.

s. FAA-H-8083-9, Aviation Instructor's Handbook.

t. FAA-H-8083-31, Aviation Maintenance Technician Handbook—Airframe.

u. FAA-H-8083-1, Aircraft Weight and Balance Handbook,

v. Human Factors in Aviation Maintenance and Inspection, documents are maintained at the following website: http://www.faa.gov/about/initiatives/maintenance_hf/.

w. Job Task Analysis of the Aviation Maintenance Technician, Northwestern University, The Transportation Center. See: http://www.faa.gov/about/initiatives/maintenance_hf/.

x. The National Study of Aviation Mechanics Occupation (Allen Study). The Allen Study is available to the public through the National Technical Information Service (NTIS), Alexandria, VA 22312 or at http://www.ntis.gov.

y. Type Certificate Data Sheets (TCDS) available at http://av-info.faa.gov.

2. RELATED PARTS OF TITLE 14 OF THE CODE OF FEDERAL REGULATIONS (14 CFR).

a. Part 1, Definitions and Abbreviations.

b. Part 43, Maintenance, Preventative Maintenance, Rebuilding, and Alteration.

c. Part 65, Certification: Airmen Other Than Flight Crewmembers, Subpart D, Mechanics.

d. Part 91, General Operating and Flight Rules.

e. Part 145, Repair Stations.

f. Part 147, Aviation Maintenance Technician Schools.

g. Part 183, Representatives of the Administrator.

APPENDIX 3. FREQUENTLY ASKED QUESTIONS (FAQ) REGARDING AMTS CERTIFICATION AND OPERATION

1. **Question:** How should I include additional items in my curriculum that are above and beyond the subject areas included in part 147?

   Answer: You have two options. You can make it part of your curriculum or you can make it a separate class. Subjects may be taught to a higher level in the curriculum than required by part 147 appendices, but if they are taught to a higher level, the school must include them as part of the approved curriculum.

2. **Question:** What is an exemption from part 147? For which type of items can I request an exemption from part 147 and how does this process work?

   Answer: An exemption is a request to the FAA to allow a school to deviate from existing regulations.

   NOTE: Currently there are no provisions for waivers.

   A school can apply for an exemption for any items governed by part 147.

   The process for requesting an exemption is detailed in 14 CFR part 11, General Rulemaking Procedures. The school must submit a request that:

   - Clearly defines and specifies the exemption requested;
   - Explains why the school is requesting the exemption;
   - Explains why it is in the public interest for the exemption to be granted; and
   - Explains how, if the exemption is granted, public safety would not be affected.

   Also, refer to the FAA Web site, http://aes.faa.gov/, enter “147” into the “Regulation” field, and select “Search” to see examples of past regulatory clarification requests by schools, as well as the FAA responses.

3. **Question:** Does the rule establish a standardized method of proof of student time and attendance?

   Answer: No, neither the regulation nor FAA policy established standardized procedures to record student time and attendance. Each school must develop and have approved by their Flight Standards District Office (FSDO) a method of taking time and attendance for each student.

4. **Question:** Are the actual student tests required to be kept for 2 years, or only the results of those tests (grades)?

   Answer: Only the test grades must be kept for 2 years. By extension, completed laboratory project sheets do not need to be kept for 2 years. As with tests, only laboratory project grades must be retained for that period of time. The generic project sheet or test is a part of the curriculum, and kept with the curriculum.

5. **Question:** Do we keep time and attendance records for students' individual projects or for the block of time required for the subject area?

   Answer: There is no need or requirement for time and attendance to be maintained on an individual project basis.

   - Time and attendance can be documented on a "subject area" basis, recording only the students' attendance in the subject area.
   - A school's curriculum should specify total hours for the subject area, the amount of time that is dedicated to classroom, the amount of time that is dedicated to laboratory, and the total number of required projects for that subject area.

   NOTE: If a school, in its approved curriculum, specifies hours assigned to individual projects, then time and attendance must be kept on that basis.

6. **Question:** What guidelines should we use as the basis for writing a part 147 manual?

   Answer: Guidelines can be found in the current edition of AC 147-3, 14 CFR part 147, and FAA Order 8900.1, Volume 2, Chapter 12, Certification of a Part 147 Aviation Maintenance Technician School. Refer to http://fsims.faa.gov/.

7. **Question:** Do the scope and details of the lesson plans have to be included in the AMTS curriculum?

   Answer: AMTS curriculum lesson plans are not required to be part of the approved curriculum. Lesson plans should be available upon request by AMTS management and instructors and upon request by the FAA.

8. **Question:** What is the rationale for not allowing students enrolled in the general curriculum to be administered the general computer test upon completion of that course? I have contacted several part 147 schools/colleges and have found that approximately 50 percent of those queried give general computer tests upon completion of the general course.

   Answer: Title 14 CFR part 65, § 65.77 specifies tests for ratings, not the program, in which the student is enrolled. As a result, if a student completes all the general portion hours and completes the airframe, powerplant, or A&P rating and the school issues a certificate of completion for a rating, then the student may take the general test. In other words, to take the general test, the student must have completed a rating plus all the general material and been issued a certificate of completion by the school for at least one rating.

9. **Hypothetical Scenario:** During a recent inspection, the FAA commented that to be in compliance, training aids must be available and in working order even if the subject is not being taught at the time. The same training aids are used in subjects requiring troubleshooting. If a subject being taught requires a teardown, the school should not be cited for non-compliance.

Response: Training aids/devices that are required and on the current school equipment list should be in good working order for the course(s) of instruction they are identified and intended to support. Multiple use or different use of training equipment is acceptable as long as the unit is available for each project individually and is not being used for multiple projects at the same time. Some exceptions to this will exist, such as using a complete aircraft for propeller removal while simultaneously checking control surface travel. For such exceptions, the AMTS should ensure the objective of each project is being met and safety is not compromised.

10. **Hypothetical Scenario:** During a recent inspection, a comment was made that a complaint had been filed and the FAA was required to inspect the facilities. Regulations state that the school is to receive a copy of the complaint listing, the nature of the complaint, and all parties involved. The school had to request a copy of the complaint. We received a notice that we could request a copy from the Freedom of Information Act (FOIA) and pay a fee for the report.

    Response: The FAA is not required by regulation to supply any information contained in a complaint filed against a part 147 school. In many cases, the FAA does discuss the nature and content of a complaint with school administrators, but the decision to do so is up to the FAA and is based on the nature and implications of the allegations contained in the document.

11. **Question:** Section 147.31(a) states a "school may not require any student to attend classes of instruction more than 8 hours in any day…" For schools that have both day and night shift classes, may a school permit a student to attend both classes when the student requests to do so?

    Answer: Not normally, but there are exceptions. An exception must be approved by the school's principal maintenance inspector (PMI) on a case-by-case basis. The FAA/ Aviation Technician Education Council (ATEC) panel believes that a blanket form of approval could compromise the integrity of the quality of instruction. This would allow for special exceptions that the school and student find themselves involved with such as sickness, illness, accidents, family problems, weather, or any other special circumstances.

12. **Question:** What authority does the FAA have pertaining to the buildings that hold our classrooms and laboratories? I once had an inspector who walked into my hangar and stated that I had to increase the lighting in the area for the students. This was based on his opinion; no measuring equipment was used to check the actual lumens. Section 147.15 states that facilities must be "…properly heated, lighted, and ventilated…as are appropriate to the rating" sought. Who is he to determine how many lumens or British thermal units (BTU) we use in our buildings? If we meet the local building codes and Occupational Safety and Health Administration safety regulations, are we not meeting the standard?

    Answer: What would a reasonable person expect to find in a normal classroom and laboratory environment? It would be apparent if there were a woeful lack of heat or light in the school, but at the same time, the PMI is not trained as a building inspector. What would be more critical to the school would be the school meeting the codes of the city and the state

that it operates within. The school should be able to show the PMI that it has met the standards by displaying or showing, on request, building permits, building inspections, and any other safety inspection documentation from local fire departments, health agencies, and other regulatory agencies.

13. **Question:** The FAA/ATEC panel needs to clarify the use of intimidation and ultimatum with the use of ACs and handbooks to enforce "rules." We find that inspectors tend to deviate from the rule and try to make ACs "regulatory," rather than useful as suggestions or guidance in the process of working with schools. This tends to give each inspector the space needed to bring individual "causes" into the process and make them appear to have the force of law. One example is the use of AC 147-3 as the standard that will be used rather than the regulation being the standard and the AC being helpful in that process.

    Answer: The current edition of AC 147-3 was developed to further clarify part 147. It is to be used as a guidance. While AC 147-3 is not regulatory, it should be understood that ACs are developed to a standard that is found acceptable, and if the document does not meet the requirements set forth in an AC, then it could be considered not acceptable to the FAA?

14. **Question:** There needs to be some clarification regarding the use of military surplus aircraft in performing practical projects. While AC 147-3 states that the use of such aircraft is acceptable as long as the model is eligible for an FAA type-certificate, our inspector is telling us that no military surplus aircraft will be used. In our case, we have two twin bonanzas and one Sabreliner that we use as part of our program. Both are aircraft that are type certificated (TC) in civilian use; they are not made differently (as would be a fighter aircraft, for example), and should be acceptable to use. In addition, what difference does it make regarding systems work, such as brake replacement, whether it is certificated or not? We do recognize that, for example, while a sheet metal repair to industry standards would be a completely different issue, it should not make any difference on systems training as noted.

    Answer: There is nothing in the rules that prohibits the use of military aircraft for training at a part 147 AMTS, provided the school has at least one complete aircraft of a type currently certificated by the FAA for private or commercial operation.

    It is reasonable to assume that systems training in many areas such as brakes, landing gear, hydraulics, and many others, is no different on military than on civilian aircraft. Schools are cautioned that there are subjects where differences exist, such that military aircraft may not be adequate or applicable trainers, for example, documentation research including airworthiness directive compliance and type certification. This is particularly true for aircraft without a civilian counterpart, for example, fighters.

15. **Question:** AC 147-3 was last issued in 1991, and it put great emphasis on the Allen Study and how schools may use it to assist in the establishment of their curriculum. Again, this is a suggestion rather than the rule, and if a curriculum meets the FAA regulatory requirement, the Allen Study should not be used instead of the rule to say that the curriculums do not meet the requirements. Is there a more recent guideline, such as the Airlines for America (A4A) 104 Training Standard, in use that would be more current in its guidelines than the now quite old Allen Study?

Answer: Schools may choose to use the more current JTA of the Aviation Maintenance Technician Northwestern University to help develop or update their curriculum. This is available at http://hfskyway.faa.gov. Select "Documents," and under "Publications," select "Bibliography of Publications 1989-1998," then enter "job task analysis" into the search field. However, schools should be sure to meet the requirements of part 147.

16. Question: In the curriculum in part 147 Appendix C, under Airframe Systems and Components, Cabin Atmospheric Control Systems, items C34 and C35 have always presented a challenge for us. Both seem to be the same with the exception of item C33 mentioning air cycle machines. So under item C33, we cover cabin atmospheric control systems for both large turbine engine aircraft with air cycle machines, as well as smaller reciprocal engine aircraft that are supercharged/turbocharged along with combustion heaters. We suggest item C34 be deleted.

Answer: The redundancy has been previously identified. This will be addressed by the FAA at the next revision of the rule.

17. Question: Is 1,900 hours a minimum or maximum number of hours permitted under part 147?

Answer: One thousand nine hundred hours is the minimum an AMTS must offer for a combined A&P curriculum. A school may provide additional hours at its discretion to meet institutional program objectives or align with specific industry needs.

18. Question: The FAA has the responsibility to enforce the content in a school's part 147 curriculum. Can the following items be omitted from the curriculum and kept on file at the school?

- List of instructors.
- Equipment list.
- Forms created and used by the school.

Answer: The curriculum is the official document of the school.

- The curriculum should reference the instructor list and where it is kept at the school. Upon request, the school should be able to provide the PMI a current list to the instructional staff. The curriculum should discuss the lesson plans and where they would be kept for availability to the PMI on an inspection visit.
- The equipment list should be discussed in the curriculum, and should be kept current and available to the PMI upon his or her request. The student manuals should not be included as part of the curriculum. The methods of recording and tracking time and attendance should be in the curriculum, but the actual records should be kept separate.
- The curriculum should also address the procedures for meeting the requirements of part 147. It should not include other student policies such as financial aid processing, add-drop policies, or other school activities.

19. Question: If a school and its PMI disagree on the interpretation/enforcement of a particular part 147 regulation, will the part 147 FAA/ATEC panel resolve it?

Answer: No. All attempts should be made to resolve a disagreement at the local/regional level. The school should contact the local FSDO office manager or, if the dispute continues, contact FAA headquarters (HQ), Aircraft Maintenance Division (AFS-300), for additional guidance on application of the regulations. Some of the other clarifications in this document will be helpful in resolving a school PMI disagreement. The current FAA/ATEC panel may be brought together periodically to help clarify particular issues; it is an ad hoc advisory group. AFS-300 will make all final determinations.

20. Question: Can the PMI be a member of the school's advisory board?

Answer: The PMI may not be a member of the advisory board of a school. However, the school may invite the PMI to attend these meetings as a guest with no voting rights.

21. Question: When an inspector came in, he inspected our school as if we were a repair station returning everything to service. All of our gauges, the battery charger, torque wrenches, measuring instruments, and measuring tools are required to be calibrated. We are a school, not a repair station. All the gauges located on hydraulic boards must be calibrated. They are not required to be there, but if they are, they must be calibrated. Reciprocating engine overhaul is level 2. We overhaul the engine and operate it (not at all airworthy), but the gauges on the test stand must be calibrated. These additional costs and time consuming activities make it very difficult to operate efficiently. Gauges and measuring instruments should be operational, but not necessarily calibrated at a school.

Answer: Some level of calibration may be necessary, depending on what level of simulated RTS is being taught. It is up to the school and FAA inspector to determine what these areas of instruction are. However, it is not mandatory for all tools/gauges to be calibrated.

22. Question: Our school's class schedule is based on a clock hour, which must be at least 50-minutes in length. In January 2001, the school requested approval to change the class schedule to 4 days per week, 30 hours per week.

During an inspection in July 2001, the FAA stated that approval was not given and stated the school must reverse the schedule. To do so would be an extreme hardship on students who have set work schedules by the new schedule as well as the school, which took a financial hit to start the schedule in January. After several discussions with the FAA, the decision regarding the 50-minute hour rule is under review by the FAA. The school did remain on the 4 day week, but adjusted the class schedule (which has been very inconvenient for many students) until an interpretation of the regulation can be made.

Answer: The 50-minute hour is based on the Carnegie rule of instruction that a 50-minute instructional period may be combined with a 10-minute break time to equate to an hour of instruction. The question relates to two items: the interpretation of the 50-minute hour and the approval of schedule change. Historically, the 50-minute hour must be tied to the 10-minute break time. An AMTS is not able to bank the break time and offer longer breaks at a greater time interval. A school may offer a 50-minute educational period with a 10-minute

break time and then take a second 10-minute break time with the next 50-minutes of instruction tied to the second break time.

The second part of the question is based on approval of change. The school has a responsibility to request a change far enough in advance to allow the FSDO to research the request and then make a decision and convey it to the school with proper justification for the approval or disapproval. The request and approval must be in writing for the benefit of both parties and to avoid confusion and/or misunderstanding.

23. Question: An FSDO stated, one of our schools must graduate a student when he or she has completed the part 147 program, even though the student has not met his financial obligations to the school. The school's catalog states that in addition to meeting all academic and administrative requirements for graduation, the student must satisfy all financial obligations to the school. Should the FSDO dictate policy that interferes with the administrative and financial operation of a school as long as the school is operating in compliance with part 147?

Answer: A school may require students to meet certain requirements and/or obligations before issuing a graduation certificate, diploma, or degree.

A common example is that many schools require that all financial obligations of a student be met before issuing transcripts of completion certificates, diplomas, or degrees.

However, those administrative requirements of the school may be in conflict with the regulation. The regulation is clear on this issue: § 147.35(a) states that, upon request, an AMTS must provide a transcript of student grades to a student who graduates or leaves the AMTS before graduation.

24. Question: Course testing (not FAA exams), including preparation and post-test reviews, is an important part of the learning process. Are these activities part of the minimum 1,900 hours?

Answer: No, Reference AC 147-3, Chapter 2, and FAA Order 8900.1, Volume 2, Chapter 12, Section 2. The rule states, however, that time spent to prepare or review for the FAA general, airframe, or powerplant test may not be included as part of the hours to satisfy a school's approved curriculum requirements.

APPENDIX 4. FREQUENTLY ASKED QUESTIONS (FAQ) REGARDING AMTS OPERATING SPECIFICATIONS

1. **Question:** What are Operations Specifications (OpSpecs)?

   Answer: OpSpecs are approved documents identified by OpSpec paragraphs containing the authorizations, limitations, and certain procedures under which each kind of operation is to be conducted. Operational variables such as: multiple ratings, management and designated personnel, affiliated Designated Mechanic Examiners (DME), exemptions, authorization/limitations, and approved manual systems are identified in applicable OpSpec paragraphs and approved through the issuance of those OpSpec paragraphs. OpSpecs are maintained in an internet accessible program known as Web based Operations Safety System (WebOPSS).

2. **Question:** Who originates the OpSpecs for a particular Aviation Maintenance Technician School (AMTS)?

   Answer: The OpSpecs for an AMTS are prepared by the Flight Standards District Office (FSDO) using standard templates, known as paragraphs, and an automated system called the WebOPSS. In some cases, data for OpSpec fields will come out of an FAA database, Program Tracking and Reporting Subsystem (PTRS). The AMTS however, may need to provide the FSDO with some of the information that is required to prepare an OpSpec that is not currently in the database. This information should be readily available by the AMTS and would include:

   - AMTS primary points of contact and their contact information.
   - AMTS management personnel and their contact information.
   - Identification of person(s) at the AMTS designated to receive OpSpecs.
   - Location of the AMTSs recordkeeping system.

3. **Question:** Will incorporating OpSpecs into an AMTS require a curriculum change?

   Answer: The initial set of OpSpecs that will be issued to AMTSs mirror the existing part 147 rule. This includes the curriculum requirements found in Appendices B, C, and D. An AMTS will therefore not need to change its curriculum to incorporate the OpSpecs.

4. **Question:** What OpSpecs would an AMTS be issued?

   Answer: Some OpSpec are mandatory and others are optional. All AMTSs would be issued a set of mandatory OpSpecs consisting of the following:

   - A001, Issuance and Applicability (Mandatory).
   - A002, Definitions and Abbreviations (Mandatory).
   - A003, Rating(s) (Mandatory).
   - A004, Summary of Special Authorizations and Limitations (Mandatory).
   - A006, Management Personnel (Mandatory).
   - A007, Designated Persons (Mandatory).
   - A013, Instructors (Mandatory).

- A025, Recordkeeping System (Mandatory).
- B002, Required Minimum Curriculum for General (Part 147 Appendix B) (Mandatory). This B002 AMTS OpSpec is issued to all certificated AMTS(s) regardless of ratings issued.

NOTE: Some AMTS will also be issued one or more optional OpSpecs depending on their applicability.

The optional OpSpecs consist of the following:

- A005 Exemptions (Optional).
- A012, Affiliated Designated Mechanic Examiners (DME) (Optional).
- A026, Authorizations/Limitations (Optional).
- B003, Required Minimum Curriculum for Airframe (Part 147 Appendix C) (Optional). This OpSpec is issued only if the AMTS holds an airframe, and/or airframe and powerplant rating.
- B004, Required Minimum Curriculum for Powerplant (Part 147 Appendix D) (Optional). This OpSpec is issued only if the AMTS holds a powerplant, and/or airframe and powerplant rating.

5. Question: Who at the AMTS is authorized to receive OpSpecs?

Answer: The AMTS must have one or more persons identified in paragraph A007 of the OpSpecs as a designated person authorized to receive OpSpecs. When the AMTS receives an OpSpec, an authorized designated person will sign and date the OpSpec at the bottom of the page after the statement "I hereby accept and receive the operations specifications in this paragraph." The signed OpSpec(s) would then be incorporated into the AMTSs manual, superseding the now outdated paragraph.

6. Question: Who develops the OpSpecs?

Answer: Standard templates are developed by Flight Standards Service, Aircraft Maintenance Division (AFS-300), FAA Headquarters (HQ), Washington DC. The process used at HQ for developing standard templates ensures appropriate coordination with regional flight standards personnel and with other FAA services and offices that could be affected. The process also ensures that before the standard templates are finalized, appropriate coordination is accomplished with affected industry groups. Since standard templates specify limitations, conditions, and other provisions which operators must comply with, coordination with industry is essential to a mutual and clear understanding of the effect they will have on industry. After appropriate coordination with the Technical Programs Branch (AFS-260) has been completed, drafts of the new standard paragraphs/templates, or revisions to existing paragraphs/templates are finalized and incorporated into the WebOPSS.

APPENDIX 5. OPTIONAL AMT CURRICULUM

The following optional curriculum may be used by an AMTS and is based on the regulatory requirements listed in part 147 appendices B through D. The optional curriculum may be adopted as a means of compliance for only one section such as appendix C (Airframe), or it can be utilized for the General, Airframe and/or Powerplant (appendices B, C, and D). The number in parentheses indicates the level of proficiency at which a particular element must be taught. Items in italics indicate additions to what is currently found in part 147 Appendices B through D.

> **NOTE: The term "capstone" is a term utilized to reference topics and/or areas of study recommended as important final or closing subject matter that would be suitable to be taught.**

Area of Study	Subject Description	Teaching Level
	General Curriculum Subjects	
a. Basic electricity	*An AMTS may choose to incorporate training on circuits and devices for complex aircraft. The AMTS may choose to incorporate these subjects into the six subject areas of this section or add them as separate subjects.*	
	1. Calculate and measure capacitance and inductance.	(2)
	2. Calculate and measure electrical power.	(2)
	3. Measure voltage, current, resistance, and continuity.	(3)
	4. Determine the relationship of voltage, current, and resistance in electrical circuits.	(3)
	5. Read and interpret aircraft electrical circuit diagrams, including solid-state devices and logic functions.	(3)
	6. Inspect and service batteries.	(3)
b. Aircraft drawings	*An AMTS may choose (with FAA approval) to teach the subject only to the proficiency required to perform normal aircraft inspections or typical repairs or alterations. For example, interpretation of drawings required to perform an actual or simulated airworthiness directive (AD).*	
	7. Use aircraft drawings, symbols, and system schematics.	(2)
	8. Draw sketches of repairs and alterations.	(3)
	9. Use blueprint information.	(3)
	10. Use graphs and charts.	(3)
c. Weight and balance	*An AMTS may place emphasis on out-of-center-of-gravity conditions and load calculations to ensure any alterations that would affect forward or aft center of gravity are recorded properly.*	
	11. Weigh aircraft.	(2)
	12. Perform complete weight-and-balance check and record data.	(3)
d. Fluid lines and fittings	*An AMTS may choose to focus on fabricating rigid lines because most flexible fluid lines are purchased. Students should be instructed in the inspection of flexible lines.*	
	13. Fabricate and install rigid and flexible fluid lines and fittings.	(3)
e. Materials and processes		
	14. Identify and select appropriate nondestructive testing methods.	(1)
	15. Perform dye penetrant, eddy current, ultrasonic, and magnetic particle inspections.	(2)
	16. Familiarize students with basic heat-treating processes.	(1)
	17. Identify and select aircraft hardware, composites, and materials.	(3)
	18. Inspect and check welds. *Familiarize students with inspecting and checking welds created by the student using visual, non-destructive, and other NDI technologies.*	(3)

Area of Study	Subject Description	Teaching Level
	19. Perform precision measurements.	(3)
f. Ground operation and servicing		
	20. Start, ground operate, move, service, and secure aircraft and identify typical ground operation hazards. For aircraft starting and ground movement operations, a high fidelity simulator may be used with prior FAA approval.	(2)
	21. Identify and select fuels from among the common types of aircraft fuels in current use.	(2)
g. Cleaning and corrosion control		
	22. Identify and select cleaning materials and perform aircraft cleaning.	(3)
	23a. Inspect for aircraft corrosion.	(3)
	23b. Identify, remove, and treat aircraft corrosion.	(3)
h. Mathematics	*An AMTS may elect to test students out of mathematics without teaching it as part of its AMT curriculum. (See § 147.31(c)(4).)*	
	24. Extract roots and raise numbers to a given power.	(3)
	25. Determine areas and volumes of various geometric shapes.	(3)
	26. Solve ratio, proportion, and percentage problems.	(3)
	27. Perform algebraic operations involving addition, subtraction, multiplication, and division of positive and negative numbers.	(3)
i. Maintenance forms and records		
	28. Write descriptions of work performed, including aircraft discrepancies and corrective actions, using typical aircraft maintenance records.	(3)
	29. Complete required maintenance forms, records, and inspection reports.	(3)
j. Basic physics	*An AMTS may elect to test students out of basic physics without teaching it as part of its AMT curriculum. (See § 147.31(c)(4).)*	
	30. Use and understand the principles of simple machines; sound, fluid, and heat dynamics; basic aerodynamics; aircraft structures; and theory of flight.	(2)
k. Maintenance publications		
	31. Demonstrate ability to read, comprehend, and apply information contained in FAA and manufacturers' aircraft	

Area of Study	Subject Description	Teaching Level
	maintenance specifications, ATA codes, air carrier background elements, minimum equipment lists, configuration deviation lists, data sheets, manuals, publications, and related Federal Aviation Regulations, AD, and advisory material.....	
	32. Read technical data.	(3)
l. Mechanic privileges and limitations	*An AMTS may provide level 1 teaching to students on related regulations to include Parts 21, 23, 25, 43, 121, 135, and 145.*	
	33. Exercise mechanic privileges within the limitations prescribed by Part 65 of this chapter.	(3)
m. Human factors/ maintenance resource management (MRM)	*Human factors principals are encouraged and may be taught as a separate subject and/or incorporated throughout the curriculum. Emphasis should be placed on common maintenance problems such as failure to follow procedures and situational awareness.*	
	34. Provide instruction on Human Factors by implementing basic human factors techniques and applications.	(1)
n. Aircraft electrical introduction		
	35. Teach basic concepts of aircraft electronics, including digital electronics and operational principles.	(1)
o. Fire protection systems	*An AMTS may teach this subject in the general curriculum, instead of separately in the A&P curriculums, to avoid teaching the subjects twice. This may only be accomplished by a school teaching a combined A&P curriculum. A school teaching only airframe or powerplant as separate ratings may not follow this approach.*	
	36. Inspect, check, and service smoke and carbon monoxide detection systems.	(1)
	37. Inspect, check, service, troubleshoot, and repair aircraft fire detection and extinguishing systems.	(3)
p. General aircraft inspection principles		
	38. Perform a capstone inspection module. *This module should include research into regulations, maintenance manuals, and other relevant documentation encountered during a normal inspection. Students should become familiarized with applications of Type Certificate Data Sheet (TCDS),*	

Area of Study	Subject Description	Teaching Level
	Illustrated Parts Catalogs (IPC), Structural Repair Manuals (SRM), Service Difficulty Reporting (SDR), AD, and similar documentation. Additional focus may be placed on human factors principles, such as norms, shift turnovers, situational awareness, and inspection integrity. Students may also receive initial training in principles of visual inspection, including defect recognition, detection, and classification… … … … … … … … … … … … … … ..(2) or (3)	
	Airframe Curriculum Subjects	
I. Airframe Structures		
a. Wood structures	*An AMTS may focus on only familiarization with the basic concepts of this subject.*	
	1. Service and repair wood structures.	(1)
	2. Identify wood defects.	(1)
	3. Inspect wood structures.	(1)
b. Aircraft covering	*An AMTS may focus on familiarization with the concepts of this subject.*	
	4. Select and apply fabric and fiberglass covering materials.	(1)
	5. Inspect, test, and repair fabric and fiberglass.	(1)
c. Aircraft finishes		
	6. Apply trim, letters, and touchup paint.	(1)
	7. Identify and select aircraft finishing materials.	(2)
	8. Apply finishing materials. An AMTS may primarily focus on application of corrosion prevention materials.	(2)
	9. Inspect finishes and identify defects.	(2)
d. Sheet metal and nonmetallic structures		
	10. Select, install, and remove special fasteners for metallic, bonded, and composite structures.	(2)
	11. Inspect bonded structures.	(2)
	12. Inspect, test, and repair fiberglass, plastics, honeycomb, composite, and laminated primary and secondary structures, and focus on the detection and inspection of defects and the repair of damage, using manufacturer's structural repair manual guidelines.	(2)
	13. Inspect, check, service, and repair windows, doors, and interior furnishings.	(2)
	14. Inspect and repair sheet metal structures.	(3)
	15. Install conventional rivets.	(3)

Area of Study	Subject Description	Teaching Level
	16. Form, lay out, and bend sheet metal.	(3)
e. Welding		
	17. Weld magnesium and titanium.	(1)
	18. Solder stainless steel.	(1)
	19. Fabricate tubular structures.	(1)
	To encourage the understanding of and preparation for material identification, filler materials, compatible alloys, gas welding system setup, and methods associated with welding safety.	
	20. Solder, braze, gas-weld, and arc-weld steel.	(2)
	21. Weld aluminum and stainless steel.	(1)
f. Assembly and rigging		
	22. Rig rotary-wing aircraft.	(1)
	23. Rig fixed-wing aircraft.	(2)
	24. Check alignment of structures.	(2)
	25. Assemble aircraft components, including flight control surfaces.	(3)
	26. Balance, rig, and inspect movable primary and secondary flight control surfaces. An AMTS may elect to focus specifically on FAA-required inspection items.	(3)
	27. Jack aircraft.	(3)
g. Airframe inspection	*An AMTS may move this subject to the end of the airframe curriculum, combine it with other elements, and teach it as a capstone inspection project.*	
	28. Perform airframe conformity and airworthiness inspections.	(3)
II. Airframe Systems and Components		
a. Aircraft landing gear systems		
	29. Inspect, check, service, and repair landing gear, retraction systems, shock struts, brakes, wheels, tires, and steering systems.	(3)
b. Hydraulic and pneumatic power systems		
	30. Repair hydraulic and pneumatic power systems components.	(2)
	31. Identify and select hydraulic fluids.	(3)
	32. Inspect, check, service, troubleshoot, and repair hydraulic and pneumatic power systems.	(3)

Area of Study	Subject Description	Teaching Level
c. Cabin atmosphere control systems		
	33. Inspect, check, troubleshoot, service, and repair heating, cooling, air conditioning, pressurization systems, and air cycle machines.	(1)
	34. Inspect, check, troubleshoot, service, and repair heating, cooling, air conditioning, and pressurization systems.	(1)
	35. Inspect, check, troubleshoot, service, and repair oxygen systems.	(2)
d. Aircraft instrument systems		
	36. Inspect, check, service, troubleshoot, and repair electronic flight instrument systems and both mechanical and electrical heading, speed, altitude, temperature, pressure, and position indicating systems to include the use of built-in test equipment. An AMTS that teaches a combined A&P curriculum may elect to combine this subject with the instruction of powerplant instrument systems.	(1)
	37. Install instruments and perform a static pressure system leak test.	(2)
e. Communication and navigation systems		
	38. Inspect, check, and troubleshoot autopilot, servos, and approach coupling systems.	(1)
	39. Inspect, check, and service aircraft electronic communication and navigation systems, including very high frequency (VHF) passenger address interphones and static discharge devices, aircraft Very high frequency Omnidirectional Range (VOR), instrument landing system (ILS), Long Range Aid to Navigation (LORAN), Radar beacon transponders, flight management computers, and ground proximity warning system (GPWS). An AMTS may also elect to instruct in GPS and integrated autoflight systems.	(1)
	40. Inspect and repair antenna and electronic equipment installations.	(2)

Area of Study	Subject Description	Teaching Level
f. Aircraft fuel systems	*An AMTS may combine appropriate elements of this material with elements of the engine fuel system instruction located in the powerplant curriculum.*	
	41. Check and service fuel dump systems.	(1)
	42. Perform fuel management transfer and defueling.	(1)
	43. Inspect, check, and repair pressure fueling systems.	(1)
	44. Repair aircraft fuel system components.	(2)
	45. Inspect and repair fluid quantity indicating systems.	(2)
	46. Troubleshoot, service, and repair fluid pressure and temperature warning systems.	(2)
	47. Inspect, check, service, troubleshoot, and repair aircraft fuel systems.	(3)
g. Aircraft electrical systems	*An AMTS may elect to combine aircraft electrical system subjects with the basic electricity subject in the general curriculum.*	
	48. Repair and inspect aircraft electrical system components, crimp and splice wiring to manufacturers' specifications, and repair pins and sockets of aircraft connectors. An AMTS may elect to increase the teaching level to 3 in repair of pins/sockets and crimping/splicing of wiring.	(2)
	49. Install, check, and service airframe electrical wiring, controls, switches, indicators, and protective devices.	(3)
	50a. Inspect, check, troubleshoot, service, and repair alternating and direct current electrical systems.	(3)
	50b. Inspect, check, and troubleshoot constant speed and integrated speed drive generators.	(1)
h. Position and warning systems		
	51. Inspect, check, and service speed and configuration warning systems, electrical brake controls, and antiskid systems.	(2)
	52. Inspect, check, troubleshoot, and service landing gear position indicating and warning systems.	(3)
i. Ice and rain control systems		
	53. Inspect, check, troubleshoot, service, and repair airframe ice and rain control systems.	(2)

Area of Study	Subject Description	Teaching Level
j. Fire protection systems	*An AMTS may teach this subject in the general curriculum to reduce teaching these subjects twice. This may only be accomplished by a school teaching a combined A&P curriculum. A school teaching airframe or powerplant separately may not follow this approach.*	
	54. Inspect, check, and service smoke and carbon monoxide detection systems.	(1)
	55. Inspect, check, service, troubleshoot, and repair aircraft fire detection and extinguishing systems.	(3)
k. Airframe inspection		
	56. Perform a capstone airframe inspection module. *This module should include research into regulations, maintenance manuals, and other relevant documentation encountered during a normal airframe inspection. The module could use the general inspection principles established in AC 43-204, Visual Inspection for Aircraft, and other relevant documents.*	(2) or (3)
	Powerplant Curriculum Subjects	
I. Powerplant Theory and Maintenance		
a. Reciprocating engines		
	1. Inspect and repair a radial engine. *An AMTS may include a discussion of basic principles only.*	(1)
	2. Overhaul reciprocating engine. *Schools may elect to limit the teaching of this subject by having students observe and participate in the overhaul of a reciprocating engine. An AMTS could instruct students in basic principles of engine design and maintenance.*	(2)
	3. Inspect, check, service, and repair reciprocating engines and engine installations.	(3)
	4. Install, troubleshoot, and remove reciprocating engines. *An AMTS could focus instruction on normal inservice maintenance such as magneto timing and exchanging cylinders.*	(3)

Area of Study	Subject Description	Teaching Level
b. Turbine engines	*Curriculum should focus on modular engines, breakdowns, disassembly, reassembly, and understanding of basic principles.*	
	5. Overhaul turbine engine.	(2)
	6. Inspect, check, service, and repair turbine engines and turbine engine installations. Curriculum should focus on common inservice maintenance issues, such as hot-section service and repair.	(3)
	7. Install, troubleshoot, and remove turbine engines.	(3)
c. Engine inspection	*This element may be combined into the capstone inspection module.*	
	8. Perform powerplant conformity and airworthiness inspections.	(3)
II. Powerplant Systems and Components		
a. Engine instrument systems	*An AMTS may combine portions of this subject with basic electricity elements in the general curriculum or aircraft instrument systems in the airframe curriculum.*	
	9. Troubleshoot, service, and repair electrical and mechanical fluid rate-of-flow indicating systems.	(2)
	10. Inspect, check, service, troubleshoot, and repair electrical and mechanical engine temperature, pressure, and revolutions per minute (rpm). indicating systems.	(3)
b. Engine fire protection systems	*An AMTS may consider teaching this subject in the general curriculum to avoid teaching the subjects twice. This may only be accomplished by a school teaching a combined A&P curriculum. A school teaching only airframe or powerplant may not follow this approach.*	
	11. Inspect, check, service, troubleshoot, and repair engine fire detection and extinguishing systems.	(3)
c. Engine electrical systems	*An AMTS may combine portions of this material with airframe or general electrical systems.*	
	12. Repair engine electrical system components.	(2)
	13. Install, check, and service engine electrical wiring, controls, switches, indicators, and protective devices.	(3)
d. Lubrication systems		
	14. Identify and select lubricants.	(2)
	15. Repair engine lubrication system components.	(2)
	16. Inspect, check, service, troubleshoot, and repair engine lubrication systems.	(3)

Area of Study	Subject Description	Teaching Level
e. Ignition and starting systems		
	17. Overhaul magneto and ignition harness. The students should be presented with the overhaul procedures and the opportunity to follow the procedures to overhaul the magneto, install and time the magneto, and install the wiring harness. They should accomplish repairs as necessary and correctly time the magneto to the engine.	(2)
	18. Inspect, service, troubleshoot, and repair reciprocating and turbine engine ignition systems and components.	(2)
	19a. Inspect, service, troubleshoot, and repair turbine engine electrical starting systems.	(3)
	19b. Inspect, service, and troubleshoot turbine engine pneumatic starting systems.	(1)
f. Fuel metering systems		
	20. Troubleshoot and adjust turbine engine fuel metering systems and electronic engine fuel controls.	(1)
	21. Overhaul carburetor. The AMT will focus on overhaul and setup of float type aircraft carburetors of proven and new designs as well as operational performance characteristics, testing, and adjustment upon installation.	(2)
	22. Repair engine fuel metering system components.	(2)
	23. Inspect, check, service, troubleshoot, and repair reciprocating and turbine engine fuel metering systems.	(3)
g. Engine fuel systems	*An AMTS may combine portions of these subjects with the airframe curriculum.*	
	24. Repair engine fuel system components.	(2)
	25. Inspect, check, service, troubleshoot, and repair engine fuel systems.	(3)
h. Induction and engine airflow systems		
	26. Inspect, check, troubleshoot, service, and repair engine ice and rain control systems.	(2)
	27. Inspect, check, service, troubleshoot, and repair heat exchangers, superchargers, and turbine engine airflow and temperature control systems.	(1)
	28. Inspect, check, service, and repair carburetor air intake and induction manifolds.	(3)
i. Engine cooling systems		
	29. Repair engine cooling system components.	(2)
	30. Inspect, check, troubleshoot, service, and repair engine cooling systems.	(3)

Area of Study	Subject Description	Teaching Level
j. Engine exhaust and reverser systems		
	31. Repair engine exhaust system components.	(2)
	32a. Inspect, check, troubleshoot, service, and repair engine exhaust systems.	(3)
	32b. Troubleshoot and repair engine thrust reverser systems and related components.	(1)
k. Propellers		
	33. Inspect, check, service, and repair propeller synchronizing and ice control systems.	(1)
	34. Identify and select propeller lubricants.	(2)
	35. Balance propellers.	(1)
	36. Repair propeller control system components.	(2)
	37. Inspect, check, service, and repair fixed-pitch, constant-speed, and feathering propellers, and propeller governing systems.	(3)
	38. Install, troubleshoot, and remove propellers.	(3)
	39. Repair aluminum alloy propeller blades.	(3)
l. Unducted fans	*An AMTS can discuss basic principles briefly by lecture.*	
	40. Inspect and troubleshoot unducted fan systems and components.	(1)
m. Auxiliary power units		
	41. Inspect, check, service, and troubleshoot turbine-driven auxiliary power units.	(1)
n. Powerplant inspection		
	42. Perform a capstone powerplant inspection module. This module may include research into regulations, maintenance manuals, and other relevant documentation encountered during a normal powerplant inspection. The module may also include evaluation of powerplant performance in a test cell.	(2) or (3)

APPENDIX 6. ADDITIONAL COURSE MATERIAL RECOMMENDATIONS

The introduction of technological advances in aircraft, powerplants, and associated systems presents an ever changing need for adequately trained AMTs to meet aviation industry needs. Although the current regulations do not require it, a significant number of AMTSs are establishing these courses to satisfy industry demands. Following are some examples of courses offered:

1. Composite Material Repair. A composite repair course can be as simple as teaching fiberglass repair using prepackaged student instruction kits available from various sources, or as complex as a full scale repair facility. Full-scale composite repair facilities teach and repair many types of composite materials, such as fiberglass, Kevlar, boron, and carbon materials. Instructional aids and shop equipment can include clean rooms, downdraft worktables, positively vented rooms, composite autoclaves, refrigerated material storage, and various aircraft composite structures for instruction. Some AMTSs offering composite repair courses combine a nondestructive inspection course along with the basic course.

2. Nondestructive Inspection. A nondestructive inspection course that teaches beyond the requirements of 14 CFR part 147 (for example, magnetic particle) generally includes training in radiography (x-ray), ultrasound, eddy current inspection, and borescope techniques. Information on and equipment for nondestructive inspection course development are widely available from commercial sources.

3. Solid-State Electronics/Avionics/Built-In Test Equipment (BITE). Many AMTSs currently offer enhanced training or stand-alone course work leading to an electronics subspecialty in addition to an FAA A&P mechanic certificate. The specialized subject matter for these courses may be incorporated into existing required AMTS courses, such as basic electricity and basic physics. Course material, curriculums, and laboratory and shop equipment are readily available from commercial sources.

4. Principles of Troubleshooting. Broad-based principles of troubleshooting are well known and may be available commercially or developed by the school. An AMTS should focus on logical approaches to solving common aircraft problems. An AMTS may also include hands-on workshops using simulated aircraft system malfunctions.

5. Human Factors. Human factors principles should be incorporated throughout an AMTS's curriculum as the mechanic written examination contains test questions on human factors. Many training programs are available commercially. The FAA also maintains a list of human factors reference materials at http://www.faa.gov/about/initiatives/maintenance_hf.

6. Service Difficulty Reports (SDR). A key component to the proper reporting of service difficulties is the maintainer. Part 147 AMTSs should cover the importance of service difficulty reporting when addressing the requirements of part 147 appendix B, section i, "maintenance forms and records," in the general curriculum. The SDR program is an information system designed to provide assistance to aircraft owners, operators, maintenance organizations, maintainers, manufacturers, and the FAA with the identification of aircraft problems encountered during service. The SDR program provides for the collection, organization, analysis, and

dissemination of aircraft service information to improve service reliability of aeronautical products. The FAA requests the cooperation of all aircraft owners, operators, mechanics, pilots, and others in the reporting of service difficulties experienced with airframes, powerplants, propellers, and components.

APPENDIX 7. SAMPLE CURRICULUM OUTLINES

Chapter 2 states that curriculum development may evolve from several developmental stages. An example of working through a curriculum is found in samples 1, 2, and 3 below. The first stage in curriculum development is the evaluation of performance goals and prominent issues that the applicant should grasp. The Allen Study is one example that demonstrates how these issues could be developed. The Allen Study makes general recommendations as to the hours of instruction, the teaching level, and the performance standards required of the student, but each AMTS must assign these values according to its own requirements and, in the case of teaching levels, the requirements of 14 CFR.

Sample 1 is an excerpt from the Allen Study.

SAMPLE 1. STAGE 1, THE ALLEN STUDY

THE NATIONAL STUDY OF THE AVIATION MECHANICS OCCUPATION
Part 147 Appendix B, Subject F, Ground Operation and Servicing

Item 21. Identify and Select Fuels.

Identify Aircraft Fuels

Student Performance Goal

- Given: Aircraft operator's manual, a list of colors and octane rating ranges, and a fuel system of an airplane.
- Performance: The student will obtain fuel samples from the fuel system of an airplane and verify that the fuel at least equals the minimum required octane rating. The student will associate each color with the correct octane range, describe how volatility is related to vapor lock, and discuss the advantages and limitations of kerosene as a turbine fuel.
- Standard: Matching of color to octane rating will be 100 percent correct.

KEY POINT	FEEDBACK
Significance of octane/performance number in identification of fuel.	▪ What is iso-octane? ▪ What is normal heptane? ▪ How do these produce the octane number? ▪ Why are performance numbers used when a fuel exceeds 100 octane rating? ▪ What is the significance of the second number in fuel rating that is, 100/130? ▪ What happens if the octane rating is a. Too low? b. Too high? ▪ Which is more critical? ▪ How is the minimum octane rating of fuel for each engine installation determined?

KEY POINT	FEEDBACK
Color identifying octane performance number.	▪ What colors are used in identification of fuels? ▪ Do they adversely affect combustion? ▪ How do colors aid in detecting leaks?

SAMPLE 2. STAGE 2, CONTINUING CURRICULUM DEVELOPMENT

The following sample shows an example of the second stage in developing a curriculum. It addresses the same subject area as stage 1 but it also defines the amount of instruction time, the specific 14 CFR section addressed, the teaching level, and the performance standard the student is expected to achieve. However, testing and grading criteria are not yet developed.

DEPLANE AMTS
Part 147, Appendix B, Subject F, Ground Operation and Servicing

Unit Title: Identify and Select Fuels. Subject Item 21.
Teaching Level: 2

Classroom teaching time	2.5 hours
Laboratory or shop time	2.5 hours
Instructional time	5 hours

Identify Aircraft Fuels
Given: Aircraft operator's manual, a list of colors and octane rating ranges, and fuel samples or illustrations.
Student Performance: The student will obtain fuel samples and/or aircraft specifications. The student will associate each color with the correct octane range according to aircraft specifications, describe how volatility is related to vapor lock, and discuss how octane ratings affect engine performance.
Standard: Matching of color to octane rating will be 100 percent correct.

SAMPLE 3. STAGE 3, COMPLETE CURRICULUM ELEMENT

The following sample on the subject of aircraft cleaning and corrosion control contains all the elements required to teach, test, and conform to the rule. It is not intended to be an expansive text. It is a short outline of elements expected in the final curriculum product. Sample 3(A) describes the typical contents of a single subject element, and samples 3(B) through 3(E) provide information on practical projects, tests, and grading criteria.

DEPLANE AMTS
Part 147 Appendix B, Subject G

Subject: Cleaning and Corrosion Control

Item 23. Perform Aircraft Cleaning and Corrosion Control

Classroom time	3 hours
Laboratory or shop time	2 hours
Total time	5 hours

(Sample 3(A))	Curriculum Subject Guide
(Sample 3(B))	Practical Project Guide
(Sample 3(C))	Theory Test
(Sample 3(D))	Practical Test
(Sample 3(E))	Practical Project Grading Criteria

SAMPLE 3(A). CURRICULUM SUBJECT GUIDE

In a typical curriculum, the elements included in this subject guide may be separated or combined in different ways. The following teaching items should be identified in a written description narrative as part of an FAA-approved AMTS curriculum.

(1) Introduction and subject element objectives (purpose).

(2) Instructors' guide (teaching outline).

(3) Technical information and equipment — references (manuals, tools, materials).

(4) Workbooks or other guidance for classroom, laboratory, and shop (procedures).

Sample 3(B), Practical Project Guide, demonstrates how teaching items 1 through 4 may be incorporated into practical project requirements.

NOTE: These teaching items may appear in any format as long as the description narrative is in sufficient detail to explain the item completely, and should be present in all subject elements, both theory and practical projects. For example, the instructors' guide/teaching outline may be combined with procedures. In some cases, certain items' outlines may be combined with procedures. Many other concepts also are in common usage.

SAMPLE 3(B). PRACTICAL PROJECT GUIDE

The following is a sample practical project guide (Guide for General Curriculum Subject Item 23, Perform Aircraft Cleaning and Corrosion Control). When preparing a practical project guide, instructions should be accompanied by photographs, diagrams, or technical illustrations showing methods and techniques expected of the student, as applicable.

DEPLANE AMTS
Practical Project Guide for General Curriculum Subject Item 23
Part 147, Appendix B, Subject G

Item 23. Perform Aircraft Cleaning and Corrosion Control

Purpose: To acquaint the student with emulsion-type cleaners and processes associated with the proper cleaning of exterior aircraft components.

References:

(1) Appropriate FAA ACs.
(2) Product information on cleaners, lubricants, waxes, and aircraft or component manufacturer's service information.
(3) Aircraft or component manufacturer's service information.

Equipment and Tools Needed:

(1) Water supply and bucket.
(2) Brush, sponge, and soft, clean rags.
(3) Component to be cleaned.

Supplies and Materials Needed:

(1) Emulsion-type cleaner (an emulsion cleaner of MIL-C-125769 specifications will be satisfactory).
(2) Water displacing lubricant and corrosion inhibitor.
(3) Paste or liquid wax suitable for aircraft exterior.

Procedure:

(1) Assemble all materials.
(2) Chock main wheels.
(3) Prepare aircraft: Close aircraft windows and vent doors, and cover static port and pilot tube.
(4) Install all maintenance struts or locking devices.
(5) Remove all electrical power from aircraft.
(6) Read the aircraft or component manufacturer's cleaning instructions.
(7) Read the manufacturer's cleaning instructions.
(8) Mix cleaner with the appropriate amount of water.
(9) Prerinse aircraft with water to eliminate dirt. See Figure A6–1.

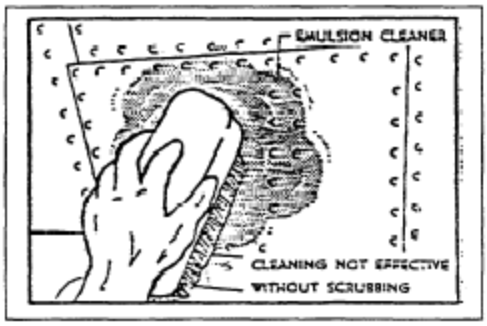


Figure A6–1. Prerinse Aircraft

NOTE: Certain areas may require light scrubbing with a soft bristle brush.

(10) Systematically apply premixed cleaner and water to small areas working from the top down using rags wet with solution. See Figure A6–2.

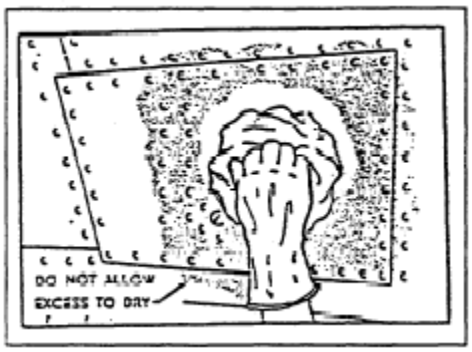


Figure A6–2. Apply Premixed Cleaner

(11) Rinse component and lubricate and/or spray corrosion inhibitor on all areas according to aircraft manufacturer's instructions. Wax as appropriate. See Figure A6–3.

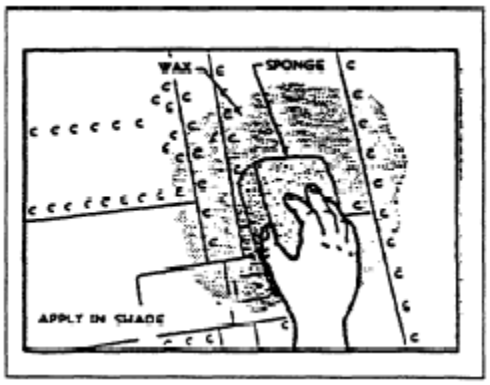


Figure A6–3. Rinse and Apply Corrosion Inhibitor

SAMPLE 3(C). THEORY TEST

DEPLANE AMTS TEST
Aircraft Cleaning and Corrosion Control Theory Test
Part 147, Appendix B, Subject G

Item 23. Determining Students' Knowledge of Aircraft Cleaning and Corrosion Control

THEORY TEST

A. Complete these factual statements related to corrosion:

1. Electrochemical process that can reduce aluminum alloys to powder:_____.
2. Sheet metal construction formed by laying one piece partly over another piece at the edge:
_____.
3. Cleaner that mixes with water or solvent in an emulsion:_____.

B. Based on information you have learned, describe the type of aircraft structural corrosion shown in the illustrations below:

1._____

2._____

NOTE: The sample theory test outlined here is very limited in scope and is intended only to serve as an example. An actual theory test would necessarily have to be more comprehensive to address the key points related to this subject.

SAMPLE 3(D). SAMPLE PRACTICAL TEST

DEPLANE AMTS PRACTICAL TEST
Part 147, Appendix B, Subject G

Item 23. Perform Aircraft Cleaning and Corrosion Control

PRACTICAL TEST 1: CORROSION CONTROL

Moisture held in contact with a metal surface by an accumulation of dirt or grease is a significant cause of corrosion. Therefore, cleanliness of the exterior surface of the aircraft is one of the best methods to control corrosion. If the surface can be kept reasonably dry and clean, corrosion has little chance of getting started. The essence of corrosion control is prevention rather than removal.

The student will be provided with an aircraft component showing evidence of corrosion.

The practical test for this subject consists of the following steps:

A. Identify part to be inspected.

B. Identify type of corrosion.

C. Use reference materials and technical publications.

D. Discuss the corrosion control process to be used for this specific type of corrosion.

E. List cleaning and corrosion preventive chemical to be used.

F. Correctly perform mechanical corrosion removal.

G. Correctly apply corrosion preventive.

H. Correctly apply primer coating.

SAMPLE 3(E). PRACTICAL PROJECT GRADING CRITERIA

There are no established FAA criteria for grading completed practical projects. No matter which method an AMTS applicant uses, whether to the one shown here or a method the school is choosing, the grading should be objective and repeatable. The grading method should reflect both the required teaching level of the subject and the subject proficiency requirements (for example, a student may be required to construct, adjust, or overhaul). An AMTS should avoid assigning points for student "good grooming" and "most improved" student, since they do not directly relate to the accomplishment of a practical project and are subjective in nature. Although many different methodologies are employed for grading practical projects, AMTS practical project grading systems previously approved by the FAA may be broadly grouped into three general methods.

Method A. In this method, practical projects are graded by establishing grading standards for job accomplishment or completeness, work performance or workmanship (airworthiness), verbal knowledge, and development of professional AMT skills. Typically, method A assigns more weight to some skill elements in a project than others. It also may assign numerical grades to each project element. See method A grading example.

Method B. This method grades projects on a more specific criteria, such as competency in general skills and degree of skill accomplishment for specific elements and critical aspects of the task. For example, grade points, such as superior or average, may be assigned for the competency of the student's work. Additional points may be assigned for specific elements of the project, such as the use of correct procedures, proper reference materials, overall airworthiness, completion to a return to service condition, or on-time completion. Further, certain project tasks or portions of a practical project may be considered "must pass" items, requiring 100 percent conformity with FAA airworthiness standards. See method B grading example.

Method C. This type of grading procedure is more suitable for practical projects in which a component is fabricated, for example, subjects such as welding or sheet metal. For these projects, grading criteria can be clearly defined by measurement of the completed project, such as sheet metal patch size, rivet size and pitch, weld quality, and fillet configuration. This method is less suitable and less frequently used for practical projects involving the development of manipulative skills in projects such as gear retraction mechanism adjustments and engine troubleshooting. See method C grading example.

METHOD A

The following section presents an example of the practical project grading criteria as shown in method A. In this case, the project to be graded is from Sample 3(D), Practical Test 1: Corrosion Control.

SUBJECT ELEMENTS	GRADE POINTS
A. Identification of part to be inspected	10
B. Identification of type of corrosion	10
C. Selection of correct reference data	5
D. Verbal knowledge of corrosion control process	5
E. Performance of corrosion removal	50
F. Performance of preventive measures	5
G. Performance of primer application	5
H. Job completeness (includes cleanup)	5
I. Workmanship (airworthiness)	5
TOTAL POINTS POSSIBLE	100
Minimum Passing Grade	70

NOTE: The selection of numerical values for each subject element is left to the discretion of the school. In this case, the actual performance of the corrosion removal process is considered the most important element, and failing this section (that is, no points) prevents a student from passing this project. In most cases, an AMTS will choose to assign more weight to areas considered critical.

METHOD B

This section presents an example of the practical project grading criteria as shown in method B. In method B, the grading criteria are more specific than in other methods shown. In this method, student performance is graded on a scale from failure to superior. Although the example here shows a limited student performance range, some schools may choose to develop more elaborate criteria.

(1) Consider the following student performance grade scale:

F	=	Failure of element by student	=	0	points
P	=	Passing to standard by student	=	1	point
S	=	Superior performance by student	=	2	points

(2) Within each practical project, a value is assigned to each project step or element. In this example, the value for any specific element ranges from 5 to 20, in increments of 5.

(3) In this example, certain elements of the project are “must pass” items. All “must pass” project elements are to be completed to the approved standard to successfully finish the practical project.

> **NOTE: Not all projects within a curriculum may use “must pass” items; however, the practice is widespread in AMTS grading systems.**

(4) In this example, it is possible to successfully complete this practical project by failing an element of the project. However, the other elements would have to have superior performance and all the “must pass” items would have to be successfully completed.

(5) This method of project grading is accomplished as follows. The grade that a student achieves on the performance scale for each subject element is multiplied by the value of the subject element to determine the points a student can achieve on each subject element. As an example, on one subject element, a student passes to the grading standard and achieves a grade of P, which equals 1 point. If the subject element has a value of 5 points, the grade points on this element are 1 x 5 = 5 grade points. If the student achieves a superior performance, or S, which equals 2 points, the grade points on this element would be 2 x 5 = 10 grade points.

In this example, the project to be graded by method B is the same one shown in method A, Practical Test 1: Corrosion Control.

NOTE: Project elements with an asterisk (*) are "must pass" items. Project element values are shown in parentheses.

Performance scale values are Fail = 0, Pass = 1, Superior = 2.

SUBJECT ELEMENTS	PERFORMANCE SCALE	GRADE POINTS
A.* Identification of part to be inspected		Pass
B.* Identification of type of corrosion		Pass
C. Selection of correct reference data (5)	1	5
D. Verbal knowledge of corrosion control process (10)	1	10
E.* Performance of corrosion removal		Pass
F. Performance of preventive measures (20)	1	20
G. Performance of primer application (20)	1	20
H. Finish application (5)	1	5
I. Job completeness (includes cleanup) (10)	1	10
J. Workmanship (airworthiness) (10)	1	10
TOTAL POINTS		80
Minimum Passing Grade		80 points

The maximum number of points possible would be 160, indicating fully superior performance. In the example shown, the student has received a passing grade for each subject element, resulting in a grade of 80.

METHOD C

The following example shows how an AMTS might grade a practical project using method C. As stated before, this system is more suitable for practical projects where a student constructs a piece of hardware, that is, sheet metal, wood, fabric, or welding.

Method C, Practical Test 1: Repair Aircraft Structures Built From Sheet Metal

INSTRUCTION 1: STUDENT WILL ACCOMPLISH A SHEET METAL REPAIR BY PATCHING A DAMAGED WING RIB SECTION.

In this case, a drawing or blueprint of the patch should be supplied to the student. The drawing will show the size, shape, thickness, and other details of the patch to be made. The student will be expected to correctly use the rivet size, rivet pitch, edge distance, and other criteria shown on the drawing. For example, if the grading standard at the AMTS is 70 percent, at least 70 percent of the rivets, patch sizes, shapes, and other criteria must meet the drawing specifications. In addition, points may be subtracted for general workmanship, scribe marks, scratches, riveting damage, and other workmanship that may detract from airworthiness. In many cases, the criteria may be simply a pass/fail type based on the drawing specifications.

INSTRUCTION 2: STUDENT WILL ACCOMPLISH THE FOLLOWING STEPS TO THE APPROVED STANDARD USING THE SUPPLIED DRAWING.

A. Determine size and shape of patch.

B. Plan and layout rivet patterns.

C. Select proper number and types of rivets.

D. Use proper riveting techniques on repairs.

E. Perform all work to an airworthy standard.

F. Unless otherwise stated, conform all work to the criteria specified in the current edition of FAA AC 43.13-1, Acceptable Methods, Techniques, and Practices — Aircraft Inspection and Repair.

AMTSs may use several different types of grading systems to grade practical projects as can be seen from the information discussed in these methods. In fact, an AMTS may use several different grading methods in the curriculum, depending on the types of practical projects to be evaluated. However, regardless of which method or methods a school elects to use, the grading methods must be clearly described in the curriculum.

APPENDIX 8. MAINTENANCE OF THE GENERAL CURRICULUM

AMTSs are encouraged to keep the subjects within the curriculum areas shown in part 147, appendices B, C, and D. When subjects are taught in the areas shown in the appendices, it is not difficult for the FAA to determine whether all the required subjects for a particular rating are taught. This practice is recommended to ensure a school can also determine clearly that all required subjects are taught, particularly when a school offers more than one rating. For example, consider the following sample curriculum development cases.

AMTS XYZ and AMTS ABC are two schools that hold the same rating, in this case, airframe.

CASE 1: AMTS XYZ is an approved school with an airframe rating and teaches all required general subjects within the general curriculum.

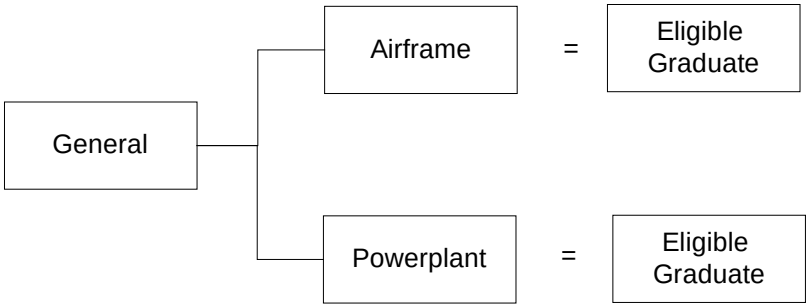
General curriculum subjects G1, ... G33	+	Airframe curriculum subjects A1, ... A55	=	Student graduates; eligible for airframe certificate

CASE 2: AMTS ABC has an airframe rating only and teaches all required general subjects mixed with subjects from the airframe curriculum.

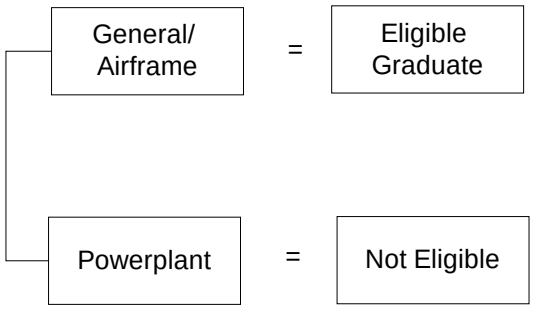
General curriculum subjects G1, ... G30	+	Airframe curriculum subjects A1, ... A55 + G31, G32, G33	=	Student graduates; eligible for airframe certificate

Both schools now elect to add a powerplant rating:

CASE 3: AMTS XYZ



CASE 4: AMTS ABC



A student at school ABC taking only the powerplant curriculum would not be eligible for graduation from the powerplant curriculum because some of the required general subjects are in the airframe curriculum and would be missed if the student took only the powerplant curriculum. To properly graduate students in the powerplant curriculum, AMTS ABC would be required to either teach a parallel set of the missed general subjects in the powerplant curriculum, or teach all general subjects only in the general curriculum. From an administrative standpoint, the most desirable method is to teach all general subjects in the general curriculum (cases 1 and 3).

APPENDIX 9. SAMPLE FACILITY LAYOUT

FIGURE A9-1. FACILITY LAYOUT, AREA 1

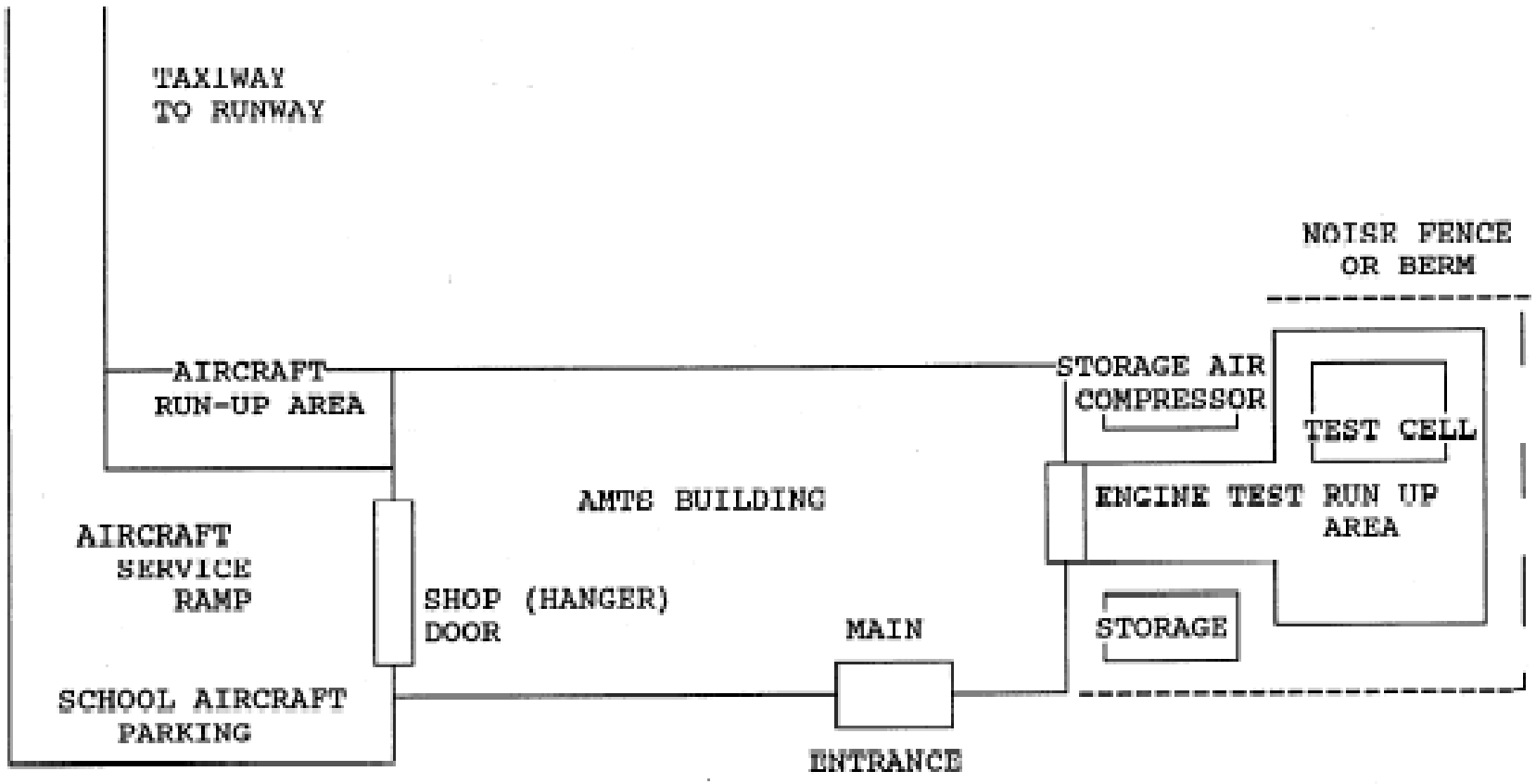
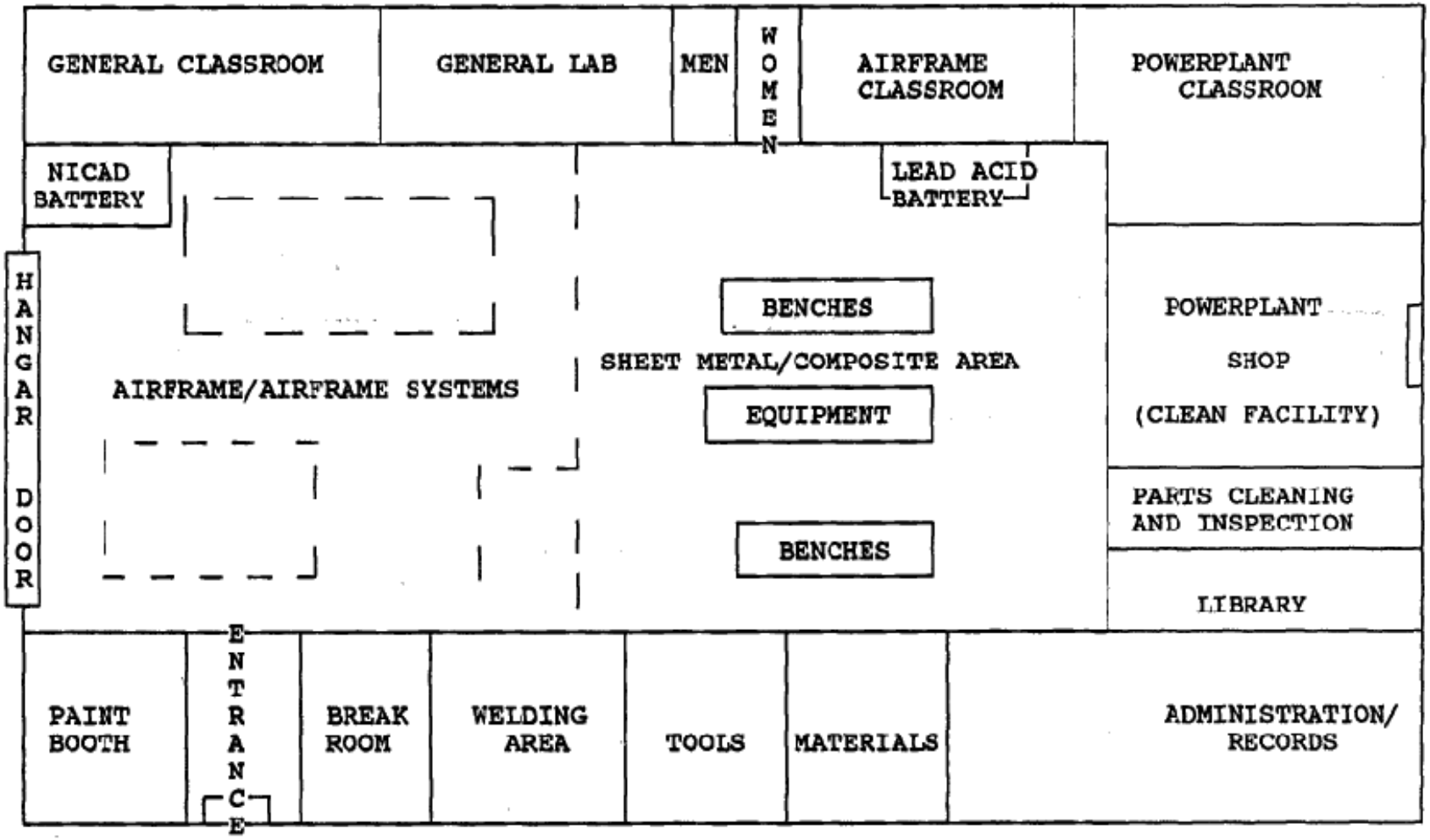
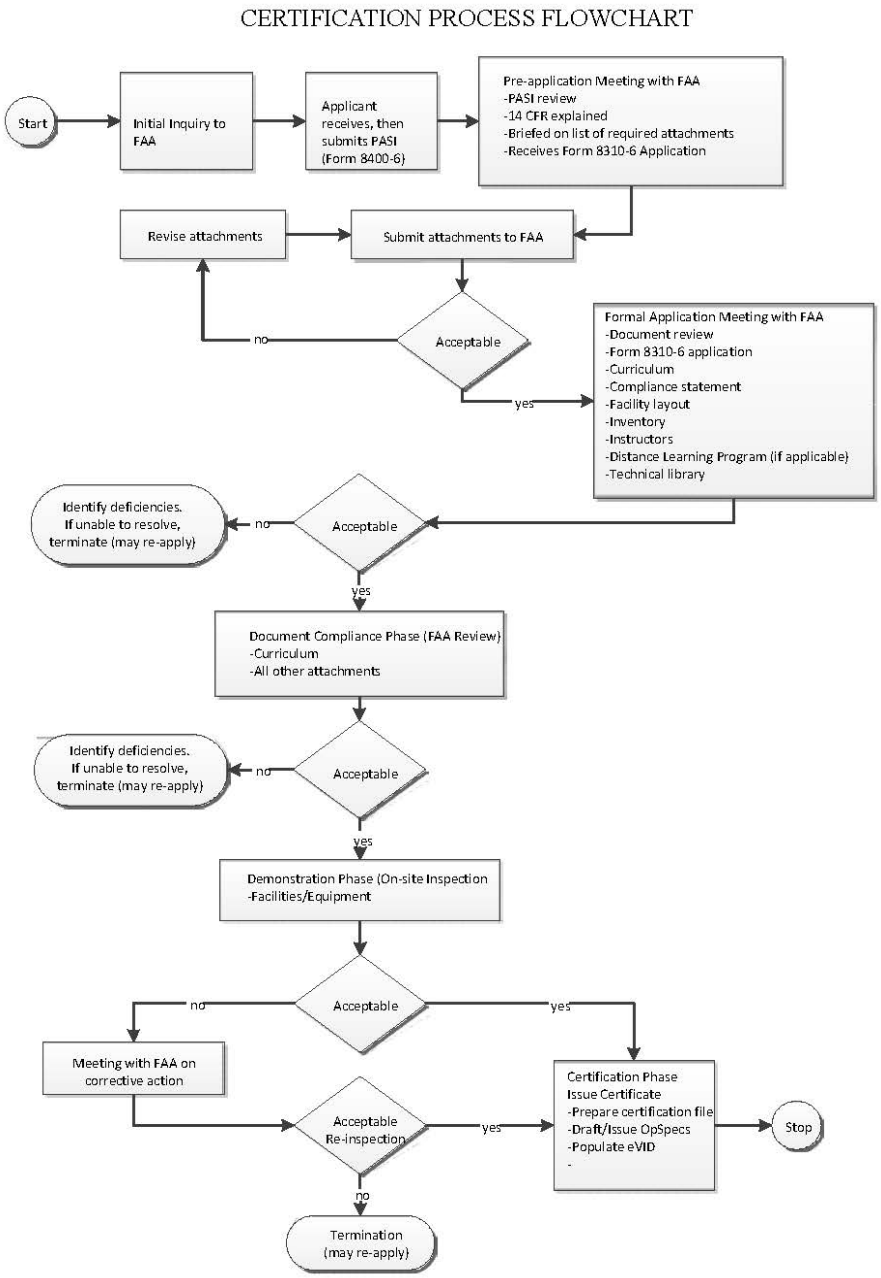


FIGURE A9-2. FACILITY LAYOUT, AREA 2



APPENDIX 10. CERTIFICATION PROCESS FLOWCHART



Page 1

APPENDIX 11. DISTANCE LEARNING:

A. Background. A form of information sharing for educational purposes using computer systems instead of the traditional classroom has become known as distance learning (also known as e-learning, home study, self-guided training, virtual classroom, distributed training, computer-based training (CBT), Web-based training (WBT), etc.). Distance learning systems are being effectively utilized by accredited universities and approved air carrier training programs as a low-cost alternative that allows for flexible scheduling and location settings. Distance learning is a welcome addition to any Aviation Maintenance Technician School (AMTS) curriculum.

B. Distance Learning Program Requirements. A distance learning program will ensure compliance with all 14 CFR part 147 requirements, including curriculum approval as required by part 147, § 147.37. Issuance of operations specification (OpSpec) A026 is required prior to conducting distance learning. Specifically, an acceptable distance learning program will include written policy and procedures describing:

(1) How the distance learning program will be administered;

(2) A description of the examination and testing process;

(3) Methods for ensuring the integrity of student work and compliance with FAA minimum standards, as listed in part 147 appendices A, B, C, and D;

(4) Procedures for proctoring computer-based exams in a remote location;

(5) Procedures to ensure distance learning course records are kept in compliance with the approved curriculum;

(6) A description of the technology hardware and software to be utilized;

(7) Proper identification of courses available through distance learning;

(8) A sophisticated electronic Learning Management System (eLMS) to track all aspects of the distance learning program, including attendance, participation, and performance (including comparisons to traditional classroom test scores and completion rates); and

(9) FAA “read only” access to the eLMS (to facilitate surveillance).

C. Program Creation.

(1) Not all courses are suitable for distance learning. Criteria for determining what subject matter may be provided through distance learning includes:

- Subjects that have historically been taught through lecture or written papers;
- The level of computer competency required for successful completion of a course delivered via distance learning;

- The amount of in-person work required, such as lab work; and
- A system and methods to be used for timely and appropriate interaction between students and instructor(s).

(2) An AMTS may design a combination distance learning and onsite format for courses that require in-person session(s), such as lab work and testing.

(3) Distance learning curriculum may also be made available as an in-person course.

D. Evaluation, Testing, and Assessment.

(1) Testing for students participating in distance learning activity can be a special challenge. Testing can be accomplished through a variety of methods, including:

- Oral evaluation;
- Practical exercises on desktop computers or specialized part-task training devices;
- Paper-based; or
- Computer-based exams proctored by an evaluator.

NOTE: Proctored exams (testing) at a remote location may only be accomplished within the facilities of another active AMTS or accredited educational institution, or through an approved remote proctoring system. The procedure must be documented in a written agreement between each participating AMTS while holding the originating part 147 school responsible for all aspects of the test.

(2) The testing method used and the types of questions employed should suit the objectives to be tested and the demographics of the target population. Keep in mind that knowledge objectives are typically assessed by written, electronic, or oral testing.

(3) Skill objectives are typically assessed by a combination of written, electronic, oral testing, and through task performance demonstration. Skill elements utilizing specialized tools and equipment or any form of measurement device, therefore, are not suitable for accomplishment within the distance learning approval process.

E. Other Considerations for Distance Learning.

(1) Reliability & Availability. A distance learning system must have sufficient redundancy and fault tolerance capability to provide continuous availability of required training materials 24 hours per day, 7 days per week (barring scheduled system maintenance outages).

(2) Security. Access to the eLMS should be limited to authorized personnel of the AMTS, students, and FAA (read only).

(a) The certificate holder may choose to allow various users to access the system via different methods, links, and times. Access rights must be controlled by a system administrator. The certificate holder's security plans must describe how the system will recognize and deal with attempted unauthorized access.

(b) Care should be exercised to ensure that system security is adequate to ensure proper protection of materials and users, but not so rigid that it impacts the ability for training management and training development personnel to efficiently accomplish their duties. Deficiencies found within the distance learning program during surveillance must be identified and brought to the attention of the AMTS for necessary correction. An AMTS with approval to conduct distance learning must continually operate to meet the requirements of the approved distance learning program to enable continued approval authorization to conduct distance learning.

APPENDIX 12. EXPLANATION OF A "LETTER OF COMPLIANCE," I.E., STATEMENT OF COMPLIANCE

Subject: Letter of Compliance

Authority for Letter of Compliance. Title 49 USC, Section 44702, issuance of certificates provides the Administrator the authority to prescribe the form and content of applications and certificates.

Purpose of the Letter of Compliance. The letter of compliance must describe how the applicant complies with each individual section of 14 CFR part 147.

The sequence should be the same as the regulations. The letter should be reviewed to determine that the applicant has a clear understanding of the regulations which will be applicable to the proposed operations. The manner in which the applicant describes compliance with the specific regulation should be reviewed for adequacy. Deficiencies should be discussed with the applicant, and an acceptable letter of compliance submitted.

Explanation of the "Compliance Statement"

To benefit the applicant, the compliance statement ensures that all applicable regulatory requirements are addressed during the certification process. The compliance statement must list each part 147 section and provide a brief narrative or a specific reference to a manual or other document describing the planned method of compliance with the regulation.

This document serves as a template for applicants to complete a properly formatted and comprehensive Compliance Statement. As is required in the Compliance Statement, each applicable part 147 section is listed below. Following each section, the template provides sample responses (in italics) which may assist the applicant in crafting a complete response. References to specific documents, training equipment, and school personnel are for illustrative purposes, and should not be construed as the only approved methodology for school compliance.

Compliance Statement for
[Applicant Name]
[Date]

This document provides the manner in which [Applicant] intends to comply with the provisions of part 147.

Subpart A—General

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.

[Applicant] is prepared to comply with all part 147 requirements and general operating rules, as defined in this document, the [Applicant] Operations Manual, and Curriculum and/or other [Applicant] publications.

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

[Applicant] attests that will not operate or represent itself as a certificated school without proper certification issued under this part.

147.5 Application and issue.
(a) An application for a certificate and rating, or for an additional rating, under this part is made on a form and in a manner prescribed by the Administrator, and submitted with—

[Applicant] seeks certification for the combined Airframe and Powerplant Rating and is submitting the following:

(1) A description of the proposed curriculum;

[Applicant] has submitted as part of its application materials a copy of the document labeled as Curriculum Manual. A description of the curriculum is found in Section [X] of the Curriculum Manual.

(2) A list of the facilities and materials to be used;

The description of the [Applicant] facility and a listing of tools and equipment have been attached to the FAA Form 8310-6 application. See Attachment [X].

(3) A list of its instructors, including the kind of certificate and ratings held and the certificate numbers;

The listing of instructors, including certificates and ratings held has been attached to the FAA Form 8310-6 application. See Attachment [X]. The list of active instructors is maintained by the [Applicant] Director and is available for FAA inspection at any time. See Operations Manual page [X].

(4) A statement of the maximum number of students it expects to teach at any one time.

[Applicant's] program will have a maximum enrollment of [X] day students and [X] night students as stated on the application Form 8310-6.

(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 interests of safety.

[Applicant] shall operate the school according to the policies and procedures presented in the Operations Manual which is a part of this submission.

147.7 Duration of certificates.

(a) An aviation maintenance technician school certificate or rating is effective until it is surrendered, suspended, or revoked.

[Applicant] recognizes that the aviation maintenance technician school certificate is effective until it is surrendered, suspended or revoked, and will comply with the requirements of this section.

(b) The holder of a certificate that is surrendered, suspended, or revoked, shall return it to the Administrator.

In the event that [Applicant's] certificate is surrendered, suspended, or revoked, the certificate shall be returned to the Administrator.

Subpart B—Certification Requirements

147.11 Ratings.

The following ratings are issued under this part:

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

[Applicant] seeks the Airframe and Powerplant rating.

147.13 Facilities, equipment, and material requirements.

An applicant for an aviation maintenance technician school certificate and rating, or for an additional rating, must have at least the facilities, equipment, and materials specified in §§ 147.15 to 147.19 that are appropriate to the rating he seeks.

[Applicant's] school is set to be located at [Address]. Drawings [and/or photographs] of the facility have been attached to the application package as Attachment [X]. This facility shall house all classroom, reference library, lab and shop facilities.

As a certified AMTS, [Applicant] will have and continue to maintain facilities, equipment and materials specified in §§ 147.15 through 147.19 of the regulation. For detailed information, refer to page [X] of the Operations Manual.

147.15 Space requirements.

An applicant for an AMTS certificate and rating, or for an additional rating, must have such of the following properly heated, lighted, and ventilated facilities as are appropriate to the rating he seeks and as the Administrator determines are appropriate for the maximum number of students expected to be taught at any time:

[Applicant's] facility has been designed to meet the requirements of this part. All areas [are/shall be] properly heated, lighted and ventilated and [are/shall be] appropriate for the number of students indicated in this submission.

(a) An enclosed classroom suitable for teaching theory classes.

[Applicant's] facility [provides/shall provide] two separately enclosed, fully equipped classrooms, with additional classroom/lab space being designated for specific portions of the curriculum.

(b) Suitable facilities, either central or located in training areas, arranged to assure proper separation from the working space, for parts, tools, materials, and similar articles.

[Applicant] will maintain separate tool and material storage areas, as well as appropriate storage cabinets and bins for each lab/shop area.

(c) Suitable area for application of finishing materials, including paint spraying.

A portion of the shop area will be segregated and ventilated whenever finishing materials are in use. Particular attention will be paid to comply with local, state and federal regulations regarding finishing materials.

(d) Suitable areas equipped with washtank and degreasing equipment with air pressure or other adequate cleaning equipment.

A parts cleaning station equipped with a solvent wash tank and compressed air is installed in the lab/shop area.

(e) Suitable facilities for running engines.

An engine run area is provided outside the shop/lab area. Access to the area is provided by personnel doors and rolling hangar doors large enough to move engines, engine stands and aircraft through.

(f) Suitable area with adequate equipment, including benches, tables, and test equipment, to disassemble, service, and inspect.

All lab/shop areas are equipped with adequate equipment, benches, tables and specialized tools to disassemble, service and inspect all components and systems listed in the curriculum. A listing of tools and equipment is attached to the application form. See Attachment [X].

(1) Ignition, electrical equipment, and appliances;

A supply of magnetos, turbine engine ignition components, starters, generators and other electrical equipment and appliances is present in the lab/shop areas and mounted on system trainers.

(2) Carburetors and fuel systems;

A supply of float and pressure carburetors, fuel injection system components is available for student use.

(3) Hydraulic and vacuum systems for aircraft, aircraft engines, and their appliances.

A supply of hydraulic and vacuum system components for aircraft, aircraft engines and their appliances are available for student use.

(g) Suitable space with adequate equipment, including tables, benches, stands, and jacks, for disassembling, inspecting, and rigging aircraft.

The designated shop area provides suitable space and contains adequate equipment for disassembling, inspecting and rigging aircraft.

(h) Suitable space with adequate equipment for disassembling, inspecting, assembling, troubleshooting, and timing engines.

The lab/shop areas provide suitable space and contain adequate equipment for disassembling, inspecting, assembling, troubleshooting, and timing engines.

147.17 Instructional equipment requirements.

(a) An applicant for a mechanic school certificate and rating, or for an additional rating, must have such of the following instructional equipment as is appropriate to the rating he seeks:

The instructional equipment to be used by [Applicant] is included as Attachment [X] to the application form. The equipment meets the needs of the required standards defined in this section of the Rule for type and quantity required for the maximum number of students to be approved.

(1) Various kinds of airframe structures, airframe systems and components, powerplants, and powerplant systems and components (including propellers), of a quantity and type suitable to complete the practical projects required by its approved curriculums.

A variety of airframe structures, airframe systems and components, powerplants, and powerplant systems and components, including propellers is available for student use. They are of a quantity and type suitable to complete the practical projects required by the approved curriculum.

(2) At least one aircraft of a type currently certificated by FAA for private or commercial operation, 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.

A(n) [Aircraft Make and Model] shall serve to meet the specific requirements of 147.17 (a) (2).

(b) The equipment required by paragraph (a) of this section need not be in an airworthy condition. However, if it was damaged, it must have been repaired enough for complete assembly.

The [Aircraft Make and Model] is complete and operational.

(c) Airframes, powerplants, propellers, appliances, and components thereof, on which instruction is to be given, and from which practical working experience is to be gained, must be so diversified as to show the different methods of construction, assembly, inspection, and operation when installed in an aircraft for use. There must be enough units so that not more than eight students will work on any one unit at a time.

The Operations Manual establishes class size and requires the school to schedule classes in such a way that no more than eight (8) students will be required to work on any one piece of equipment at the same time (147.17(c)). See Operations Manual, page [X].

(d) If the aircraft used for instructional purposes does not have retractable landing gear and wing flaps, the school must provide training aids, or operational mock-ups of them.

The [Aircraft Make and Model] to be used for instructional purposes has retractable landing gear and wing flaps (147.17 (d)). Additional aircraft and mock-ups shall also be available to meet this requirement.

147.19 Materials, special tools, and shop equipment requirements.
An applicant for an aviation maintenance technician school certificate and rating, or for an additional rating, must have an adequate supply of material, special tools, and such of the shop equipment as are appropriate to the approved curriculum of the school and 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 the purpose for which they are to be used.

The inventory of tools and equipment is included as Attachment [X] to the application form. Training shall be performed to at least the indicated level of proficiency as defined in Appendix A of part 147. Equipment will be maintained in satisfactory working condition for the purpose for which they are to be used. [Applicant] will maintain an adequate supply of expendable materials to support the requirements of the approved curriculum, for the number of students enrolled. See Operations Manual page [x].

147.21 General curriculum requirements.
(a) An applicant for an aviation maintenance technician school certificate and rating, or for an additional rating, must have an approved curriculum that is designed to qualify his students to perform the duties of a mechanic for a particular rating or ratings.

The curriculum for this program has been submitted as the Curriculum Manual.

(b) The curriculum must offer at least the following number of hours of instruction for the rating shown, and the instruction unit hour shall not be less than 50 minutes in length:

(1) Airframe—1,150 hours (400 general plus 750 airframe).

A single rating program is not included in this application.

(2) Powerplant—1,150 hours (400 general plus 750 powerplant).

A single rating program is not included in this application.

(3) Combined airframe and powerplant—1,900 hours (400 general plus 750 airframe and 750 powerplant).

[Applicant] has submitted a curriculum designed to provide instruction for the combined Airframe and Powerplant rating. This document is titled Curriculum Manual and accompanies the application package. The curriculum indicates a program length of [X] total hours for the combined rating. This includes [X] hours in the General Subjects, [X] hours in Airframe Subjects and [X] hours in Powerplant Subjects. A program summary by section may be found in the Operations Manual on page [X].

(c) The curriculum must cover the subjects and items prescribed in appendices B, C, or D, as applicable. Each item must be taught to at least the indicated level of proficiency, as defined in appendix A.

Complete descriptions of the curriculum content for the General, Airframe and Powerplant sections which comply with part 147, Appendices B, C, and D, is contained in Curriculum Manual. The description includes course outlines, proficiency levels, practical projects, and required tests for each subject in the curriculum.

(d) The curriculum must show:

(1) The required practical projects to be completed;

The performance objectives required to meet the standards of part 147 are presented under the heading ***Required Projects*** *for each subject area are presented in the Curriculum Manual.*

(2) For each subject, the proportions of theory and other instruction to be given;

The proportions of classroom and shop time for each subject are shown under Course Duration for each subject area presented in the Curriculum Manual.

(3) A list of the minimum required school tests to be given.

A subject Final Exam is required for each subject in the curriculum. To receive credit for a subject, the student must achieve a minimum of 70% on the subject final exam. This policy is presented in the Operations Manual on page [X].

(e) Notwithstanding the provisions of paragraphs (a) through (d) 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.

[Applicant] does not intend to offer any special courses at this time.

147.23 Instructor requirements.
An applicant for an aviation maintenance technician school certificate and rating, or for an additional rating, must provide the number of instructors holding appropriate mechanic certificates and ratings that the Administrator determines necessary to provide adequate instruction and supervision of the students, including at least one such instructor for each 25 students in each shop class. However, the applicant may provide specialized instructors, who are not certificated mechanics, to teach mathematics, physics, basic electricity, basic hydraulics, drawing, and similar subjects. The applicant is required to maintain a list of the names and qualifications of specialized instructors, and upon request, provide a copy of the list to the FAA.

[Applicant] will provide FAA Certificated Airframe and Powerplant Mechanics for the instruction and supervision of students. A listing of instructors and their certificate numbers is included as Attachment [X] of the application. A list of current instructors is maintained by the [Applicant] Director and is available to the FAA upon request.

Subpart C—Operating Rules

147.31 Attendance and enrollment, tests, and credit for prior instruction or experience.
(a) A certificated aviation maintenance technician school may not require any student to attend classes of instruction more than 8 hours in any day or more than 6 days or 40 hours in any 7-day period.

Students will attend school [X] hours per day, [X] days per week. See Operations Manual page [X].

(b) Each school shall give an appropriate test to each student who completes a unit of instruction as shown in that school's approved curriculum.

To receive credit for a subject, the student must achieve a minimum of 70% on the subject final exam. See Operations Manual page [X].

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

[Applicant] may award credit to a student with prior instruction according to the policies seen in the Operations Manual, page [X].

(1) A school may credit a student with instruction satisfactorily completed at:
(i) An accredited university, college, junior college;
(ii) An accredited vocational, technical, trade or high school;
(iii) A military technical school;
(iv) A certificated aviation maintenance technician school.

[Applicant] may award credit to a student with instruction satisfactorily completed at one of these institutions as evidenced by an Official Transcript.

(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 an applicant from a military school, only on the basis of an entrance test.

[Applicant] will determine the amount of credit to be awarded based on an authenticated transcript from the former school, or in the case of military technical schools, based on the results of bypass examination(s).

(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.

[Applicant] does not credit students with previous maintenance experience comparable to required curriculum subjects.

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

Students who hold a valid FAA Mechanic Certificate with either the Airframe or Powerplant Rating may receive credit for the General Section and other subjects based on the rating held. This is stated in the Operations Manual on page [X].

(d) A school may not have more students enrolled than the number stated in its application for a certificate, unless it amends its application and has it approved.

[Applicant] has applied for certification for a maximum of [X] day students and [X] night students. See FAA Form 8310-6.

(e) A school shall use an 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 will be made available to the student.

Details regarding [Applicant's] system for determining final course grades, for recording attendance, and showing how missed material will be made available to the student may be found in the Operations Manual on page [X].

147.33 Records.

(a) Each certificated aviation maintenance technician school shall keep a current record of each student enrolled, showing:

(1) His attendance, tests, and grades received on the subjects required by this part;

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

(3) The authenticated transcript of his grades from that school.

[Applicant] employs a system of hard copy records and electronic records which is designed to meet both the requirements of part 147 and those of other regulatory bodies with jurisdiction over the school. The details of this system as it applies to part 147 are presented in the Operations Manual on page [X], along with sample forms and instructions for their use.

It shall retain the record for at least two years after the end of the student's enrollment, and shall make each record available for inspection by the Administrator during that period.

As stated in the Operations Manual, hard copy records will be retained for at least two years. Electronic records will be maintained longer.

(b) Each school shall 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.

During the course of instruction the [student transcript and/or other documentation] serves to meet the requirements of this part. Progress records are maintained by the [Instructor/Registrar] and are available for inspection at any time.

147.35 Transcripts and graduation certificates.

(a) Upon request, each certificated aviation maintenance technician school shall provide a transcript of the student's grades to each student who is graduated from that school or who leaves it before being graduated. An official of the school shall 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.

The Transcript is utilized to record student grades in each subject and serves to meet the requirements of 147.35(a). A sample Transcript can be found in the Operations Manual on page [X].

(b) Each school shall give a graduation certificate or certificate of completion to each student that it graduates. An official of the school shall authenticate the certificate. The certificate must show the date of graduation and the approved curriculum title.

The Graduation Certificate is issued to students who successfully complete all requirements of the program. A sample Graduation Certificate meeting the requirements of 147.35(b) can be found in the Operations Manual on page [X].

147.36 Maintenance of instructor requirements.

Each certificated aviation maintenance technician school shall, after certification or addition of a rating, continue to provide the number of instructors holding appropriate mechanic certificates and ratings that the Administrator determines necessary to provide adequate instruction to the students, including at least one such instructor for each 25 students in each shop class. The school may continue to provide specialized instructors who are not certificated mechanics to teach mathematics, physics, drawing, basic electricity, basic hydraulics, and similar subjects.

[Applicant] shall continue to provide the number of instructors with the appropriate certificates and ratings as is necessary for adequate instruction of the students. See Operations Manual

page [X]. At no time will [Applicant] exceed a ratio of 25 students to 1 instructor in the lab/shop setting. See Operations Manual page [X].

147.37 Maintenance of facilities, equipment, and material.

(a) Each certificated aviation maintenance technician school shall provide facilities, equipment, and material equal to the standards currently required for the issue of the certificate and rating that it holds.

[Applicant] shall maintain its facilities, equipment and materials to a standard at least equal to the standards currently required to obtain certification.

(b) A school may not make a substantial change in facilities, equipment, or material that have been approved for a particular curriculum, unless that change is approved in advance.

No substantial changes will be made to facilities, equipment or materials without receiving approval in advance. This policy is seen in the Operations Manual on page [X].

147.38 Maintenance of curriculum requirements.

(a) Each certificated aviation maintenance technician school shall adhere to its approved curriculum. With FAA approval, curriculum subjects may be taught at levels exceeding those shown in appendix A of this part.

To ensure adherence to its approved curriculum, [Applicant] will conduct internal audits by the [Director or other appropriate individual]. Currently, the curriculum that has been submitted for approval includes teaching levels which meet, but do not exceed, those shown in Appendix A of this part. However, should [Applicant] determine that a revision to the curriculum is necessary, any and all changes, including the elevation of teaching levels, shall be submitted to the FAA for approval prior to implementation.

(b) A school may not change its approved curriculum unless the change is approved in advance.

[Applicant] will adhere to its approved curriculum, and at no time will changes be made to the approved curriculum without first submitting changes to and receiving approval from the FAA Administrator. Details of this procedure may be found in the Operations Manual on page [X].

147.38a Quality of instruction.

Each certificated aviation maintenance technician school shall provide instruction of such quality that, of its graduates of a curriculum for each rating who apply for a mechanic certificate or 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 is at least the percentage figured as follows:

[Applicant] will provide instruction of such a quality as to comply with the passing percentages outlined in this section of the FAR. The school's results and the national passing norms are continuously monitored by the school administration.

(a) For a school graduating fewer than 51 students during that period—the national passing norm minus the number 20.
(b) For a school graduating at least 51, but fewer than 201, students during that period—the national passing norm minus the number 15.
(c) For a school graduating more than 200 students during that period—the national passing norm minus the number 10.
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.

[Applicant] is aware of the criteria for monitoring schools and the use of national norms to determine quality of education. [School administrator] will monitor these numbers on a quarterly basis and use that information as part of a continuous improvement process.

147.39 Display of certificate.
Each holder of an aviation maintenance technician school certificate and ratings shall display them at a place in the school that is normally accessible to the public and is not obscured. The certificate must be available for inspection by the Administrator.

[Applicant] will display its AMTS Certificate and ratings on the lobby wall at the facility.

147.41 Change of location.
The holder of an aviation maintenance technician school certificate may not make any change in the school's location unless the change is approved in advance. If the holder desires to change the location he shall notify the Administrator, in writing, at least 30 days before the date the change is contemplated. If he changes its location without approval, the certificate is revoked.

[Applicant] will not change its location without providing written notice at least 30 days prior to the date that the change is contemplated. A change of location will require a new FAA Form 8310-6 to be completed and submitted to the FSDO.

147.43 Inspection.
The Administrator may, at any time, inspect an aviation maintenance technician school to determine its compliance with this part. Such an inspection is normally made once each six months to determine if the school continues to meet the requirements under which it was originally certificated. After such an inspection is made, the school is notified, in writing, of any deficiencies found during the inspection. Other informal inspections may be made from time to time.

[Applicant] acknowledges that the AMTS may be inspected at any time by the Administrator. [Applicant] also understands that such inspections shall be normally made once every six months to determine if the school continues to meet the requirements under which it was originally certificated. Inspections should begin with notification given to the [Director] as seen on page [X] of the Operations Manual.

147.45 Advertising.

(a) A certificated aviation maintenance technician school may not make any statement relating to itself that is false or is designed to mislead any person considering enrollment therein.

(b) Whenever an aviation maintenance technician school indicates in advertising that it is a certificated school, it shall clearly distinguish between its approved courses and those that are not approved.

[Applicant] officials will not knowingly make false or misleading statements to any person considering enrollment in its AMTS program. All school advertising must be approved by the [Director in charge of Compliance] prior to publication or broadcast. This policy appears in the Operations Manual on page [X]. [Applicant] will, in its advertising, clearly distinguish between those courses that are FAA Approved and those that are not.