Aviation Rulemaking Advisory Committee

Airman Testing Standards + Training Working Group

A REPORT FROM THE
AIRMAN TESTING STANDARDS + TRAINING WORKING GROUP
TO THE AVIATION RULEMAKING ADVISORY COMMITTEE

September 4, 2013

LETTER TO AVIATION RULEMAKING ADVISORY COMMITTEE CHAIR

September 4, 2013

Mr. Dan Elwell
Chairman, Aviation Rulemaking Advisory Committee
Federal Aviation Administration
800 Independence Avenue, SW
Washington, D.C. 20591

Dear Mr. Elwell,

On behalf of the Airman Testing Standards and Training Working Group (ATST WG), we are pleased to submit the attached report and recommendations to the Aviation Rulemaking Advisory Committee (ARAC) for consideration.

The ATST WG was established to act upon the Airman Testing Standards and Training Aviation Rulemaking Committee's (ARC) recommendation for the FAA to integrate knowledge, skills, and risk management into each major task in the current Practical Test Standards (PTS) into a single Airman Certification Standard (ACS).

The report contains integrated Airman Certification Standards (ACS) documents for the Private, Commercial, and Instructor certificates and the instrument rating. Also included is a detailed proposal to align, streamline and consolidate existing FAA handbooks and guidance material with the ACS documents. Additionally, the working group has proposed recommendations for knowledge test development, evaluation, and management.

The report contains specific recommendations for the adoption and implementation of an Airman Certification System through standards, guidance and testing and recommendations on effectively managing the system through both stakeholder participation and a comprehensive Quality Management System (QMS).

The members of the working group look forward to the ARAC's acceptance of these recommendations in their entirety and offer to assist with any follow on efforts. We look forward to continuing the partnership to improve pilot training and testing; making both more meaningful and relevant to today's flight training environment.

Sincerely,

Jason Blair
ATST WG Co-Chair

David Oord
ATST WG Co- Chair

CC: Lirio Liu – Director, FAA Office of Rulemaking, ARAC Designated Federal Official
ARAC Membership
ATST WG Membership

AVIATION RULEMAKING ADVISORY COMMITTEE
AIRMAN TESTING STANDARDS AND TRAINING WORKING GROUP

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EXECUTIVE SUMMARY

In accordance with its tasking from the Federal Aviation Administration (FAA) Aviation Rulemaking Advisory Committee (ARAC), the Airman Testing Standards and Training Working Group (ATST WG) has reviewed the existing standards and guidance material for airman training and testing and developed the following framework and recommendations.

1. The ATST WG drafted Airman Certification Standards (ACS) documents for the private pilot, authorized instructor, and commercial pilot certificates and the instrument rating. By aligning, defining, and integrating the aeronautical knowledge topics required by Title 14 of the Code of Federal Regulations (14 CFR) Part 61 with the Part 61 flight proficiency metrics enumerated in the existing Practical Test Standards (PTS), the recommended ACS approach:

    - Creates a clear standard for FAA knowledge testing and the industry-developed training it drives;
    - Provides both the conceptual foundation and the tools (e.g., ACS-based coding system) needed to align testing standards with FAA guidance materials and test questions, and to maintain that alignment; and
    - Enhances safety by listing specific risk management behaviors appropriate to each Area of Operation.

    Three of the four draft ACS documents provided in the appendices to this report (Private Pilot – Airplane ACS in Appendix A, Instrument Rating ACS in Appendix B, and Authorized Instructor ACS in Appendix D) reflect comments and suggestions received from the public through the formal notice and comment process as published in the *Federal Register*, and the documents were made available in public dockets that the FAA established on behalf of the ATST WG (FAA Docket Numbers: FAA-2013-0316 and FAA-2013-0649).

2. The ATST WG formulated recommendations to align and, where appropriate, consolidate FAA handbooks (FAA-H-8083-XX series) and computer testing supplements (FAA-CT-8080-XX series) with the ACS, as well as recommendations for updating these materials and coordinating, distributing, and communicating changes with/to stakeholders in a timely fashion.

3. The ATST WG also discussed the airman knowledge testing framework and devised recommendations for knowledge *test development*, to include both test question development and allocation of test question topics; knowledge *test evaluation*, to include review ("boarding") of proposed questions; and overall knowledge *test management* consistent with professionally-accepted standards and best practices.

The ATST WG's specific recommendations, as set forth in Chapter 7.0 of this report, fall under two categories, as described below.

***Adoption and Implementation of the Airman Certification System*:** The first set of recommendations describes the steps needed for the FAA to adopt and implement the three components of a fully integrated airman certification system: testing standards in the form of the ACS, associated guidance material, and the knowledge test itself. These recommendations include consideration for a carefully constructed beta test of the ACS approach with representative segments of the stakeholder community.

***Management of the Integrated Airman Certification System*:** The second set of recommendations lists the steps needed for the FAA to effectively manage the integrated airman certification system. These recommendations include establishment of a government/industry Airman Certification System Working Group (ACSWG) and development of a comprehensive internal Quality Management System (QMS) process that incorporates all three components of the airman certification system. The recommended QMS process should also define channels and procedures for input from, and feedback to, both internal and external stakeholders.

The ATST WG strongly believes that comprehensive adoption of its recommendations will enable the FAA to provide an integrated airman certification system that enhances aviation safety and better serves the aviation community.

1.0 AIRMAN TESTING STANDARDS + TRAINING WORKING GROUP

For a number of years, the general aviation (GA) training community has sharply criticized Federal Aviation Administration (FAA) pilot/instructor certification standards, training, and testing materials as being outdated, irrelevant, and out of touch with current technology and education/training methods. Industry has also faulted the agency for its piecemeal and unilateral efforts to make revisions.

These long-simmering concerns reached a boiling point in early 2011, when changes to the flight instructor knowledge (written) test on fundamentals of instructing caused the failure rate to skyrocket. In fielding questions on this topic at a May 2011 pilot training reform symposium sponsored by the Society of Aviation and Flight Educators (SAFE), then-FAA Administrator Randy Babbitt indicated support for a government/industry group to address these concerns.

1.1 Airman Testing Standards and Training Aviation Rulemaking Committee

On September 21, 2011, the FAA chartered the Airman Testing Standards and Training Aviation Rulemaking Committee (ATST ARC) to provide a forum for the U.S. aviation community to share its experience and expertise on more effective training and testing in the areas of aeronautical knowledge and flight proficiency required for safer operation in the evolving National Airspace System (NAS).

The FAA's charge to the ARC was to help ensure that the FAA's technical information related to existing standards for airman knowledge and skill tests, computer testing supplements, knowledge test guides, practical test standards, and associated training handbooks incorporates the most current, relevant, and effective approaches to training and testing. The FAA specifically tasked the ARC to provide recommendations on a process for ongoing stakeholder participation in developing the content of these materials, as well as methodologies for developing better knowledge test item bank questions. The FAA also asked the ARC to develop a prioritized list of certificates and ratings for update using the new process/methodology.

The ARC submitted its report and nine recommendations to the FAA on April 13, 2012.[1] The ARC's key recommendation on content called for the FAA to integrate knowledge, skills, and risk management elements for each major task in the current Practical Test Standards (PTS) into a single Airman Certification Standards (ACS) document for each airman certificate and rating. The ARC believed that this approach would support the FAA's goal of reducing the fatal GA accident rate, because clearly aligning the aeronautical knowledge testing standards required by Title 14 of the Code of Federal Regulations (14 CFR) part 61 with the flight proficiency standards in the existing PTS would significantly improve the relevance, quality, usability, and effectiveness of aeronautical knowledge testing and training materials for all stakeholders.

[1] A Report from the Airman Testing Standards and Training Aviation Rulemaking Committee to the Federal Aviation Administration (April 13, 2012). (www.faa.gov/aircraft/draft_docs/arc)

1.2 Formation of ARAC ATST WG

To accomplish this task and certain other ARC recommendations, the FAA accepted the ARC's process and methodology recommendations to establish a stakeholder body of industry subject matter experts (SME). In August 2012, the FAA assigned this task to the Aviation Rulemaking Advisory Committee (ARAC), a formal standing committee comprised of industry and aviation association representatives. The ARAC provides industry input in the form of information, advice and recommendations to be considered in the full range of FAA rulemaking activities, including regulatory support.

The FAA announced the ARAC's acceptance of this task through a Notice in the *Federal Register* published on September 12, 2012.[2] This Notice described the undertaking and solicited participants for the ARAC Airman Testing Standards and Training Working Group (ATST WG). The ARAC tasked the ATST WG to address content and methodologies for the private pilot certificate, flight instructor certificate, and instrument rating testing and training materials by developing an integrated ACS document for each certificate/rating. The FAA also tasked the ATST WG to develop a detailed proposal to realign and, as appropriate, streamline and consolidate existing FAA guidance material (e.g., FAA-H-8083-XX series handbooks) with the integrated ACS documents, and to propose knowledge test item bank questions whose content and structure are consistent with both the ACS documents and the test question development principles set forth in the ATST ARC's recommendations.

The ATST WG was established and, under the leadership of industry co-chairs representing the Aircraft Owners and Pilots Association (AOPA) and the National Association of Flight Instructors (NAFI), began its work in November 2012. ATST WG members and FAA participants are listed in Appendix U to this report.

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[2] Notice—Aviation Rulemaking Advisory Committee (ARAC); New Task Assignment for the ARAC: Establishment of Airman Testing Standards and Training Working Group, 77 FR 56251 (September 12, 2012).

2.0 BACKGROUND

The ATST WG was established to assist the FAA in implementing the ATST ARC recommendations, and the ATST WG tasking reflects the practical nature of the ARAC's instructions. The ATST WG was also expected to develop work product and submit a number of deliverables.

2.1 ARAC ATST WG Tasking

In order to support the FAA's goal to enhance GA safety and reduce the fatal GA accident rate, the FAA specifically tasked the ATST WG to provide: [3]

(1) An integrated Airman Certification Standards document that aligns the aeronautical knowledge testing standards required by 14 CFR part 61 with the flight proficiency standards (''Areas of Operation'') set out in 14 CFR part 61 and the existing PTS for (a) the private pilot and (b) flight instructor certificates and (c) the instrument rating. To accomplish this task, the ATST WG should follow the ATST ARC's recommendations to integrate appropriate elements of aeronautical knowledge and risk management into each Area of Operation in the current PTS documents for the private pilot and flight instructor certificates, as well as the instrument rating.

(2) A recommendation on priorities for revision of additional certificates and ratings, along with ways to ensure expert review of any revisions to these documents.

(3) A detailed proposal to realign and, as appropriate, streamline and consolidate existing FAA guidance material (e.g., the FAA-H-8083-XX series handbooks listed in the *Federal Register* Notice) with the integrated ACS documents developed in accordance with the task above. The ATST WG was also tasked to develop and recommend a process for review and revision of these materials.

(4) Proposed knowledge test item bank questions that are consistent with both the newly developed Airman Certification Standards documents and the test question development principles set forth in the ATST ARC's recommendations The ATST WG was also tasked to recommend options that provide for expert outside review (''boarding'') of proposed questions while safeguarding the integrity of the testing process.

The assignment also required the ATST WG to develop this report. The ATST WG Final Report addresses the methodology by which the ATST WG completed the tasks outlined above and developed the associated deliverables, as well as documents the ATST WG's recommendations for implementation and future management of the Airman Certification System.

[3] 77 FR 56251, 56252.

In formulating its recommendations and developing the ACS concept, the ATST WG consulted the following testing and training materials for the private pilot certificate, the flight instructor certificate, and the instrument rating:

- Aeronautical knowledge standards set forth in 14 CFR part 61, Certification: Pilots, Flight Instructors, and Ground Instructors
- Flight proficiency standards set forth in 14 CFR part 61, Certification: Pilots, Flight Instructors, and Ground Instructors
- FAA Airman Knowledge Test Guides (FAA-G-8082-XX series)
- Learning Statement Reference Guide for Airman Knowledge Testing (http://www.faa.gov/training_testing/testing/media/LearningStatementReferenceGuide.pdf)
- FAA Airman Knowledge Testing Test Matrix Applicant Identification, Information Verification & Authorization Requirements Matrix (http://www.faa.gov/training_testing/testing/media/testing_matrix.pdf)
- Current PTS documents for Private Pilot – Airplane (FAA-S-8081-14B); Flight Instructor—Airplane (FAA-S-8081-6C); and Instrument Rating for Airplane, Helicopter, and Powered Lift (FAA-S-8081-4E)
- Current FAA guidance material and handbooks, to include the *Pilot's Handbook of Aeronautical Knowledge* (FAA-H-8083-25A); the *Airplane Flying Handbook* (FAA-H-8083-3A); the *Aviation Instructor's Handbook* (FAA-H-8083-9A); the *Instrument Flying Handbook* (FAA-H-8083-15A); and the *Instrument Procedures Handbook* (FAA-H-8261-1A).
- *A Report to the FAA from the Airman Testing Standards and Training Aviation Rulemaking Committee: Recommendations to Enhance Airman Knowledge Test Content and Its Processes and Methodologies for Training and Testing* (www.faa.gov/aircraft/draft_docs/arc)

2.2 Justification for Change

During the course of its work, and as the ATST WG completed various aspects of the assigned tasks, the members noted and documented a variety of reasons supporting adoption of the ACS concept.

2.2.1 ACS Philosophy

The ATST WG requested public comment on several draft documents developed in accordance with its tasking. Appendix C and Appendix E to this report include the associated notices published in the *Federal Register*, as well as a summary of the comments received and the ATST WG's strategy for dispositioning and addressing those comments. In response to the documents, the ATST WG received comments questioning the justification for the significant change represented by the ACS approach. In general, these commenters expressed the view that changes to the PTS are tantamount to "fixing something that isn't broken," and that the focus should instead be on fixing the FAA's knowledge tests.

As described in Section 2.1, the ATST WG's tasking, including development of the ACS, arose from recommendations made by the ATST ARC. The ARC, in turn, was chartered in 2011 as a result of the FAA's desire for expert stakeholder assistance in making improvements to the knowledge testing component of the airman certification system.

A number of the ATST WG members also served on the ARC that recommended the changes for which the ATST WG developed the specific and detailed proposals in this report. Thus, the ATST WG believes it is appropriate to offer the rationale for the ACS approach.

To many stakeholders, the FAA airman knowledge testing (AKT) process is one of the most visible and, to some, the most visibly flawed component of the current airman certification system. Early in its deliberations, the ARC concluded that it is not possible to fix knowledge tests in an effective and sustainable manner without addressing the underlying systemic issues that have created the present framework.

One such issue identified by the ARC is the lack of a clearly defined knowledge test standard. Flight proficiency skills for each certificate and rating are enumerated in 14 CFR Part 61. The FAA developed the PTS to define metrics for acceptable performance of these skills.

While Part 61 also lists the broad areas of knowledge an airman must master in order to earn certification, the lack of a knowledge test standard corresponding to the PTS gives rise to several problems, including:

- Overly broad, outdated, and sometimes irrelevant knowledge test questions (e.g., navigation questions on Automatic Direction Finder/Non-Directional Beacon (ADF/NDB) rather than Area Navigation (RNAV); performance questions that focus on multi-part calculations rather than understanding and application of safety-critical knowledge, including task-specific risk management);
- Inadequate calibration of knowledge test questions to the certificate or rating level;
- Lack of a framework to evaluate, incorporate, and manage changes deemed critical to safety (e.g., runway safety, loss of control) and/or special emphasis items in a coherent way; and
- Insufficient information (including meaningful post-test feedback) to stakeholders, which is critical for effective training and preparation, correlation between training and testing, and correlation between all the stakeholders involved with the certification process.

These deficiencies have led many stakeholders – applicants, instructors, training providers, and even evaluators – to regard the knowledge test as little more than a rote memorization "box-checking" exercise. In the view of the ARC, the lack of a knowledge test standard has thus reduced the potential aviation safety and training value of the FAA knowledge test, as well as its educational effectiveness.

To address the issues arising from the lack of a knowledge standard, the ARC briefly considered proposing a "Knowledge Test Standards" (KTS) document that would serve as the knowledge test companion to the skill-focused PTS. For several reasons, the ARC discarded this approach as unworkable. ARC members feared that creation of a separate KTS document could contribute to greater long-term divergence between the KTS and the PTS. It would burden stakeholders with an additional set of documents, and it would require a greater expenditure of shrinking FAA resources to develop, deploy, and maintain a full range of KTS documents.

The ARC ultimately concluded that aviation safety and stakeholder needs, including the core desire for a more relevant AKT process, would be best served by integrating specific aeronautical knowledge elements into each Area of Operation/Task in the existing PTS, and by adding appropriate risk management elements for each Area of Operation/Task.

> Beyond improving safety, the ARC's recommended changes to the airman certification standards and process will benefit the aviation system by standardizing the training and evaluation of airmen, raising the aviation community's perception of testing credibility and providing a clear link between the regulations, guidance, handbooks, test standards, and knowledge test.[4]

2.2.2 Sound Educational Principles

In addition to avoiding the obvious challenges likely to arise from a separate KTS, the ARC – whose membership included several representatives from the academic community – determined that an integrated ACS approach is consistent with today's principles for effective adult education and meaningful testing.

In considering the ARC's rationale for the ACS concept, the ATST WG further noted that the FAA's traditional philosophical approach to aviation instruction is heavily tilted toward behaviorism. Although the agency's recent emphasis on scenario-based training (SBT) expands the "FAA-approved" toolbox for aviation education and training methodologies, the knowledge testing component of the agency's airman certification system – and the type of training it drives in the GA community – is still rooted in outdated and ineffective practices.

The goal is to ensure that standards, curriculum development, and assessment (testing) are aligned so that instructors, learners, and evaluators all have a clear idea of expected learning outcomes. Problems arise when testing diverges from standards or curriculum, because high-stakes test preparation degenerates into much-maligned and educationally bankrupt "teaching to the test" practices that favor rote memorization and test-taking strategies over genuine conceptual understanding. Members of the ATST WG concurred with the ARC, and all assert that the misalignment of FAA knowledge tests with standards and curricula forces the training community to take this approach. The primary goal of the ACS concept is to restore meaning to the knowledge testing component by aligning test questions with the knowledge and guidance material.

The ACS approach is also consistent with the principles of adult learning espoused by Malcolm Knowles.[5] According to Knowles, effective instruction and education of adults requires an approach that accounts for certain characteristics of adult learners. For instance, adults learn best when they:

- Perceive a need for certain knowledge or skills (goal-oriented);
- Understand how the area of learning relates to what they want to achieve (relevancy-oriented); and
- Recognize how the area of learning applies to the life or work context (practical).

[4] ATST ARC Report at page viii.
[5] Knowles, 1984.

By integrating specific aeronautical knowledge elements and actionable risk management practices with the flying skill performance metrics in the existing PTS, the ACS meets these needs and, in the opinion of the ATST WG, significantly enhances the educational value of the FAA knowledge test(s), especially when the written knowledge test is linked directly to the ACS.

2.2.3 Industry Standards and Best Practices

Accepted industry practices for any certification process stipulate that it be based on a job/task analysis. The certification process must analyze, define, and publish the domains and tasks that are a part of the certification process. It must further identify the knowledge and skills associated with performance of those tasks. The required knowledge and skills become the basis for development of assessment activities.

The ACS documents provide a more effective "map" for assessment because they specifically define the knowledge and skills needed to perform at the level of the target certificate or rating. The ACS approach thus better serves the applicant, the instructor, and the evaluator. Because the process of developing the ACS required a thorough review and update of knowledge and skills for airman certification, it also aligns with certification industry standards requiring periodic review and revision of the job/task analysis.

2.2.4 Safety Management System Methodology

Another shortcoming discussed in the ARC's report is the lack of systemic integration of the three airman certification process components. Both the ARC and the ATST WG note that the FAA uses a documented Quality Management System (QMS) process for knowledge test question development. However, no such processes exist for development and management of the underlying standards (i.e., the knowledge test standard) or for the FAA-H-8083-XX series handbooks and other guidance documents that are intended to provide the critical link between the areas of knowledge enumerated in 14 CFR part 61 and items assessed via knowledge test questions.

The ARC addressed this issue in its recommendation for the FAA to develop a QMS process that treats all three components – knowledge standards, guidance, and knowledge testing – as part of a comprehensive airman certification system. The ARAC ATST strongly supports the ARC's recommendation as a means to integrate and manage the three major components of the airman certification process. The proposed ACS, along with the ATST WG's proposals for guidance and test management, provide a crucial part of the conceptual framework necessary to develop this comprehensive QMS process. The ATST WG also believes that a comprehensive QMS process that provides for structured coordination with both internal and external stakeholders further maximizes the FAA's increasingly limited resources.

The ARC further noted that the integrated ACS approach will benefit the FAA. First, it provides a "flight plan" that clearly maps aeronautical knowledge, and thus guidance and test questions, to the specific skills and performance standards deemed necessary for safe operation in today's NAS. Second, it contributes to better integration of all components in the airman certification system (*see below*). Third, it maximizes FAA resources by minimizing the number of documents the agency will need to create and maintain.

The ACS approach further benefits both stakeholders and the FAA because it is consistent with the safety management system (SMS) framework, which provides a systematic approach to achieving acceptable levels of safety risk.

The ATST WG constructed the ACS framework, associated guidance, and test item bank question components of the airman certification system around the four functional components of SMS:

- ***Safety Policy*** that demonstrates FAA senior management commitment to continually improve safety through enhancements to the airman certification testing and training system; specifically, better integration of the aeronautical knowledge, flight proficiency, and risk management components of the airman certification system;
- ***Safety Risk Management*** processes that create a structured means of safety risk management decision making to identify, assess, and determine acceptable level of risk associated with regulatory changes, safety recommendations, or other factors requiring modification of airman testing and training materials;
- ***Safety Assurance*** processes which allow increased confidence on the part of industry and FAA stakeholders in risk controls through a continual review of FAA products and the systematic, prompt and appropriate incorporation of changes arising from new regulations, data analysis, and safety recommendations; and
- ***Safety Promotion*** framework to support a positive safety culture in the form of training and ongoing engagement with both external stakeholders (e.g., the aviation training industry) and FAA policy divisions.

The ACS approach is thus designed as a foundation for the FAA's transition to a more integrated and systematic approach to airman certification testing and training.

2.3 Constituencies Represented

In its tasking to the ARAC, the FAA stated that the ATST WG should be:

> [C]omprised of aviation professionals with experience and expertise in airman training and testing, and technical experts having an interest in the assigned task. The FAA would like a wide range of members to ensure that all aspects of airman testing and training, including best practices, are considered in the development of its recommendations.[6]

In response to the *Federal Register* notice published on September 12, 2012, a number of individuals and organizations contacted the FAA to request participation on the ATST WG. The FAA selected its membership to comprise aviation professionals who could collectively represent all major sectors of the industry.

[6] 77 FR 56251, 56253.

2.3.1 Certificated Flight Instructors/Designated Pilot Examiners

Certificated flight instructors (CFI) and designated pilot examiners (DPE) are clearly on the front lines of airman testing and training. To benefit from the "real world" knowledge and expertise that CFIs and DPEs bring to this matter, the FAA selected a number of individuals with CFI and/or DPE qualifications to serve on the ATST WG. The ATST WG industry members include 13 CFIs and three DPEs. These individuals actively instruct and evaluate in both the 14 CFR part 61 and part 141 environments, and they bring a highly practical and pragmatic perspective to the work.

2.3.2 Aviation Academic Community

To ensure that the ATST WG's products are educationally sound and consistent with current, accepted principles and best practices in testing and training, the FAA selected several individuals who have academic as well as aviation credentials. In the course of completing the tasks assigned to the ATST WG, these members drew not only from their own expertise, but also from the knowledge of academic colleagues. For example, the University Aviation Association (UAA) participant recruited a number of individuals from UAA member institutions to provide feedback on materials in development and to assist in developing sample test questions consistent with the ACS.

2.3.3 Industry Advocacy Associations

Industry advocacy associations bring an important perspective to this task. Among other contributions, ATST WG members from this sector consistently provided an economic reality check. These participants helped ensure that the group's recommendations to the FAA, if implemented, would add value to the airman certification process and the associated testing and training experience without imposing substantial new costs on aviation community stakeholders.

2.3.4 Training and Test Preparation Providers

In addition to holding aviation and, in some cases, academic credentials as well, ATST WG members from the training and test preparation provider community provided the group with invaluable and essential "tires-meet-tarmac" insight on how the FAA's testing and training doctrine is translated into the products that airmen-in-training use to prepare themselves for certification testing. In addition to many substantive proposals for improving the content of the FAA's testing and training materials via the ACS approach, ATST WG members from this sector developed a number of practical proposals to improve communication and feedback between the FAA and its diverse group of stakeholders.

2.3.5 FAA Subject Matter Experts

Implementation of the ATST WG's recommendations will require coordination with a large number of internal FAA stakeholders at virtually all levels of the agency. To help ensure that the agency has a full understanding of the ATST WG's work and the rationale for its recommendations, the FAA assigned SMEs from a number of policy divisions to attend ATST WG meetings. FAA attendees included individuals from the Flight Standards Service (AFS) director's office, the General Aviation and Commercial Division (AFS-800), the Regulatory Support Division (AFS-600), the Air Transportation Division (AFS-200), and the Flight Technologies and Procedures Division (AFS-400). FAA SME also included a representative from the Office of the Chief Counsel (AGC). In addition to learning from the ATST WG's discussions, FAA SMEs were available to provide the agency perspective and to answer questions that arose in connection with development of the ATST WG's products and recommendations.

Appendix U provides a complete list of ATST WG members, including biographic information.

2.4 Methodology

The practical nature of the ATST WG tasking necessitated a number of concurrent processes in order for the members to accomplish the objectives and develop the associated deliverables.

2.4.1 Work Plan

The ATST WG Work Plan tracked the three primary tasks assigned to ATST WG. The Work Plan was divided in three phases designed around a "map" to document the alignment of 14 CFR aeronautical knowledge areas to 14 CFR flight proficiency areas of operation and to appropriate risk management knowledge and skills. The ATST WG used the "map" to facilitate consistency and comprehensiveness by documenting the purpose, rationale, and regulatory justification for each element in the integrated airman testing standards and training system.

In order to complete the tasks within the allocated timeframe, the ATST WG members participated in multiple member-led subgroups to work on each deliverable and proposed process improvement. The ATST WG also used the subgroup structure to develop initial recommendations later discussed and refined by the membership as a whole.

The Work Plan was structured around multiple tasks divided into the following three phases:

- Phase I: Airman Certification Standards
- Phase II: Align Handbooks and Guidance to ACS
- Phase III: Develop Appropriate Test Questions and Structures

2.4.2 Meetings and Teleconferences

During the course of the ATST WG tasking, the members held four face-to-face meetings in Washington, DC, as well as weekly teleconferences to complete the various tasks assigned by the ARAC. [7] The subgroups (discussed below) also held teleconferences to complete each phase of the ATST WG Work Plan.

2.4.3 ACS Development

To accomplish the Phase I tasks involving development of the ACS documents, the Working Group divided into subgroups. Each subgroup was tasked with the development of an ACS document—Private Pilot, Instrument Rating, and Instructor. The subgroups used a worksheet approach to ensure the members followed the ARC's recommendations to integrate appropriate elements of aeronautical knowledge and risk management into each Area of Operation while including the applicable knowledge and skill elements from the current PTS.

In order to ensure consistency among the three foundational ACS documents, the ATST WG members developed ACS documents for the private pilot certificate, the flight instructor certificate, and the instrument rating. Each ACS document was developed using the same series of job aids. Each ACS used a worksheet development methodology to document the transition and incorporated a standardized and streamlined introduction, as applicable to the specific document. (See Appendix P.)

Since time permitted, the subgroups continued the effort and developed draft Commercial Pilot and Airline Transport Pilot (ATP) ACS documents. Based on the aligned tasks, the Private Pilot Subgroup transitioned its work product to the Commercial Pilot Subgroup, and the Instrument Subgroup transitioned its work product to the ATP Subgroup. The members tracked all changes against the current PTS and noted overlapping tasks to ensure consistency in the initial launch of the ACS documents. Chapter 4.0 of this report details the ACS development process and the associated ATST WG observations and suggestions.

The Private Pilot and Instrument Rating ACS documents were published by the ATST WG for comment.[8] (See Appendix C.) Based on the comments, the Authorized Instructor, Commercial Pilot, and ATP ACS documents were further refined. In keeping with its tasking, the ATST WG also published the Authorized Instructor ACS, as well as updated drafts of the Private Pilot and Instrument Rating ACS documents for comment.[9] (See Appendix E.) The draft Commercial Pilot – Airplane ACS is included as Appendix F to this report. In light of the Pilot Certification and Qualification Requirements for Air Carrier Operations Final Rule promulgated by the FAA, the ATST WG did not finalize its pending draft ATP ACS and will submit its work product to the FAA for further review.[10]

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[7] At the time of submission of this report, the ATST WG scheduled an additional face-to-face meeting to discuss implementation strategy.
[8] Notice of availability; request for comments—Aviation Rulemaking Advisory Committee (ARAC) Airman Testing Standards and Training Working Group (ATSTWG), 78 FR 24289 (April 24, 2013).
[9] Notice of Request for Comment—Aviation Rulemaking Advisory Committee (ARAC) Airman Testing Standards and Training Working Group (ATSTWG), 78 FR 44619 (July 24, 2013).
[10] Final Rule—Pilot Certification and Qualification Requirements for Air Carrier Operations, 78 FR 42324 (July 15, 2013), as subsequently corrected.

2.4.4 Aligning Handbooks and Guidance Material

To accomplish the Phase II tasks related to aligning, streamlining, and consolidating existing FAA guidance material with the integrated ACS documents, the ATST WG formed a Guidance Material Subgroup to conduct the initial assessment and develop recommendations to realign and, as appropriate, streamline and consolidate existing FAA guidance material with the integrated ACS documents developed during Phase I of the Work Plan. The ATST WG also developed and proposed a process for review and revision of those materials.

In cataloging existing guidance, the Guidance Material Subgroup reviewed a number of documents, including:

- Handbooks (FAA-H-8083-XX series) and Computer Testing Supplements (FAA-CT-8080-XX series)
- Documents referenced in current PTS Documents
- FAA Order 8900.1, Flight Standards Information Management System
- FAA Order 8900.2, General Aviation Airman Designee Handbook

The ATST WG recommendations on aligning handbooks and guidance material can be found in Chapter 5.0 of this report.

2.4.5 Developing Appropriate Test Questions and Structures

Phase III of the ATST WG Work Plan involved development, and documentation of a methodology for development, of proposed knowledge test item bank questions that are consistent with both the newly developed ACS documents and the test question development principles set forth in the ARC's recommendations. In order to accomplish the tasks associated with Phase III of the Work Plan, the WG formed a Question Development Subgroup and leveraged the expertise of members of the WG representing the academic community.

The Question Development Subgroup analyzed current processes and worked to develop recommendations addressing options that provide for expert outside review of proposed questions while safeguarding the integrity of the testing process.

The Question Development Subgroup was able to work from a completed ACS and guidance "map" for each ACS to show the type of knowledge to be tested (rote, understanding, application, correlation), as well as proposed questions in accordance with the principles established by the ARC. In conducting its analysis, the Subgroup also developed a proposal for an "appropriate" test that measures mastery of required knowledge as outlined in the ACS and explained in handbooks, to address the number of questions and distribution of questions by subject. The Question Development Subgroup also developed the framework for an industry/agency partnership approach to the testing process, which evolved into the ATST WG's recommendation for establishment of an Airman Certification System Working Group (ACSWG) to continue the effort.

The WG's recommendations on the testing process also include expert "boarding" of questions by the ACSWG, taking into account standard practices in other fields that require certification and licensing exams. The ATST WG review of and recommendations to improve the knowledge test process are discussed in Chapter 6.0 of this report.

3.0 CURRENT AIRMAN TRAINING + TESTING FRAMEWORK

The FAA AFS Regulatory Support Division Airman Testing Standards Branch (AFS-630) is responsible for all aspects of airman training and testing, including planning, developing, and maintaining materials related to airman certification training and testing. This includes the PTS, airman knowledge tests, knowledge test guidance, computer testing supplements, and the computer testing sites listing. AFS-630 is also responsible for publishing training handbooks on a variety of topics.

3.1 Practical Test Standards

Current testing is based on the PTS (i.e., FAA-S-8081-XX series). Each PTS is developed by the FAA to establish the standards for successful completion of practical test for a certain certificate or rating. FAA inspectors, designated pilot examiners, and check airmen (or examiners) must conduct practical tests in compliance with these standards. Flight instructors and applicants may use the standards to prepare for the practical test. Instructors are expected to address all of the elements contained in applicable PTS when preparing applicants for practical tests. Applicants are expected to be familiar with the PTS and refer to these standards during their training. AFS-630 reviews and maintains the PTS for each certificate/rating. When revisions and or changes are published, a summary is included at the beginning of the document.

The FAA requires that all practical tests be conducted in accordance with the appropriate PTS and the policies set forth in the Introduction. The tasks, organized by area of operation, include an objective coupled with a series of knowledge/skill elements, which the examiner uses during the practical test.

The current PTS require applicants to be evaluated in **ALL** Tasks included in each Area of Operation of the appropriate PTS, unless otherwise noted. The current PTS also highlight special emphasis areas in the Introduction. For example, the Private Pilot-Airplane PTS asks examiners to place special emphasis upon 15 areas of aircraft operations considered critical to flight safety, including single-pilot risk management, as well as other areas deemed appropriate to any phase of the practical test.

3.2 Airman Knowledge Testing Program

Each certificate or rating requires the applicant to successfully complete both a practical test and a written knowledge test. The AKT Program encompasses airman knowledge tests as required by 14 CFR parts 61, 63, and 65. AFS-630 is responsible for knowledge exams covering 81 certification and rating areas.

The FAA has designated two Airman Knowledge Testing (AKT) Organization Designation Authorization (ODA) Holders, which sponsor hundreds of knowledge testing center locations. These testing centers offer a full range of airman knowledge tests (administered electronically through the FAA computer-assisted testing system) including: Aircraft Dispatcher, Airline Transport Pilot, Aviation Maintenance Technician, Commercial Pilot, Flight Engineer, Flight Instructor, Flight Navigator, Ground Instructor, Inspection Authorization, Instrument Rating, Parachute Rigger, Private Pilot, Recreational Pilot, Sport Pilot and Military Competence. AFS-630 maintains a list of computer testing sites.

3.2.1 Airman Knowledge Test Question Bank

Each knowledge test derives its questions from an associated Knowledge Test Question Bank. Currently, an AFS-630 SME is assigned to maintain each Knowledge Test Question Bank. The FAA computer-assisted testing system is supported by a series of supplement publications. These publications, available through several aviation publishers or on the AFS-630 website, include the graphics, legends, and maps that are needed to successfully respond to certain test items.

Under the current AFS-630 process, the SME (an FAA Aviation Safety Inspector (ASI)) operations or airworthiness, as applicable, is responsible for development, boarding, validation, review, revision, and maintenance of the Knowledge Test Question Bank. A variety of inputs are used in the process of managing the test bank, including: Applicant Survey Comments, Stakeholder Feedback, Statistical Analysis, Technological Advances, Reference Updates, and Safety Directives.

All test questions are the objective, multiple-choice type. Each question can be answered by the selection of a single response. Each test question is independent of other questions; therefore, a correct response to one does not depend upon, or influence, the correct response to another. The number of questions and length of time allotted for each Knowledge Test correlates to the complexity of the certificate or rating sought. For example, the Private Pilot–Airplane Knowledge Test includes 60 questions, and the applicant has 2 hours and 30 minutes to complete the test; while the ATP–Airplane Knowledge Test includes 80 questions, and the applicant has 3 hours to complete the test. Under the current knowledge testing system, the minimum passing score is 70 percent. The FAA publishes a sample exam for most knowledge exams. The sample exams are intended for study material and include a representation of the questions that can be found on the knowledge test.

3.2.2 Knowledge Test Guides

AFS-630 publishes a series of Knowledge Test Guides (i.e., FAA-G-8082-XX series) to provide guidance to the applicant. Each Knowledge Test Guide corresponds to a certificate or rating and includes information about the knowledge test itself, as well as the testing process. The Knowledge Test Guide also references the applicable Computer Testing Supplement(s) (discussed below). Each Test Guide includes the specific Learning Statement Codes (LSC) applicable to that active exams being administered for that certificate or rating.

3.2.3 Learning Statement Reference Guide

Learning statements, as used in airman knowledge testing, refer to a measurable level of knowledge a student should be able to demonstrate following a defined element of training. A comprehensive list of learning statements is published in the Learning Statement Reference Guide for Airman Knowledge Testing. These statements are also published in the Knowledge Test Guides specific to the applicable to the certificate or rating. The FAA provides learning statements to help instructors and students identify the area of knowledge missed, and therefore proven deficient during the knowledge test. The FAA's expectation is that instructors will use these LSCs to provide the remedial training required as a prerequisite to the practical exam. Examiners re-test these subject areas during the practical exam.

Beyond serving as a useful reference in preparing for an airman knowledge test, the Learning Statement Reference Guide is designed to assist the applicant and instructor in interpreting any learning statement codes that may appear on the applicant's Airman Knowledge Test Report. The applicant will receive a test report immediately upon completion of the test. This report lists learning statement codes for any questions the applicant has answered incorrectly. The applicant and instructor can match the codes on the test report to the information in the Test Guide or Learning Statement Reference Guide in order to obtain the corresponding areas of knowledge deficiency.

The instructor may be required to provide instruction on each of the areas of deficiency, and to provide a logbook or training record endorsement certifying the applicant demonstrated satisfactory knowledge in each area. Currently, the learning statement codes do not directly correlate to elements in the PTS. Also, definitions of the codes vary between the Learning Statement Reference Guide and the Test Guides. The history of the coding system is discussed in greater detail in Section 4.1.3 of this report.

In addition, the applicant is required to present the *original* Airman Knowledge Test Report to the examiner conducting the practical test. During the practical test, the examiner will refer to the learning codes and statements to evaluate the applicant's knowledge in the noted areas of deficiency.

3.2.4 Computer Testing Supplements

The FAA computer-assisted testing system is supported by a series of supplement publications. The Computer Testing Supplements (i.e., FAA-CT-8080-XX series), available through several aviation publishers and available for download from the AFS-630 website, include the graphics, legends, and maps needed to successfully respond to certain test items. ODA test center personnel provide these supplements to the applicant during the airman knowledge test.

3.3 Handbooks

AFS-630 is also responsible for publishing a number of handbooks and manuals for beginners and aviation professionals. The handbooks (FAA-H-8083- XX series) are designed for use by applicants and instructors preparing for certificate or rating tests. In many cases, the handbooks include basic reference material for knowledge testing, as well as flight training. The handbooks conform to the PTS, which is the current pilot training and certification concept established by the FAA. These publications are updated periodically to reflect new FAA regulatory requirements, guidance material, and technical developments.

4.0 DEVELOPMENT OF ACS DOCUMENTS

4.1 Development of an ACS (Approach to Future Documents)

4.1.1 ACS Structure

In accordance with the FAA's tasking to the ARAC, the ATST WG began with the task of developing proposed ACS for the private pilot certificate, the instrument rating, and the instructor certificate. Because the requirements for the instructor certificate are partially derived from Areas of Operation in the existing practical test standards for pilot certificates and ratings, the ATST WG initially tabled this part of the tasking pending development of the ACS for the private pilot certificate and the instrument rating.

To facilitate adoption and deployment of the ACS system for airman certification testing and the industry-developed training it drives, the ATST WG voluntarily developed baseline draft ACS documents for the commercial pilot and airline transport pilot (ATP) certificates. The proposed draft of the Commercial Pilot – Airplane ACS is included as Appendix F to this report. The ATST WG recommends that the FAA complete the ATP ACS and publish these documents for public comment at the earliest opportunity, and that the agency assign appropriate experts to the separately recommended ACSWG to review the comments and finalize the ACS for each of these certificates.

Recognizing that the ACS is intended to be a foundation for the entire airman certification testing and training system, the ATST WG invested considerable effort developing an ACS framework that can be consistently applied to the majority of airman certificates and ratings. Accordingly, the ATST WG's proposed Private Pilot – Airplane ACS (Appendix A), Commercial Pilot – Airplane ACS (Appendix F) and Instrument Rating ACS (Appendix B) are structured as follows:

> ***Introduction*****:** The ATST WG determined that the presentation of the introductory material in today's PTS documents undermines its effectiveness, because its length and complexity discourage the careful reading its content deserves. Consequently, the ATST WG significantly restructured this material. As proposed in the ACS, the brief introduction is designed only to present and explain the ACS concept. To promote greater safety, the ATST WG moved and expanded treatment of PTS special emphasis topics to the risk management section for the appropriate ACS Area of Operation. Finally, the ATST WG created topic-specific appendices (*see below*) for the technical "how to" material in the PTS introduction.
>
> ***Areas of Operation (Tasks)*****:** To promote product consistency, the ATST WG developed standardized formulations to introduce each section in the Areas of Operation (Objective, Knowledge, Skills, and Risk Management).
>
> The ACS Areas of Operation largely align with those in the existing PTS. There are exceptions for Areas of Operation and/or tasks that are more appropriately presented as separate elements. For example, the ATST WG separated the Certificates and Documents Area of Operation into elements for airmen and for aircraft. There are also exceptions to eliminate overlap. In the case of Runway Safety and Ground Operations, for instance, the ATST WG combined Areas of Operation and/or tasks.

In keeping with the goal of ensuring that the FAA airman knowledge test contributes more effectively to improving aviation safety, the ATST WG used the risk management section of each ACS Area of Operation to list the specific practical knowledge, skills, and behaviors that an applicant must demonstrate with respect to that Area of Operation.

***Appendices*:** The ATST WG determined that topic-focused appendices would offer the most effective and user-friendly presentation of other subjects addressed in the introduction of the existing PTS. For instance, the Appendix H of the ACS presents the detailed "how to" information on taking the knowledge test.

The ATST WG strongly believes that a standardized structure wherein each ACS has a consistent look and feel is important. This approach offers the greatest degree of usability for the broad range of stakeholders, and it also simplifies the FAA's document management task. Nevertheless, the ATST WG determined that the nature of aeronautical knowledge and flight proficiency required for instructor (versus pilot) certificates and ratings merits a modified approach.

The goal of the instructor certification process is to ensure the instructor-applicant is ready to prepare a learner to safely manage the risks of flight as pilot-in-command, consistent with the privileges of the certificate or rating to be exercised. The purpose of the Authorized Instructor ACS is to define the acceptable performance standards for instructional knowledge and skill, including the Fundamentals of Instructing (FOI) concepts listed in 14 CFR part 61. Accordingly, the FOI concepts are at the heart of the ATST WG's proposal for the Authorized Instructor ACS.

The ATST WG wishes to emphasize that its draft for the Authorized Instructor ACS stresses practical application of effective instructional concepts and techniques. For example, the Authorized Instructor ACS uses the term plan of action to describe the expectation that for any given Task, a competent instructor can develop and execute a flexible instructional plan of action to teach the knowledge, skill, and risk management requirements for that Task. Where appropriate to the Task, the instructional plan of action should incorporate realistic scenarios that require the learner to correctly apply and/or correlate the target knowledge, skill, and risk management to specific circumstances.

The Authorized Instructor ACS includes appendices that define the acceptable standards for knowledge, skill, and risk management in the aeronautical proficiency tasks unique to a particular instructor certificate or rating.

As stated in the introduction to the Authorized Instructor ACS, this product is not intended to be a stand-alone document. Rather, it is to be used in conjunction with the pilot certificate level or rating ACS for which the instructor-applicant seeks authorization to provide instruction. Therefore, in addition to mastery of the knowledge and skills defined in the Authorized Instructor ACS, the instructor-applicant must demonstrate instructional competence for Tasks in the ACS for the appropriate certificate level or rating, to include analyzing and correcting common learner errors.

While it was beyond the scope of the ATST WG's assignment to develop ACS documents for other non-pilot airman certificates and ratings (e.g., dispatcher, AMT), the ATST WG notes that it may in some cases be necessary to adapt the baseline ACS framework to accommodate the characteristics particular to these functions.

4.1.2 ACS Development Process

In its April 2012 report to the FAA, the Airman Testing Standards and Training ARC recommended that the FAA develop a comprehensive QMS process to document the development and management of the integrated airman certification process (e.g., ACS, guidance, and testing).

The ATST WG recommends that the ACS component in the QMS process incorporate the following steps for transitioning each PTS to the ACS framework:

(1) Determine the nature of the airman certificate or rating to be converted:

(a) *Pilot certificate or rating*: Use the Private Pilot ACS as the baseline model for conversion to the ACS structure.
NOTE: The specific knowledge, skills, and risk management tasks in each Area of Operation should be calibrated "up" or "down" in accordance with the level of pilot certificate or rating.

(b) *Instructor certificate or rating*: Use the Instructor ACS as the baseline model for conversion to the ACS structure.

(c) *Other certificate or rating* (e.g., dispatcher, AMT): To the greatest possible extent, use the pilot certificate ACS as the structural model.

(2) Set up the appropriate worksheet template. (See Appendix P.)

(3) In consultation with appropriate internal stakeholders (e.g., FAA policy divisions) and external stakeholders, develop the ACS document:

(a) *Introduction*: Use template language to the greatest practicable extent for the actual introduction. List special emphasis topics to be moved into the Areas of Operation. Following the appropriate model ACS, list the necessary appendices.

(b) *Areas of Operation*: Use Areas of Operation in existing PTS as the point of departure to develop each section of the new ACS, bearing in mind that it may be appropriate to split or, in other cases, combine certain Areas of Operation and/or tasks:

(i) *Knowledge*: Ensuring that all aeronautical knowledge topics listed in 14 CFR part 61 are addressed in the appropriate Area(s) of Operation in the ACS, define the knowledge required to support the skill area for the level of airman certificate covered by the target ACS. The ATST WG notes that the calibration of knowledge to a particular airman certificate or rating level is among those activities most likely to benefit from expert stakeholder input. While calibration is unavoidably somewhat subjective, the ATST WG further notes that the use of standardized rubrics and a comprehensive task chart (i.e., a document that displays the required level of performance for each Area or Operation and/or task) would be helpful in this regard.

(ii) *Skills*: Except in cases where it is appropriate to separate or combine current PTS Area(s) of Operation and/or tasks, integrate the existing skills material into the ACS framework (i.e., modify stems and structure in accordance with standardized ACS formulations).

(iii) *Risk Management*: Drawing from the special emphasis topics and sources such as the FAA Risk Management Handbook (FAA-H-8083-2), develop specific, practical, risk management tasks, skills, or behaviors appropriate to each Area of Operation. The goal is to translate concepts into practical actions that enhance safety.

(c) *Appendices*: Revise PTS introductory material to align with ACS framework for appendices.

(4) Document the transition, to include:

(a) ACS disposition/transition of PTS Areas of Operation and tasks through the tracking matrix template (See Appendix P); and

(b) Calibration of standard(s) to level of airman certificate or rating. (See Appendix P.)

(5) Ensure that there is adequate guidance material to support the knowledge, skills, and risk management tasks in each ACS Area of Operation, and list the appropriate references in the space provided on the ACS worksheet template.

(6) Code the tasks in each ACS Areas of Operation in accordance with the scheme described in Section 4.1.3 of this report.

(7) Review process: The ATST WG strongly believes that comprehensive review of the ACS is critical to achieving the goal of a relevant, safety-oriented, and educationally-sound airman certification system. The work accomplished pursuant to this tasking benefited significantly from the ATST WG's decision to seek public comment on its draft ACS documents. Accordingly, the ATST WG recommends that the QMS process for the ACS element of the airman certification system include submission of the completed draft for review by:

(a) Internal stakeholders (e.g., FAA policy divisions and/or Offices of Primary Responsibility);

(b) Expert stakeholders (outside SMEs); and

(c) Public via publication in the Federal Register with invitation for comment.

4.1.3 Coding

As suggested by the discussion in Chapter 2.0 of this report, one of the overarching goals of this endeavor is to create an integrated, coherent airman certification system in which standards, guidance, and testing can be aligned, and maintained in alignment. Such symmetry is key to fully realizing the benefits the ACS system promises to both the FAA and its many stakeholders.

It is also key to conformance with accepted industry standards for certification programs. These standards require that items to be trained and tested be directly linked to the job/task analysis – in this case, the ACS. All assessment (testing) activity, whether written, oral, or practical, must correspond to the content delineated and specified in the job/task analysis.

To meet this goal, the ATST WG strongly recommends that the FAA adopt its proposal for a coding system anchored in the ACS. The proposed ACS codes would supersede the current system of LSCs, which is too limited to serve as the mechanism for alignment and too complex to effectively serve the needs of the FAA and the stakeholder community.

A more relevant coding system anchored in the ACS helps ensure that the all components of the certification testing process – written (knowledge), oral, and practical – are directly linked to the job/task analysis (i.e., the ACS). It also aids in conformance to certification industry standards that expect an ongoing process to ensure that the links between job/task analysis and assessment activity remain in alignment.

4.1.3.1 Brief History of Airman Test Coding

For a number of years, the FAA used a series of Subject Matter Knowledge Codes (SMKC) that were defined in Advisory Circular AC 60-25. The SMKC codes were linked to a reference with chapter and subheading. For example, the J11 SMKC referred to the Aeronautical Information Manual, Services Available to Pilots.

In 2007, the FAA determined that the SMKC system had become overly cumbersome and work-intensive, because it required updates with every handbook revision. Consequently, the FAA replaced the SMKC system with the LSCs used today. The LSC concept is for each code to correspond to a measurable statement of knowledge. For example, PLT064 is the LSC for “Interpret information on a sectional chart” according to the Learning Statement Reference Guide, but the Private Pilot Test Guide (FAA-G-8082-17) defines the same code as “Airport Operations/Uncontrolled/Radio Communications.”.

4.1.3.2 Issues Arising from Existing Code System

Unfortunately, neither the FAA nor the stakeholder community is well served by the LSC coding scheme. The most fundamental deficiency is the complete absence of a clear and traceable link from the LSC to a standard. Like SMKCs, today’s LSCs are tied to a specific reference. They are organized in terms of topic/content/specific point for that reference document, and they are applied only to test questions. This structure leads to several adverse consequences. The LSC system is:

***Subjective*:** The nature of the LSC structure leads to an unavoidable degree of subjectivity in the application of LSCs to test questions. Because LSCs are anchored in reference documents, many LSCs have the same or similar definitions. In addition, each type of test at a given certificate level (e.g., initial private pilot, transition private pilot) has its own set of LSC codes. The code for one test type may not have the same meaning when applied to another test type. This situation often leads test writers to code similar questions on a given topic with different LSCs.

For example, from the Private Pilot Airplane LSCs (as defined in FAA-G-8082-17I):

- Medical Certificates: PLT399, PLT427, PLT447
- ADF/NDB: PLT090, PLT091
- METAR: PLT026, PLT059
- Density Altitude: PLT005, PLT019, PLT124, PLT127

Alternatively, the same LSC can mean very different things:

- PLT194: En Route Radar or Aeromedical Factors Fitness for Flight
- PLT165: Meteorology/Temperature or Flight Instruments/Altimeter
- PLT064: Radio Communications, Class E, Military Training Routes, MOA, Charts, Parachute Jumping, Calculations, VOR, Airspace, Sectionals
- PLT376: Special VFR or Wildlife refuges

The result is confusion and frustration for stakeholders, substantial gaps in instructors' and evaluators' ability to provide accurate remedial training and retesting, and an overly burdensome number of codes for the FAA to manage.

***Unwieldy*:** Any update to reference-based LSCs requires a change in guidance documents (e.g., the FAA-G-8082 test guides), and *vice versa*. Change to LSCs complicates feedback to stakeholders, because it becomes necessary to correlate the date of the airman test report to the guidance document(s) in effect at that time (i.e., the current guidance document may not match the LSCs for a test report issued a couple of months ago). In addition, the complexity of the system and the sheer volume of LSC codes have contributed to issues such as differences in the LSC code legends used in the Learning Statement Reference Guide and the FAA-G-8082-XX series Test Guides. In other cases, applicants receive an airman test report with LSCs that do not match to any LSC on the Test Guides. This situation makes it difficult for applicants, instructors, and evaluators to identify the associated knowledge for a given test (i.e., identify the subject(s) requiring remedial training and retesting).

The LSC system is also unwieldy because it is not intuitive. On the contrary, its complexity requires multiple steps by applicants, instructors, and evaluators to get even a "ballpark" idea of the subject matter missed on the test. Stakeholders must review the airman test report and consult reference documents to decode the LSCs. Because the LSCs are so broad, the next step is to narrow the scope by consulting the sample questions in the public data. Unfortunately, the public data does not include a sample representative question for each LSC type used for each test, which consequently requires stakeholders to guess at the specific area(s) requiring remedial training and checking.

4.1.3.3 Proposal for ACS Codes

Given the project goals and the shortcomings of the existing LSC system, the ATST WG recommends a coding process anchored in the ACS. An ACS-based coding scheme will:

- Clearly align guidance and test questions to the ACS;
- Make the airman test report meaningful to stakeholders (applicant, instructor, evaluator);
- Provide a means for automated generation of tests, whether using the existing test forms or future randomized selections; and
- Eliminate subjectivity and vastly simplify system management requirements for the FAA.

The ATST WG recommends that the FAA adopt a five-element ACS Coding System. The example below illustrates the coding methodology, which is founded in the ACS (as opposed to the reference document(s)).

PA.X.A.K1.a:

PA = Applicable ACS (private pilot airplane)*
X = Area of Operation (night operation)
A = Task (night preparation)
K1 = Knowledge Task element 1 (physiological aspects of night flying as it relates to vision) **
a = rote*** – represents the level of learning and guides question development (e.g., rote would require the applicant to define, recall, list, name, match, label).

* IR = instrument rating, CA = commercial airplane, etc.
** S = skills elements, R = risk management elements
*** b = understanding, c = application, d = correlation (representing the level of learning which also informs the manner of the question (e.g., rote = define, recall, list, name, match, label))

4.1.3.4 Benefits of ACS Codes

A transparent, intuitive coding scheme anchored in the ACS will benefit both the FAA and its many stakeholders in the airman certification system. Benefits include:

Better safety education and training. A code system tied directly to the ACS provides a means to ensure that test questions are relevant and pertinent to safe airman operations, and that the associated guidance clearly reflects the material to be trained and tested.

It also provides better feedback to stakeholders. For the reasons described above, today's LSCs are not an effective means of communicating areas of deficiency in the applicant's knowledge. The ACS code system would accomplish the FAA's goals of focusing on the deficient knowledge, and not the specific missed test question, by driving airman test report results to a specific Area of Operation/Task/Task Element. Because the airman test report will list an ACS code that correlates to a specific Task Element for a given Area of Operation and Task, remedial instruction and re-testing will be specific, targeted, and based on specified learning criteria.

Better testing and test management: In addition to providing much better guidance to test writers (because each question will correlate to a specific ACS task/element), the ACS coding system will facilitate test construction and management using the proposed test maps provided in Appendix I.

Better use of resources. Because the ACS coding system is anchored in the ACS, management of the entire airman certification system (standards, guidance, testing) becomes a much less work- and resource-intensive process for the FAA. A better managed system clearly benefits stakeholders, because the various elements of the testing and training system remain in alignment. Updates can be made objectively and consistently, and the process will also be transparent to all parties with (i.e., no guesswork required on how to re-code when there are changes to the ACS.

4.1.3.5 Recommendations for ACS Codes

For all the reasons discussed in this report, the ATST WG strongly believes that a robust and stable coding system anchored in the ACS is essential to achieving the various goals for this endeavor.

The ATST WG therefore recommends that the FAA adopt and implement the ACS coding structure by:

(a) Coding each ACS in accordance with this scheme in the process of its development;
(b) Applying the appropriate codes to both existing and future knowledge test questions; and
(c) Considering a means by which the ACS codes could also be used to keep guidance documents aligned with the ACS and test questions.

To achieve the intended and desired results – various goals as previously discussed – coding is an essential part of ACS development – but codes have to be correctly matched to test questions and supported by guidance material.

4.2 Conversion Approach and Priorities

In its September 2011 charter to the Airman Testing Standards and Training ARC, the FAA requested recommendations on priorities for enhancing airman certificates and ratings. In its April 2012 report to the FAA, the ARC recommended that the FAA give priority to the private pilot certificate, the instrument rating, and the instructor certificate. The ARC justified this recommendation on the basis that these qualifications generate the greatest demand. In addition, they comprise the foundation of the flight training system.

In accordance with its assignment from the ARAC, the ATST WG created ACS documents for these qualifications. In addition, the ATST undertook to develop baseline ACS documents for the commercial and ATP pilot certificates. For the ATST WG's recommendations on sequencing the development/transition of additional ACS documents, please refer to the chart in Appendix N of this report.

The success of the conversion process will also hinge on education and training for evaluators. Concurrent with the conversion of the PTS to the ACS, the FAA should also establish a team (to include AFS-500, AFS-600, and AFS-800) to develop ACS-related training for designees and aviation safety inspectors. The training cycle for DPEs is two years, and it will take 24-36 months to ensure that all DPEs and ASIs are trained to the new ACS methodology.

5.0 GUIDANCE MATERIAL

The FAA's guidance material provides an essential link between the statutory certification requirements for airman certificates and ratings, the proficiency standards described in documents such as the ACS, and the knowledge test questions. For this reason, the FAA's tasking to the ATST WG included the request for a proposal to align and, as appropriate, streamline and consolidate existing FAA guidance material with the newly-developed ACS documents.

For the purposes of this endeavor, the ATST WG focused primarily on the range of guidance material developed and maintained by the FAA Flight Standards Service's Regulatory Support Division (AFS-600). These include the FAA-H-8083-XX series handbooks and the FAA-CT-8080-XX series computer testing supplements. The Handbooks/CTS Recommended Changes Matrix included in Appendix G to this report summarizes the ATST WG's document-specific recommendations with respect to substantive changes, possible consolidation, and sequence for revision. The ATST WG recommends that the Test Guide (FAA-G) series and Learning Statement Reference Guide be discontinued with the adoption of the ACS, as the information in these publications is incorporated into the ACS approach

Recognizing that the airman testing and training system uses a wide range of additional reference material, the ATST WG also developed a tracking document/matrix (see Appendix Q) to assist the FAA in updating the agency's internal guidance (e.g., Order 8900.1) and reference materials (e.g., Advisory Circulars) managed outside AFS-600. The PTS-to-ACS References Matrix lists those areas of FAA Order 8900.1, Flight Standards Information Management System, as well as other internal guidance documents where references to the PTS should be changed to ACS. The Reference Documents Tracking Matrix lists documents such as the Airport/Facility Directory and FAA Advisory Circulars that, in the opinion of the ATST WG, should be incorporated into the FAA-H series handbooks rather than retained as separate knowledge test reference material. (See Appendix H.)

To avoid the fragmentation and misalignment that bedevil the airman certification system today, the ATST WG believes it is essential for the FAA to develop a systemic, comprehensive change management mechanism that aligns both the guidance material housed in AFS-600 and the range of internal and external reference material with the terminology and content of the foundational ACS documents. The comprehensive QMS process recommended in Section 4 of this report is the recommended mechanism for the kind of robust change management system this task requires, and it should include a guidance management component that encompasses handbook changes and ensures alignment with the ACS, FAA reference documents, and regulatory changes.

The guidance management material component of the QMS process should provide a means to accomplish the following goals.

5.1 Updates

To ensure the proper management of updates to FAA-H-8083-XX series handbooks and FAA-CT-8080-XX series computer testing supplements, the FAA's integrated QMS process should document the means to:

- Obtain and incorporate input from a broad range of internal and external stakeholders to ensure that the FAA-H-8083-XX series handbooks, the FAA-CT-8080-XX series computer testing supplements, and reference materials provide information that aligns with the ACS and support the airman's acquisition of the ACS elements to be assessed via the knowledge test.
    - To facilitate this work, the ATST WG recommends that the FAA consider making proposed handbook and computer testing supplement series changes electronically available up to 12 months in advance of a new edition, with a provision for stakeholders to upload suggestions and recommendations for adjudication.
- Provide a systematic and controlled means of releasing mid-cycle information at defined regular intervals. This system should clearly distinguish between non-safety-related corrections (e.g., typos) and substantive updates or additions to existing material. For instance, the ATST WG recommends:
    - A periodically scheduled release of errata to disseminate non-safety-related corrections.
    - The use of the existing Information for Operators (InFO)/Safety Alert for Operators (SAFO) mechanisms to disseminate off-cycle safety-related corrections, additions, updates, or amendments.
- Provide a systematic and controlled means of incorporating and integrating new safety-related information into the handbook and computer testing supplement series documents at each regularly scheduled update. The current method of simply adding information as a new chapter, an appendix, or an addendum (vice integrating it into the appropriate part of the document) creates instability in the training environment, and it does not offer an educationally sound presentation to the applicant.
- Create and maintain a bibliography of advisory circulars (AC) and other reference documents not otherwise accounted for or cited in the handbook content.
- Create and maintain a single source "library" of figures (e.g., in the FAA-CT-8080-XX series computer testing supplements) referenced in the testing process to reduce redundancy and increase cost-savings.

5.2 Coordination

To ensure that both FAA policy divisions and external stakeholders have an opportunity to review and comment on proposed changes, the FAA's integrated QMS process should provide a systematic means of coordinating errata, updates, and other new information with the appropriate internal and external stakeholders.

5.3 Distribution

To facilitate efficient distribution of new and updated materials, the FAA's integrated QMS process should stipulate:

- Release of each FAA-H-8083-XX series handbook in both PDF and HTML form, with hyperlinked table of contents, figures, index tags, to enable distribution in eBook format.
- A publicly-accessible library of high-resolution images and illustrations, ideally organized by handbook and chapter, for public use in safety presentations, handouts, etc.

5.4 Communication

To ensure that stakeholders are informed of changes, updates, and new materials in a timely and predictable way, the FAA's integrated QMS process should provide for:

- Use of mechanisms such as SPANS, FAAST Blast, and other such tools to inform stakeholders when InFOs or SAFOs pertinent to the airman certification system are published, released, and/or effective. The FAA should also use these tools to inform stakeholders when current editions are canceled.
- A standardized set of data for each title, to include (a) date last updated; (b) current edition; (c) next edition expected; (d) InFO/SAFO updates; (e) how to submit feedback.
- Standardized periods of extension (vice “pending” notations) when handbook revisions are behind schedule. The term “pending” creates instability: Because it does not provide clear information on when stakeholders can expect updates, training providers suspend curricula and delay training changes pending release of new FAA guidance.
- Removal of obsolete terms, technologies, and associated sample questions from the public data. Retention of this material communicates incorrect information to applicants, training providers and other stakeholders, who waste time and effort to train / learn material that is no longer relevant to safe operation in today’s NAS.

6.0 QUESTION DEVELOPMENT + TESTING

Testing is the third and, in many ways, the most visible component in the airman certification process since testing is perceived as the major hurdle to obtaining an airman certificate or rating. As discussed in Chapter 2.0 of this report, aeronautical knowledge and flight proficiency skills for each certificate and rating are enumerated in 14 CFR part 61. The FAA developed the PTS to define metrics for acceptable performance of flight proficiency skills. The purpose of the ACS approach is to provide a knowledge test standard corresponding to the PTS, and to thus enhance both the quality and the safety value of the knowledge test.

In addition to proposing the ACS, the ARC made several general recommendations regarding the structure of the FAA knowledge test and test questions. Accordingly, the FAA asked the ATST WG to provide detailed proposals to align knowledge testing with the ACS, and help the agency improve the development, evaluation, and ongoing management of its knowledge testing system.

6.1 Test Development

The most fundamental recommendation for knowledge test development is to ensure that test questions are pertinent to safe operations as defined in the ACS document for the specific airman certificate or rating. In developing its test development recommendations and sample test questions, the ATST WG drew extensively from professionally-accepted standards (e.g., the National Commission for Certifying Agencies' Standards for the Accreditation of Certification Programs and the Standards for Educational and Psychological Testing) and best practices in both aviation and non-aviation industries (e.g., the National Business Aviation Association's Certified Aviation Manager accreditation program).

6.1.1 Content

For test question development, the ATST WG recommends that the knowledge testing portion of the FAA's future comprehensive QMS process for managing the airman certification system include guidelines such as those proposed in Appendix J. These include professionally-accepted test development rules for content and for construction of question stems, distractors, and general options.

The following basic considerations should be the starting point for any test question:

- Is the question content relevant for the airman certificate or rating being sought?
- Is this question pertinent and relevant to safe operations?
- Does this question test knowledge required to be a safe, competent aviator?
- Is it more effective to introduce this new question or revise an existing question?
- Does this question apply to other certificates and ratings?
- Is the subject matter relevant to the airman every day, or only occasionally?
- Where should this question be asked? (i.e., knowledge test or practical test)
- Is the reference valid?

Regarding references, the ATST WG recommends that test questions avoid using exact quotes from guidance or references unless they are intended to assess specific required rote knowledge.

Appendix H to this report sets forth additional recommendations on how to handle content in current reference documents, including the ATST WG's views on incorporating references such as ACs into the FAA-H-8083-XX handbook series.

Also with respect to content, the ATST WG recommends that the FAA limit questions requiring calculation, using them only when such calculations are clearly required for safe operations. For example, the pilot's ability to calculate a precise value for density altitude is far less important than his or her mastery of factors that increase density altitude and, still more important, ability to apply that knowledge to its impact on a specific aircraft and proposed operation.

In that connection, the ATST WG recommends that questions should generally not require multiple interpolations or "precision academics" that falsely imply a high level of accuracy. Rather, in keeping with the goal of ensuring that the knowledge test supports safety, the ATST WG recommends questions that assess the applicant's ability to understand and apply knowledge by selecting conservative numbers and applying an appropriate safety margin. The inclusion of safety risk management practices in knowledge testing ensures that instructors and training providers will include them at the very earliest stages of training.

6.1.2 Coding

As discussed in Chapter 4.0 of this report, the overarching goal is to create an integrated, coherent airman certification system in which standards, guidance, and testing can be aligned and maintained in alignment. To achieve this goal, the ATST WG has already recommended that the FAA adopt its proposal for a coding system anchored in the ACS. The proposed ACS codes would supersede the current system of LSCs, which is too limited to serve as the mechanism for alignment and too complex to effectively serve the needs of the FAA and the stakeholder community.

For all the reasons offered in Chapter 4.0, the ATST WG strongly believes that the use of ACS-based codes offers a stable, robust, intuitive, and effective mechanism to ensure that existing knowledge test questions are revised and new knowledge test questions are devised in alignment with the standards listed in the ACS. Use of the proposed ACS-based coding system would:

- Ensure the alignment of test questions with the ACS and associated guidance, thereby correlating training and testing.
- Ensure that test questions are relevant and pertinent to safe operation in the NAS.
- Specify the level of knowledge to be tested (e.g., rote, understanding, application, correlation)
- Provide essential feedback to applicants, instructors, and evaluators on areas to be retrained and retested.
- Assist the FAA in determining and maintaining the appropriate content in the public database of sample test questions.
- Simplify the test management process, to the benefit of both the FAA and stakeholders.
- Facilitate a balanced approach for constructing the test (e.g., test mapping).

6.1.3 Test Mapping

The FAA tasking also asked the ATST WG to provide recommendations on the number of test questions and on the appropriate distribution of test questions among topics. Appendix I provides the ATST WG's detailed response to this request, in the form of sample test maps for the Private Pilot and Instrument Rating knowledge tests. This framework could easily serve as a template for mapping test question distribution for other airman certificates and ratings.

The test map template could also assist the FAA's Regulatory Support Division in making a reasoned, data-driven response to demands for change in test question distribution. In today's environment, special emphasis areas (e.g., runway incursion avoidance, loss of control) often drive piecemeal changes in the allocation of questions on the knowledge test. The test map provides a helpful system management tool that, used in combination with a review of the ACS, associated guidance, and statistical analysis of accident data, can help the FAA ensure that special emphasis items are adequately represented at the appropriate point(s) in the certification process without displacing other important subjects that should be sampled via the knowledge test.

6.2 Test Evaluation

As noted in the ATST ARC's report to the FAA, the task of writing valid, reliable, multiple-choice exams is a complex process. It is inevitable that different people with differing experiences and backgrounds will interpret questions and answer choices in different ways. For that reason, and to ensure that test questions are constructed so as to accurately assess the applicant's knowledge of the desired content, best practices for test development involve extensive evaluation.

In the NBAA Certified Aviation Manager (CAM) test process summarized in the ARC's report, there are multiple levels of evaluation. An initial question is marked as a draft question. When the original author deems the draft ready for review, the draft question goes to other trained members of the testing committee for review and feedback. Members of the testing committee conduct additional review and feedback during a monthly conference call.

Once these evaluations have been completed, the draft question goes on the agenda for discussion at the testing committee's next face-to-face meeting where draft questions are reviewed by a small group of at least four individuals. Ultimately, each draft question also receives multiple reviews by several different individuals who have already earned Certified Aviation Manager credentials.

The ATST WG strongly believes that the importance of sound knowledge testing in the FAA's airman certification system demands a similarly rigorous level of review and evaluation. The ATST WG therefore recommends that the FAA establish a body comprised of both internal and external stakeholders to perform this and other functions associated with the airman certification system. Specifically, the ATST WG recommends that the FAA establish an ACSWG that would assist the FAA in all three components of the system (i.e., the ACS, guidance, and testing). A proposed charter for the ACSWG, modeled after that of the existing Operations Specifications Working Group (OSWG), is included as Appendix S to this report.

The ACSWG would provide a number of benefits to the FAA and to the airman certification system. Accepted practices in the certification industry call for the certifying entity to have a sufficient number of individuals with the necessary education, training, technical knowledge, and experience to perform the necessary functions, which increase in complexity with the size and scope of the certification activity. Today's budget realities make it impossible for the FAA to directly employ sufficient staff, and it is unrealistic to expect five FAA subject matter experts (SME), an instructional systems design specialist, an editor, and a statistician to manage a large certification system in-house.

By supplementing the corps of in-house SMEs, the ACSWG – comprised of members from other FAA policy divisions as well as external stakeholders – would also provide a means of conforming to industry standards for minimizing the potential for content error and test question bias. These standards and practices call for the use of qualified subject matter experts (SMEs) to review content and for periodic review of the ACS documents and guidance to ensure continued alignment of all certification system components.

In this connection, the ATST WG stresses that it is vital for the ACSWG to have a role in all three components of the system. A proper and effective certification process depends heavily upon the continued alignment of its interdependent components -- standards, guidance, and testing.

With respect to the knowledge test component, members of the ACSWG would be trained in industry-accepted test-writing and test question evaluation skills. In addition to writing, evaluating, and recommending questions, the ACSWG could assist the FAA by applying the new ACS coding to questions on existing (or recently retired) form tests, as well as ensuring that the composition of the overall form test is consistent with the test question subject distribution recommended in the proposed test map (Appendix I). This process would assist the FAA in several ways. Coding questions to the ACS is essential in order to implement and realize all the benefits of a fully aligned and integrated airman certification system. Also, the process of coding will accelerate the necessary process of culling the questions, or types of questions, that do not correlate to a specific task/element in the applicable ACS.

6.3 Test Management

The involvement of external stakeholders in the process of knowledge test question development and evaluation inevitably raises concerns about maintaining the integrity of the test item databank. Members of the ATST WG are fully cognizant of the dilemma this issue poses for the FAA. On the one hand, the active, ongoing involvement of expert external stakeholders such as those individuals and organizations represented on the ARC and now the ATST WG is essential to meeting the stated goals of the project. The FAA needs the "real-time, real-world" experience and expertise that these entities bring to the table. On the other hand, the involvement of these experts has the potential to create real or potential conflicts of interest, as well as perceptions of compromise.

The ATST WG believes there are multiple ways to strike a balance that will maximize the benefits of external stakeholder participation while minimizing the real or perceived compromise to test integrity. One of these methods -- having the ACSWG code test questions from recently retired form tests – is discussed above in the context of the recommendation to adapt and implement the proposed ACS-based coding system. Appendix S provides the ATST WG's detailed recommendations on the composition, qualifications, terms of service, and security guidelines for the proposed ACSWG.

6.3.1 Quality Management System (QMS)

A robust change management process is an essential component of the Safety Management System (SMS) approach to managing risk. As indicated in the previous sections of this report, a core recommendation of the ATST WG is for the FAA to use the QMS framework to accomplish this goal. Specifically, the FAA should develop a comprehensive QMS process for coordinated management of changes to each of the three components in the airman certification system: ACS, guidance, and testing. The ATST WG believes that the proposed ACSWG should be the mechanism for external stakeholder contributions to each component of the airman certification system.

As noted previously, the ATST WG further believes that both the terms of ACSWG membership and its "rules of engagement" can be structured to minimize real or perceived conflicts of interest. These could include limited terms or rotating membership on the ACSWG, and use of multiple independent sub-groups to "board" (evaluate) draft test questions. This approach would ensure that no single external stakeholder has access to, or direct knowledge of, more than a fraction of the overall test question databank. Finally, ATST WG members with experience with CAM or other test writing committees note that in a properly-structured multi-stage evaluation process, questions ultimately accepted for inclusion on the test usually bear little resemblance to the original draft.

6.3.2 Sample Questions

One of the shortcomings in today's knowledge testing is the large number of questions requiring calculation to very precise values. In addition to being often irrelevant or (ironically) inaccurate due to the false implication of decimal-point precision, such questions perpetuate the widespread practice of studying-by-memorizing the correct values.

Both the ARC and the ATST WG, which invested considerable time in developing sample questions aligned to the ACS, believe that such questions are largely unnecessary. The ATST WG "boarded" knowledge test questions whose structure drives the applicant to understanding, applying, and correlating rather than simply memorizing calculated values. Appendix K to this report includes examples of knowledge test questions before and after the knowledge test question guidelines were used to improve each question. The ATST WG notes that in addition to being more sound in educational terms, such questions could easily be released to the public without compromising the test in any way. On the contrary, the release of such questions will point applicants to concepts they need to understand and correctly apply for safe operation in the NAS.

The following example developed by the ATST WG illustrates the type of test question that can be released to the public since the information can be changed in the knowledge test item bank:

> You are 38 years old. You had your medical exam on March 18th this year and received a first class medical certificate. When can you no longer exercise the privileges as a private pilot with that medical certificate?
> (P.I.A.K9.a)
> (Reference: 14 CFR 61.23)
>
> A) March 18th, 2 years from this year.
> B) March 19th, 5 years from this year.
> **C) April 1st, 5 years from this year.**

In this example, the applicant must demonstrate an understanding of and apply medical certificate regulations, as opposed to simply memorizing the rule. The age and date in the example can be changed to create multiple questions for the knowledge test item bank.

6.3.3 Professional Test Management

In the parlance of assessment, a high-stakes test is an exam with significant consequences for the test taker: Passing conveys important benefits, and failing results in adverse consequences.

Both the knowledge exam and the practical test components of the FAA's airman certification testing process are high-stakes exams for the test-taker. Passing one or both of these exams is the key to obtaining any credential in the range of airman certificates, which include various pilot certificate levels (sport, recreational, private, commercial, ATP); instructor certificates (e.g., CFI); certificates necessary for employment (e.g., dispatcher), and ratings that convey an operating privilege (e.g., instrument rating, multi-engine rating).

The FAA's knowledge exam and practical test are also high-stakes tests for the FAA and, in a very real sense, for everyone with a stake in safety of the NAS. The airman certification testing process is intended to protect public safety and welfare by ensuring that each person operating in the NAS meets the standards prescribed by 14 CFR part 61 for aeronautical knowledge, experience, and flight proficiency.

For these reasons, it is essential for each component of the FAA's airman certification system, including testing, to have integrity – real and perceived – in terms of both substance and security.

From the substantive point of view, the content must be appropriate and relevant, and the questions must be valid, reliable, relevant and, ideally, constructed in the test format most appropriate to the subject and the assessment of its mastery by the applicant. Ideally, tests should include a range of question types (i.e., not confined to multiple choice). Also, the overall test should ideally be a randomly-generated instrument with test question subject allocation derived from the test question distribution map.

In addition to broadening the set of available questions for every subject, a randomly-generated test bolsters test integrity and security. If each test is essentially unique to an individual applicant, both the opportunities and the motivation for cheating diminish. Similarly, randomly-generated tests minimize other security-related threats to test integrity, such as test compromise, piracy, "harvesting" questions, and volatile re-takes.

To that end, one of the ARC's nine recommendations addressed the need to update and upgrade the FAA's test management infrastructure. [11]

> The ARC recommends the FAA urgently allocate additional resources to AFS–630 for an improved computer system (including both hardware and software) for development, maintenance, and delivery of knowledge tests that can—
>
> - Randomly generate tests that include all required knowledge areas (instead of manually created form tests).
> - Display onscreen images with regularly updated figures in place of FAA computer testing supplements.
> - Improve data management.
> - Be updated and maintained as technology improves.

While the ATST WG would welcome the implementation of this recommendation for test management, members recognize that current and ongoing budgetary constraints significantly constrain the FAA's ability to do so. Moreover, the ATST WG believes that acquisition of a new computer system for continued in-house management of the airman testing process would not be the best use of resources.

The FAA manages a system characterized by a vast number of questions (over 13,000), a large number of form tests (392), and a very high number of high-stakes certification tests administered each year (over 105,000 in 2012). No other high-stakes testing and certification organization attempts in-house management with even a fraction of the complexity inherent in the FAA's airman testing system. For these reasons, the ATST WG strongly recommends that the FAA urgently investigate options for contracting the range of test management functions, to include security, to a professional test management company.

[11] ATST ARC Report, Recommendation 6 at pages 13 and 37.

7.0 RECOMMENDATIONS

The ATST WG recommendations fall under two categories. The first set of recommendations addresses adoption and implementation of the Airman Certification System, and the second set of recommendations addresses management of the integrated Airman Certification System.

7.1 Recommendations on Adoption and Implementation of Airman Certification System

The ATST WG developed the framework for, and several components of, the Airman Certification System. The ATST WG recommends the FAA adopt and implement the ACS approach by taking the following steps.

7.1.1 Standards

The FAA should transition each PTS document into the ACS format, to include the five-element coding system described in Section 4.1.3 and Appendix R, by establishing an FAA project team incorporating members from all relevant headquarters policy divisions to:

- Review and finalize the ATST WG's draft ACS documents for the private, commercial, airline transport pilot, and authorized instructor certificates and the instrument rating for public comment via publication in the Federal Register.
- Begin ACS-conforming changes to the FAA's internal guidance, to include training materials for aviation safety inspectors and evaluators (designees).
- Use the conversion priorities proposed in Appendix N to establish a timeline for completion of the ATP ACS and development of additional ACS documents.
- Develop an implementation plan for private, commercial, ATP, authorized instructor, and instrument rating ACS documents, with consideration given to beta testing with a representative sample of the stakeholder community.
- Complete ATP ACS in accordance with Pilot Certification and Qualification Requirements for Air Carrier Operations Final Rule and other applicable guidance.

7.1.2 Guidance

The FAA should adapt the proposals listed in Chapter 5.0 of this report to align guidance (e.g., FAA-H-8083-XX series handbooks and FAA-CT-8080-XX series computer testing supplements) with the ACS and to manage:

- Updates (Section 5.1)
- Coordination (Section 5.2)
- Distribution (Section 5.3)
- Communication (Section 5.4)

7.1.3 Testing

The FAA should improve the quality of the knowledge testing component by adopting the proposals outlined in Chapter 6.0 of this report. These include:

- ***Content*****:** Adopt the professionally-accepted guidelines listed in Section 6.1.1 for test question content and construction of question stems, distractors, and general options, as well as for use of references and questions requiring calculation.
- ***Coding*****:** Develop a plan apply the ACS codes described in Section 4.1.3 to existing test questions, starting with those applicable to the private, commercial, ATP, and authorized instructor certificates and the instrument rating.
- ***Mapping*****:** Adopt and, in consultation with stakeholders, regularly review and revise the test topic distribution "map" presented in Section 6.1.3.
- ***Test Management*****:** Urgently investigate options for contracting the range of test management functions, to include security, to a professional test management company.

7.2 Recommendations on Effectively Managing the Integrated Airman Certification System

In order to ensure systemic adoption of the Airman Certification System, the ATST WG formulated a series of recommendations intended to create a roadmap for implementation. The ATST WG recommends the FAA expeditiously take the following steps to establish mechanisms to enact and manage the integrated ACS approach to airman certification.

7.2.1 Stakeholder Participation

The FAA should establish an FAA/industry working group (see proposal in Appendix S) to:

- Assist the agency in ensuring that the content of standards (ACS), guidance, and knowledge testing materials is relevant and up-to-date
- Ensure that all components of the airman certification system are maintained in alignment.

7.2.2 QMS

The FAA should develop a comprehensive QMS process (see Appendix O) that encompasses all three components of the airman certification system: ACS, guidance, and test development/management. This process should provide for:

- Integrated management of these components and incorporate input from both internal stakeholders (e.g., FAA policy divisions) and external stakeholders (e.g., via the ACSWG discussed in Appendix S).
- Change management processes for each part of the airman certification system (e.g., what, who, when, how, how often).
- Mechanisms for timely feedback to internal and external stakeholders.

8.0 CONCLUSION

The FAA knowledge test is a vital component of the airman certification process. It is intended to measure an applicant's understanding of the rules, regulations, and knowledge areas required to earn an FAA airman certificate. The FAA, aviation community stakeholders, and the public thus have a compelling interest in an AKT process that provides an accurate and meaningful assessment of an applicant's fitness to operate safely in the NAS.

This effort began as an effort to "fix" knowledge testing, widely regarded as the most deeply flawed component of the FAA's airman certification system. In its present form, the airman knowledge test does not reflect a typical ground training program. Instead, applicants who have demonstrated knowledge and mastery in an approved ground and flight school curriculum must still conduct a comprehensive test prep to pass the knowledge test. Because the airman knowledge test is so disconnected from both training and the practical test, many regard it as a rote memorization exercise that has no real value for aviation safety education and training.

As the original ATST ARC quickly determined, there is no way to improve the airman knowledge test in a meaningful and sustainable way without addressing the systemic issues underlying the deficiencies in today's knowledge test. It was the ATST WG's task to define knowledge test standards, as well as to develop recommendations to align testing and guidance material with those standards. Accordingly, this report and its recommendations outline a holistic airman certification system based on the integrated ACS approach recommended by the original ATST ARC.

Having developed this and other ARC recommendations into specific products such as the ACS and detailed proposals for improving the guidance material and knowledge testing components of the airman certification system, the ATST WG is confident that the integrated ACS approach offers a significant improvement over the current state. The airman certification system is a comprehensive treatment of the airman certification process that:

- Recognizes that most aviation accidents some degree of deficiency in the pilot's knowledge, skill, and risk management abilities.
- Provides a way to ensure that all components of the certification process – standards, guidance, and testing – are correlated, aligned, and maintained in alignment.
- Aligns with principles for effective adult education and meaningful testing clearly linked to training.
- Comports with accepted industry standards and best practices for a certification process.
- Enhances the educational value of the FAA knowledge test, better serving both the FAA and its full range of stakeholders.

The ATST WG is pleased to provide its report and recommendations to the ARAC, and stands ready to assist the FAA in the important implementation work ahead.

APPENDICES

APPENDICES (continued)

APPENDIX A: DRAFT PRIVATE PILOT ACS + TRACKING MATRIX

Appendix A includes the complete draft Private Pilot – Airplane Airman Certification Standards (ACS), as well as the Tracking Matrix documenting the transition from FAA-S-8081-14B, Private Pilot Practical Test Standards (PTS) for Airplane (SEL, MEL, SES, MES) to the Private Pilot – Airplane ACS. This draft incorporates the relevant comments received when the ATST WG published the first draft of the ACS for comment (Docket No. FAA-2013-0316), as well as the comments received when the second draft of the document was published for comment (Docket No. FAA-2013-0649).

NOTE: The Private Pilot Practical Test Standards Tracking Matrix appears first as an integrated component of this appendix, and the draft Private Pilot – Airplane ACS immediately follows as a stand-alone document.

FAA-S-8081-14B, Private Pilot Practical Test Standards for Airplane (SEL, MEL, SES, MES)
Section 1: Private Pilot – Airplane Single-Engine Land and Single-Engine Sea Areas of Operation
Change Tracking Matrix

PTS Task Reference	Name of PTS Task	ACS Task Reference	Name of ACS Task	Notes & Rationale for Changes
I.A.	Certificates and Documents (ASEL and ASES)	I.A.	Pilot Qualifications	Removed (ASEL and ASES) from name of task Airman Certificate Questions/Regulatory Currency/Medical Certificate Questions should be separated from determining whether the aircraft is airworthy. Change name of task to Pilot Qualifications. Modified references to be specific to airman certificates.
I.B.	Airworthiness Requirements (ASEL and ASES)	I.B.	Airworthiness Requirements	Removed (ASEL and ASES) from name of task. Added tasks from Certificates and Documents (now Pilot Qualifications) as they apply to aircraft airworthiness. Added reference applicable to aircraft certificates and documents (14 CFR Part 43). Accounted for differences with light sport A/C (how certified, how maintained).
I.C.	Weather Information (ASEL and ASES)	I.C.	Weather Information	Removed (ASEL and ASES) from name of task. Removed obsolete reference (AC 61-84). Need basic meteorology knowledge for risk assessment.
I.D.	Cross-Country Flight Planning (ASEL and ASES)	I.D.	Cross-Country Flight Planning	Removed (ASEL and ASES) from name of task. Remove obsolete reference (AC61-84). Task elements from current guidance relevant to planning and calculating flight plan have been moved to *Pilotage and Dead Reckoning* task.
I.E.	National Airspace System (ASEL and ASES)	I.E.	National Airspace System	Removed (ASEL and ASES) from name of task.

FAA-S-8081-14B, Private Pilot Practical Test Standards for Airplane (SEL, MEL, SES, MES) Section 1: Private Pilot – Airplane Single-Engine Land and Single-Engine Sea Areas of Operation Change Tracking Matrix				
PTS Task Reference	**Name of PTS Task**	**ACS Task Reference**	**Name of ACS Task**	**Notes & Rationale for Changes**
I.F.	Performance and Limitations (ASEL and ASES)	I.F.	Performance and Limitations	Removed (ASEL and ASES) from name of task. Removed AC 61-84 (obsolete) from Reference.
I.G.	Operation of Systems (ASEL and ASES)	I.G.	Operation of Systems	Removed (ASEL and ASES) from name of task. Removed ASES reference (FAA-H-8083-23).
I.H.	Water and Seaplane Characteristics (ASES)	I.I.	Water and Seaplane Characteristics, Seaplane Bases, Maritime Rules, And Aids to Marine Navigation (ASES, AMES)	Combined PTS I.H. and I.I. into a single Task
I.I.	Seaplane BASES, Maritime Rules, and Aids to Maritime Navigation (ASES)			Combined PTS I.H. and I.I. into a single Task; combined Sections 1 and 2 (single-engine and multi-engine)
I.J.	Aeromedical Factors (ASEL and ASES)	I.H.	Human Factors	Removed (ASEL and ASES) from name of task. Added human factors and changed name of task to *Human Factors* . Note: Two tasks (separate SRM).
		I.J.	Principles of Flight - Engine (AMEL, AMES)	Merged PTS Section 2 (Multi-Engine) into ACS Section 1
II.A	Preflight Inspection (ASEL and ASES)	II.A.	Preflight Assessment	Removed (ASEL and ASES) from name of task. Change name of task to *Preflight Assessment* to capture risk management aspect of preflight planning.
II.B.	Cockpit Management (ASEL and ASES)	II.B.	Cockpit Management	Removed (ASEL and ASES) from name of task. Added AC 91-21.1, Use of Portable Electronic Devices, to References.
II.C.	Engine Starting (ASEL and ASES)	II.C.	Engine Starting	Removed (ASEL and ASES) from name of task.

FAA-S-8081-14B, Private Pilot Practical Test Standards for Airplane (SEL, MEL, SES, MES)
Section 1: Private Pilot – Airplane Single-Engine Land and Single-Engine Sea Areas of Operation
Change Tracking Matrix

PTS Task Reference	Name of PTS Task	ACS Task Reference	Name of ACS Task	Notes & Rationale for Changes
II.D.	Taxiing (ASEL)	II.D.	Taxiing (ASEL, AMEL)	Added (AMEL) to name of task. Absorbed Runway Markings, Signs and Lighting (Task III.C.) and Runway Incursion Avoidance (Task II.F.). Added AFD, FAA-H-8083-25, AC 91-73, AC 150-5340-18 to References.
II.E.	Taxiing and Sailing (ASES)	II.E.	Taxiing and Sailing (ASES, AMES)	Combined PTS Sections 1 and 2
II.F.	Runway Incursion Avoidance (ASEL and ASES)	–	COMBINED/ABSORBED	Absorbed in *Taxiing* ACS task.
II.G.	Before Takeoff Check (ASEL and ASES)	II.F.	Before Takeoff Check	Removed (ASEL and ASES) from name of task. Removed ASES reference (FAA-H-8083-23).
III.A.	Radio Communications and ATC Light Signals (ASEL and ASES)	III.A.	Communications and Light Gun Signals	Removed (ASEL and ASES) from name of task.
III.B.	Traffic Patterns (ASEL and ASES)	III.B.	Traffic Patterns	Removed (ASEL and ASES) from name of task.
III.C.	Airport/Seaplane Base, Runway, and Taxiway Signs, Markings, and Lighting (ASEL and ASES)	–	COMBINED/ABSORBED	Absorbed in *Taxiing* ACS task.
IV.A.	Normal and Crosswind Takeoff and Climb (ASEL and ASES)	IV.A.	Normal Takeoff and Climb	Removed (ASEL and ASES) from name of task. Changed name of the task to *Normal Takeoff and Climb* because there are three kinds of takeoffs (normal, short-field, soft-field), and the effects of wind must be considered for all three.
IV.B.	Normal and Crosswind Approach and Landing	IV.B.	Normal Approach and Landing	Changed name of task to *Normal Approach and Landing* because there are three kinds of approaches and landings (normal, short-field, soft-field).

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PTS Task Reference	Name of PTS Task	ACS Task Reference	Name of ACS Task	Notes & Rationale for Changes
IV.C.	Soft-Field Takeoff and Climb (ASEL)	IV.C.	Soft-Field Takeoff and Climb (ASEL)	
IV.D.	Soft-Field Approach and Landing (ASEL)	IV.D.	Soft-Field Approach and Landing (ASEL)	
IV.E.	Short-Field Takeoff (Confined Area—ASES) and Maximum Performance Climb (ASEL and ASES)	IV.E.	Short-Field Takeoff and Maximum Performance Climb (ASEL, AMEL)	
IV.F.	Short-Field Approach (Confined Area—ASES) and Landing (ASEL and ASES)	IV.F.	Short-Field Approach and Landing (ASEL, AMEL	Added (AMEL) to name of task. Removed ASES reference (FAA-H-8083-23).
		IV.G.	Confined Area Takeoff and Maximum Performance Climb (ASES, AMES)	Split sea task out of Short-Field Takeoff Land task
		IV.H.	Confined Area Approach and Landing (ASES, AMES)	Split sea task out of Short-Field Approach Land task
IV.G.	Glassy Water Takeoff and Climb (ASES)	IV.I.	Glassy Water Takeoff and Climb (ASES, AMES)	Added AMES to name of task
IV.H.	Glassy Water Approach and Landing (ASES)	IV.J.	Glassy Water Approach and Landing (ASES, AMES)	Added AMES to name of task
IV.I.	Rough Water Takeoff and Climb (ASES)	IV.K.	Rough Water Takeoff and Climb (ASES, AMES)	Added AMES to name of task
IV.J.	Rough Water Approach and Landing (ASES)	IV.L.	Rough Water Approach and Landing (ASES, AMES)	Added AMES to name of task
IV.K.	Forward Slip to Landing (ASEL and ASES)	IV.M.	Forward Slip to Landing (ASEL, ASES)	
IV.L.	Go-Around/Rejected Landing (ASEL and ASES)	IV.N.	Go-Around/Rejected Landing	Removed (ASEL and ASES) from name of task.
V.A.	Steep Turns (ASEL and ASES)	V.A.	Steep Turns	Removed (ASEL and ASES) from name of task.
		V.B.	Ground Reference Maneuvers (NEW TASK)	Combined: Rectangular Course; S-Turns; and Turns Around a Point into this new ACS task: *Ground Reference Maneuvers*.

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PTS Task Reference	**Name of PTS Task**	**ACS Task Reference**	**Name of ACS Task**	**Notes & Rationale for Changes**
VI.A.	Rectangular Course (ASEL and ASES)	–	COMBINED/ABSORBED	Combined Rectangular course, S-turns, and turns around a point into a single task: *Ground Reference Maneuvers* under “Performance Maneuvers” Area of Operation for increased flexibility for the circumstances surrounding the practical exam, while alleviating redundancies. Added 14 CFR part 61 to References.
VI.B.	S-Turns (ASEL and ASES)	–	COMBINED/ABSORBED	Combined Rectangular course, S-turns, and turns around a point into a single task: *Ground Reference Maneuvers* under “Performance Maneuvers” Area of Operation for increased flexibility for the circumstances surrounding the practical exam, while alleviating redundancies. Added 14 CFR part 61 to References.
VI.C.	Turns Around a Point (ASEL and ASES)	–	COMBINED/ABSORBED	Combined Rectangular course, S-turns, and turns around a point into a single task: *Ground Reference Maneuvers* under “Performance Maneuvers” Area of Operation for increased flexibility for the circumstances surrounding the practical exam, while alleviating redundancies. Added 14 CFR part 61 to References.
VII.A.	Pilotage and Dead Reckoning (ASEL and ASES)	VI.A.	Pilotage and Dead Reckoning	Removed (ASEL and ASES) from name of task. Absorbs flight planning elements from *Cross-Country Flight Planning* task.
VII.B.	Navigation Systems and Radar Services (ASEL and ASES)	VI.B.	Navigation Systems and Radar Services	Removed (ASEL and ASES) from name of task. Eliminate ADF/NDB testing at the private pilot level.
VII.C.	Diversion (ASEL and ASES)	VI.C.	Diversion	Removed (ASEL and ASES) from name of task. Suggest removing VHF Direction Finder from all knowledge exams.

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PTS Task Reference	Name of PTS Task	ACS Task Reference	Name of ACS Task	Notes & Rationale for Changes
VII.D.	Lost Procedures (ASEL and ASES)	VI.D.	Lost Procedures	Removed (ASEL and ASES) from name of task. Removed references to DF steer.
VIII.A.	Maneuvering During Slow Flight (ASEL and ASES)	VII.A.	Maneuvering During Slow Flight	Removed (ASEL and ASES) from name of task.
VIII.B.	Power-Off Stalls (ASEL and ASES)	VII.B.	Power-Off Stalls	Removed (ASEL and ASES) from name of task.
VIII.C.	Power-On Stalls (ASEL and ASES)	VII.C.	Power-On Stalls	Removed (ASEL and ASES) from name of task.
VIII.D.	Spin Awareness (ASEL and ASES)	VII.D.	Spin Awareness	Removed (ASEL and ASES) from name of task.
IX.A.	Straight-and-Level Flight (ASEL and ASES)	–	COMBINED/ABSORBED	Combined: Straight and Level Flight, Constant Airspeed Climbs, Constant Airspeed Descents, Turns to Headings, Recovery from Unusual Flight Attitudes, and Radio Communications, Navigation Systems/Facilities, and Radar Services into a single task now called *Inadvertent IMC* and moved into the "Emergency Operations" Area of Operation . This was done to shift and emphasize training focus, to ensure applicants understand these are emergency situations not normal – to discourage the perception this is “Instrument training 101”. This will increase safety and directly address the high rate of fatalities due to inadvertent flight into IMC.

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PTS Task Reference	**Name of PTS Task**	**ACS Task Reference**	**Name of ACS Task**	**Notes & Rationale for Changes**
IX.B.	Constant Airspeed Climbs (ASEL and ASES)	–	COMBINED/ABSORBED	Combined: Straight and Level Flight, Constant Airspeed Climbs, Constant Airspeed Descents, Turns to Headings, Recovery from Unusual Flight Attitudes, and Radio Communications, Navigation Systems/Facilities, and Radar Services into a single task now called *Inadvertent IMC* and moved into the "Emergency Operations" Area of Operation . This was done to shift and emphasize training focus, to ensure applicants understand these are emergency situations not normal – to discourage the perception this is "Instrument training 101". This will increase safety and directly address the high rate of fatalities due to inadvertent flight into IMC.
IX.C.	Constant Airspeed Descents (ASEL and ASES)	–	COMBINED/ABSORBED	Combined: Straight and Level Flight, Constant Airspeed Climbs, Constant Airspeed Descents, Turns to Headings, Recovery from Unusual Flight Attitudes, and Radio Communications, Navigation Systems/Facilities, and Radar Services into a single task now called *Inadvertent IMC* and moved into the "Emergency Operations" Area of Operation . This was done to shift and emphasize training focus, to ensure applicants understand these are emergency situations not normal – to discourage the perception this is "Instrument training 101". This will increase safety and directly address the high rate of fatalities due to inadvertent flight into IMC.

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PTS Task Reference	**Name of PTS Task**	**ACS Task Reference**	**Name of ACS Task**	**Notes & Rationale for Changes**
IX.D.	Turns to Headings (ASEL and ASES)	–	COMBINED/ABSORBED	Combined: Straight and Level Flight, Constant Airspeed Climbs, Constant Airspeed Descents, Turns to Headings, Recovery from Unusual Flight Attitudes, and Radio Communications, Navigation Systems/Facilities, and Radar Services into a single task now called *Inadvertent IMC* and moved into the "Emergency Operations" Area of Operation . This was done to shift and emphasize training focus, to ensure applicants understand these are emergency situations not normal – to discourage the perception this is “Instrument training 101”. This will increase safety and directly address the high rate of fatalities due to inadvertent flight into IMC.
IX.E.	Recovery from Unusual Flight Attitudes (ASEL and ASES)	–	COMBINED/ABSORBED	Combined: Straight and Level Flight, Constant Airspeed Climbs, Constant Airspeed Descents, Turns to Headings, Recovery from Unusual Flight Attitudes, and Radio Communications, Navigation Systems/Facilities, and Radar Services into a single task now called *Inadvertent IMC* and moved into the "Emergency Operations" Area of Operation . This was done to shift and emphasize training focus, to ensure applicants understand these are emergency situations not normal – to discourage the perception this is “Instrument training 101”. This will increase safety and directly address the high rate of fatalities due to inadvertent flight into IMC.

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PTS Task Reference	Name of PTS Task	ACS Task Reference	Name of ACS Task	Notes & Rationale for Changes
IX.F.	Radio Communications, Navigation Systems/Facilities, and Radar Services (ASEL and ASES)	–	COMBINED/ABSORBED	Combined: Straight and Level Flight, Constant Airspeed Climbs, Constant Airspeed Descents, Turns to Headings, Recovery from Unusual Flight Attitudes, and Radio Communications, Navigation Systems/Facilities, and Radar Services into a single task now called *Inadvertent IMC* and moved into the "Emergency Operations" Area of Operation . This was done to shift and emphasize training focus, to ensure applicants understand these are emergency situations not normal – to discourage the perception this is "Instrument training 101". This will increase safety and directly address the high rate of fatalities due to inadvertent flight into IMC.
		VIII.A.	Inadvertent IMC (NEW TASK)	COMBINED: Straight and Level Flight; Constant Airspeed Climbs; Constant Airspeed Descents; Turns to Headings; and Radio Communications, Navigation Systems/Facilities, and Radar Services into new *Inadvertent IMC* task.
X.A.	Emergency Descent (ASEL and ASES)	–	COMBINED/ABSORBED	Removed (ASEL and ASES) from name of task. Absorbed into *Systems and Equipment Malfunctions* task.
X.B.	Emergency Approach and Landing (Simulated) (ASEL and ASES)	VIII.B.	Emergency Approach and Landing (Simulated)	Removed (ASEL and ASES) from name of task.
X.C.	Systems and Equipment Malfunctions (ASEL and ASES)	VIII.C.	Systems and Equipment Malfunctions	Removed (ASEL and ASES) from name of task. Absorb Emergency Descent
X.D.	Emergency Equipment and Survival Gear (ASEL and ASES)	VIII.D.	Emergency Equipment and Survival Gear	Removed (ASEL and ASES) from name of task.
		VIII.E.	Engine Failure During Takeoff before Vmc (Simulated (AMEL, AMES)	Incorporated mutli-engine Section 2 into ACS Section 1

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PTS Task Reference	Name of PTS Task	ACS Task Reference	Name of ACS Task	Notes & Rationale for Changes
		VIII.F.	Engine Failure After Lift-Off (AMEL, AMES()	Incorporated mutli-engine Section 2 into ACS Section 1
		VIII.G.	Approach and Landing with an Inoperative Engine (Simulated) (AMEL, AMES)	Incorporated mutli-engine Section 2 into ACS Section 1
		IX.A.	Maneuvering with One Engine Inoperative (AMEL, AMES)	Incorporated mutli-engine Section 2 into ACS Section 1
		IX.B.	Vmc Demonstration (AMEL, AMES)	Incorporated mutli-engine Section 2 into ACS Section 1
		IX.C.	Engine Failure During Flight (by reference to Instruments) (AMEL, AMES)	Incorporated mutli-engine Section 2 into ACS Section 1
		IX.D.	Instrument Approach and Landing with an Inoperative Engine (Simulated) by reference to Instruments (AMEL, AMES)	Incorporated mutli-engine Section 2 into ACS Section 1
XI.A.	Night Preparation (ASEL and ASES)	X.A.	Night Preparation	Removed (ASEL and ASES) from name of task.
XII.A.	After Landing, Parking, and Securing (ASEL and ASES)	XI.A.	Parking, and Securing	Removed (ASEL and ASES) from name of task. Removed ASES reference (FAA-H-8083-23).
XII.B.	Anchoring (ASES)	XI.B.	Seaplane Post-Landing Procedures	Combined PTS XII.B., C. D. into a single task
XII.C.	Docking and Mooring (ASES)	–	COMBINED/ABSORBED	
XII.D.	Ramping/Beaching (ASES)	–	COMBINED/ABSORBED	

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PTS Task Reference	Name of PTS Task	ACS Task Reference	Name of ACS Task	Notes & Rationale for Changes
I.A.	Certificates and Documents (AMEL and AMES)	I.A.	Pilot Qualifications	Combined PTS Sections 1 and 2 into a single ACS Section 1; Removed (ASEL and ASES) from name of task Airman Certificate Questions/Regulatory Currency/Medical Certificate Questions should be separated from determining whether the aircraft is airworthy. Change name of task to Pilot Qualifications. Modified references to be specific to airman certificates.
I.B.	Airworthiness Requirements (AMEL and AMES)	I.B.	Airworthiness Requirements	Removed (ASEL and ASES) from name of task. Added tasks from Certificates and Documents (now Pilot Qualifications) as they apply to aircraft airworthiness. Added reference applicable to aircraft certificates and documents (14 CFR Part 43). Accounted for differences with light sport A/C (how certified, how maintained).
I.C.	Weather Information (AMEL and AMES)	I.C.	Weather Information	Removed (ASEL and ASES) from name of task. Removed obsolete reference (AC 61-84). Need basic meteorology knowledge for risk assessment.

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PTS Task Reference	Name of PTS Task	ACS Task Reference	Name of ACS Task	Notes & Rationale for Changes
I.D.	Cross-Country Flight Planning (AMEL and AMES)	I.D.	Cross-Country Flight Planning	Removed (ASEL and ASES) from name of task. Remove obsolete reference (AC61-84). Task elements from current guidance relevant to planning and calculating flight plan have been moved to *Pilotage and Dead Reckoning* task.
I.E.	National Airspace System (AMEL and AMES)	I.E.	National Airspace System	Removed (ASEL and ASES) from name of task.
I.F.	Performance and Limitations (AMEL and AMES)	I.F.	Performance and Limitations	Removed (ASEL and ASES) from name of task. Removed AC 61-84 (obsolete) from Reference.
I.G.	Operation of Systems (AMEL and AMES)	I.G.	Operation of Systems	Removed (ASEL and ASES) from name of task. Removed ASES reference (FAA-H-8083-23).
I.H.	Principles of Flight Engine Inoperative (AMEL and AMES)	I.J.	Principles of Flight Engine Inoperative (AMEL, AMES)	
I.I.	Water and Seaplane Characteristics (AMES)	I.I.	Water and Seaplane Characteristics, Seaplane Bases, Maritime Rules, And Aids to Marine Navigation (ASES, AMES)	Combined PTS I.H. and I.I. into a single Task
I.J.	Seaplane BASES, Maritime Rules, and Aids to Maritime Navigation (AMES)	I.I.	Water and Seaplane Characteristics, Seaplane Bases, Maritime Rules, And Aids to Marine Navigation (ASES, AMES)	Combined PTS I.H. and I.I. into a single Task; combined Sections 1 and 2 (single-engine and multi-engine)

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PTS Task Reference	Name of PTS Task	ACS Task Reference	Name of ACS Task	Notes & Rationale for Changes
I.K.	Aeromedical Factors (AMEL and AMES)	I.H.	Human Factors	Removed (ASEL and ASES) from name of task. Added human factors and changed name of task to *Human Factors*. Note: Two tasks (separate SRM).
II.A	Preflight Inspection (AMEL and AMES)	II.A.	Preflight Assessment	Removed (ASEL and ASES) from name of task. Change name of task to *Preflight Assessment* to capture risk management aspect of preflight planning.
II.B.	Cockpit Management (AMEL and AMES)	II.B.	Cockpit Management	Removed (ASEL and ASES) from name of task. Added AC 91-21.1, Use of Portable Electronic Devices, to References.
II.C.	Engine Starting (AMEL and AMES)	II.C.	Engine Starting	Removed (ASEL and ASES) from name of task.
II.D.	Taxiing (ASEL)	II.D.	Taxiing (ASEL, AMEL)	Added (AMEL) to name of task. Absorbed Runway Markings, Signs and Lighting (Task III.C.) and Runway Incursion Avoidance (Task II.F.). Added AFD, FAA-H-8083-25, AC 91-73, AC 150-5340-18 to References.
II.E.	Taxiing and Sailing (ASES)	II.E.	Taxiing and Sailing (ASES, AMES)	Combined PTS Sections 1 and 2
II.F.	Runway Incursion Avoidance (AMEL and AMES)	–	COMBINED/ABSORBED	Absorbed in *Taxiing* ACS task.
II.G.	Before Takeoff Check (AMEL and AMES)	II.F.	Before Takeoff Check	Removed (ASEL and ASES) from name of task. Removed ASES reference (FAA-H-8083-23).

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PTS Task Reference	Name of PTS Task	ACS Task Reference	Name of ACS Task	Notes & Rationale for Changes
III.A.	Radio Communications and ATC Light Signals (AMEL and AMES)	III.A.	Communications and Light Gun Signals	Removed (ASEL and ASES) from name of task.
III.B.	Traffic Patterns (AMEL and AMES)	III.B.	Traffic Patterns	Removed (ASEL and ASES) from name of task.
III.C.	Airport/Seaplane Base, Runway, and Taxiway Signs, Markings, and Lighting (AMEL and AMES)	–	COMBINED/ABSORBED	Absorbed in *Taxiing* ACS task.
IV.A.	Normal and Crosswind Takeoff and Climb (AMEL and AMES)	IV.A.	Normal Takeoff and Climb	Removed (ASEL and ASES) from name of task. Changed name of the task to *Normal Takeoff and Climb* because there are three kinds of takeoffs (normal, short-field, soft-field), and the effects of wind must be considered for all three.
IV.B.	Normal and Crosswind Approach and Landing (AMEL and AMES)	IV.B.	Normal Approach and Landing	Changed name of task to *Normal Approach and Landing* because there are three kinds of approaches and landings (normal, short-field, soft-field).
IV.C.	Short-Field Takeoff (Confined Area—AMES) and Maximum Performance Climb (AMEL and AMES)	IV.C.	Soft-Field Takeoff and Climb (ASEL)	
IV.D.	Short-Field Approach (Confined Area—AMES) and Landing (AMEL and AMES)	IV.D.	Soft-Field Approach and Landing (ASEL)	
		IV.G.	Confined Area Takeoff and Maximum Performance Climb (ASES, AMES)	Split sea task out of Short-Field Takeoff Land task
		IV.H.	Confined Area Approach and Landing (ASES, AMES)	Split sea task out of Short-Field Approach Land task

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PTS Task Reference	Name of PTS Task	ACS Task Reference	Name of ACS Task	Notes & Rationale for Changes
IV.G.	Rough Water Takeoff and Climb (AMES)	IV.K.	Rough Water Takeoff and Climb (ASES, AMES)	Added AMES to name of task
IV.H.	Rough Water Approach and Landing (AMES)	IV.L.	Rough Water Approach and Landing (ASES, AMES)	Added AMES to name of task
IV.I.	Go-Around/Rejected Landing (AMEL and AMES)	IV.N.	Go-Around/Rejected Landing	Removed (ASEL and ASES) from name of task.
V.A.	Steep Turns (AMEL and AMES)	V.A.	Steep Turns	Removed (ASEL and ASES) from name of task.
		V.B.	Ground Reference Maneuvers (NEW TASK)	Combined: Rectangular Course; S-Turns; and Turns Around a Point into this new ACS task: *Ground Reference Maneuvers*.
VI.A.	Rectangular Course (AMEL and AMES)	–	COMBINED/ABSORBED	Combined Rectangular course, S-turns, and turns around a point into a single task: *Ground Reference Maneuvers* under "Performance Maneuvers" Area of Operation for increased flexibility for the circumstances surrounding the practical exam, while alleviating redundancies. Added 14 CFR part 61 to References.
VI.B.	S-Turns (AMEL and AMES)	–	COMBINED/ABSORBED	Combined Rectangular course, S-turns, and turns around a point into a single task: *Ground Reference Maneuvers* under "Performance Maneuvers" Area of Operation for increased flexibility for the circumstances surrounding the practical exam, while alleviating redundancies. Added 14 CFR part 61 to References.

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PTS Task Reference	Name of PTS Task	ACS Task Reference	Name of ACS Task	Notes & Rationale for Changes
VI.C.	Turns Around a Point (AMEL and AMES)	–	COMBINED/ABSORBED	Combined Rectangular course, S-turns, and turns around a point into a single task: *Ground Reference Maneuvers* under “Performance Maneuvers” Area of Operation for increased flexibility for the circumstances surrounding the practical exam, while alleviating redundancies. Added 14 CFR part 61 to References.
VII.A.	Pilotage and Dead Reckoning (AMEL and AMES)	VI.A.	Pilotage and Dead Reckoning	Removed (ASEL and ASES) from name of task. Absorbs flight planning elements from *Cross-Country Flight Planning* task.
VII.B.	Navigation Systems and Radar Services (AMEL and AMES)	VI.B.	Navigation Systems and Radar Services	Removed (ASEL and ASES) from name of task. Eliminate ADF/NDB testing at the private pilot level.
VII.C.	Diversion (AMEL and AMES)	VI.C.	Diversion	Removed (ASEL and ASES) from name of task. Suggest removing VHF Direction Finder from all knowledge exams.
VII.D.	Lost Procedures (AMEL and AMES)	VI.D.	Lost Procedures	Removed (ASEL and ASES) from name of task. Removed references to DF steer.
VIII.A.	Maneuvering During Slow Flight (AMEL and AMES)	VII.A.	Maneuvering During Slow Flight	Removed (ASEL and ASES) from name of task.
VIII.B.	Power-Off Stalls (AMEL and AMES)	VII.B.	Power-Off Stalls	Removed (ASEL and ASES) from name of task.
VIII.C.	Power-On Stalls (AMEL and AMES)	VII.C.	Power-On Stalls	Removed (ASEL and ASES) from name of task.
VIII.D.	Spin Awareness (AMEL and AMES)	VII.D.	Spin Awareness	Removed (ASEL and ASES) from name of task.

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PTS Task Reference	Name of PTS Task	ACS Task Reference	Name of ACS Task	Notes & Rationale for Changes
IX.A.	Straight-and-Level Flight (ASEL and ASES)	–	COMBINED/ABSORBED	Combined: Straight and Level Flight, Constant Airspeed Climbs, Constant Airspeed Descents, Turns to Headings, Recovery from Unusual Flight Attitudes, and Radio Communications, Navigation Systems/Facilities, and Radar Services into a single task now called *Inadvertent IMC* and moved into the "Emergency Operations" Area of Operation . This was done to shift and emphasize training focus, to ensure applicants understand these are emergency situations not normal – to discourage the perception this is “Instrument training 101”. This will increase safety and directly address the high rate of fatalities due to inadvertent flight into IMC.
IX.B.	Constant Airspeed Climbs (ASEL and ASES)	–	COMBINED/ABSORBED	Combined: Straight and Level Flight, Constant Airspeed Climbs, Constant Airspeed Descents, Turns to Headings, Recovery from Unusual Flight Attitudes, and Radio Communications, Navigation Systems/Facilities, and Radar Services into a single task now called *Inadvertent IMC* and moved into the "Emergency Operations" Area of Operation . This was done to shift and emphasize training focus, to ensure applicants understand these are emergency situations not normal – to discourage the perception this is “Instrument training 101”. This will increase safety and directly address the high rate of fatalities due to inadvertent flight into IMC.

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PTS Task Reference	Name of PTS Task	ACS Task Reference	Name of ACS Task	Notes & Rationale for Changes
IX.C.	Constant Airspeed Descents (ASEL and ASES)	–	COMBINED/ABSORBED	Combined: Straight and Level Flight, Constant Airspeed Climbs, Constant Airspeed Descents, Turns to Headings, Recovery from Unusual Flight Attitudes, and Radio Communications, Navigation Systems/Facilities, and Radar Services into a single task now called *Inadvertent IMC* and moved into the "Emergency Operations" Area of Operation . This was done to shift and emphasize training focus, to ensure applicants understand these are emergency situations not normal – to discourage the perception this is "Instrument training 101". This will increase safety and directly address the high rate of fatalities due to inadvertent flight into IMC.
IX.D.	Turns to Headings (ASEL and ASES)	–	COMBINED/ABSORBED	Combined: Straight and Level Flight, Constant Airspeed Climbs, Constant Airspeed Descents, Turns to Headings, Recovery from Unusual Flight Attitudes, and Radio Communications, Navigation Systems/Facilities, and Radar Services into a single task now called *Inadvertent IMC* and moved into the "Emergency Operations" Area of Operation . This was done to shift and emphasize training focus, to ensure applicants understand these are emergency situations not normal – to discourage the perception this is "Instrument training 101". This will increase safety and directly address the high rate of fatalities due to inadvertent flight into IMC.

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Change Tracking Matrix

PTS Task Reference	Name of PTS Task	ACS Task Reference	Name of ACS Task	Notes & Rationale for Changes
IX.E.	Recovery from Unusual Flight Attitudes (ASEL and ASES)	–	COMBINED/ABSORBED	Combined: Straight and Level Flight, Constant Airspeed Climbs, Constant Airspeed Descents, Turns to Headings, Recovery from Unusual Flight Attitudes, and Radio Communications, Navigation Systems/Facilities, and Radar Services into a single task now called *Inadvertent IMC* and moved into the "Emergency Operations" Area of Operation . This was done to shift and emphasize training focus, to ensure applicants understand these are emergency situations not normal – to discourage the perception this is “Instrument training 101”. This will increase safety and directly address the high rate of fatalities due to inadvertent flight into IMC.
IX.F.	Radio Communications, Navigation Systems/Facilities, and Radar Services (AMEL and AMES)	–	COMBINED/ABSORBED	Combined: Straight and Level Flight, Constant Airspeed Climbs, Constant Airspeed Descents, Turns to Headings, Recovery from Unusual Flight Attitudes, and Radio Communications, Navigation Systems/Facilities, and Radar Services into a single task now called *Inadvertent IMC* and moved into the "Emergency Operations" Area of Operation . This was done to shift and emphasize training focus, to ensure applicants understand these are emergency situations not normal – to discourage the perception this is “Instrument training 101”. This will increase safety and directly address the high rate of fatalities due to inadvertent flight into IMC.
		VIII.A.	Inadvertent IMC (NEW TASK)	COMBINED: Straight and Level Flight; Constant Airspeed Climbs; Constant Airspeed Descents; Turns to Headings; and Radio Communications, Navigation Systems/Facilities, and Radar Services into new *Inadvertent IMC* task.

FAA-S-8081-14B, Private Pilot Practical Test Standards for Airplane (SEL, MEL, SES, MES)
Section 2: Private Pilot – Airplane Multi-Engine Land and Multi-Engine Sea Areas of Operation
Change Tracking Matrix

PTS Task Reference	Name of PTS Task	ACS Task Reference	Name of ACS Task	Notes & Rationale for Changes
X.A.	Emergency Descent (AMEL and AMES)	–	COMBINED/ABSORBED	Removed (ASEL and ASES) from name of task. Absorbed into *Systems and Equipment Malfunctions* task.
X.B.	Engine Failure During Takeoff Before V_{MC} (Simulated) (AMEL and AMES)	VIII.E.	Engine Failure During Takeoff Before VMC (Simulated) (AMEL, AMES)	
X.C.	Engine Failure After Lift-Off (Simulated) (AMEL and AMES)	VIII.F.	Engine Failure After Lift-Off (Simulated) (AMEL, AMES)	
X.D.	Approach and Landing with an Inoperative Engine (Simulated) (AMEL and AMES)	VIII.G.	Approach and Landing with an Inoperative Engine (Simulatoed (AMEL, AMES)	
X.E.	Systems and Equipment Malfunctions (AMEL and AMES)	VIII.H.	Systems and Equipment Malfunctions (AMEL, AMES)	
X.F.	Emergency Equipment and Survival Gear (AMEL and AMES)	VIII.D.	Emergency Equipment and Survival Gear	
XI.A.	Maneuvering with One Engine Inoperative (AMEL and AMES)	IX.A.	Maneuvering with One Engine Inoperative (AMEL, AMES)	
XI.B.	V_{MC} Demonstration (AMEL and AMES)	IX.B.	Vmc Demonstration (AMEL, AMES)	
XI.C.	Engine Failure During Flight (by Reference to Instruments) (AMEL and AMES)	IX.C.	Engine Failure During Flight (by Reference to Instruments) (AMEL, AMES)	

FAA-S-8081-14B, Private Pilot Practical Test Standards for Airplane (SEL, MEL, SES, MES) Section 2: Private Pilot – Airplane Multi-Engine Land and Multi-Engine Sea Areas of Operation Change Tracking Matrix				
PTS Task Reference	**Name of PTS Task**	**ACS Task Reference**	**Name of ACS Task**	**Notes & Rationale for Changes**
XI.D.	Instrument Approach and Landing with an Inoperative Engine (Simulated) (by Reference to Instruments) (AMEL and AMES)	IX.D.	Instrument Approach and Landing with an Inoperative Engine (Simulated) (by Reference to Instruments) (AMEL, AMES)	
XII.A.	Night Preparation (AMEL and AMES)	X.A.	Night Preparation	Removed (ASEL and ASES) from name of task.
XIII.A.	After Landing, Parking, and Securing (AMEL and AMES)	XI.A.	Parking, and Securing	Removed (ASEL and ASES) from name of task. Removed ASES reference (FAA-H-8083-23).
XIII.B.	Anchoring (AMES)	XI.B.	Seaplane Post-Landing Procedures	Combined PTS XII.B., C. D. into a single task
XIII.C.	Docking and Mooring (AMES)	–	COMBINED/ABSORBED	
XIII.D.	Ramping/Beaching (AMES)	–	COMBINED/ABSORBED	

FAA-S-8081-XX

U.S. Department
of Transportation

**Federal Aviation
Administration**

PRIVATE PILOT –
AIRPLANE

Airman Certification Standards

Date TBD

**FLIGHT STANDARDS SERVICE
Washington, DC 20591**

ACKNOWLEDGMENTS

The U.S. Department of Transportation, Federal Aviation Administration (FAA), Airman Testing Standards Branch, AFS-630, P.O. Box 25082, Oklahoma City, OK 73125 developed this Airman Certification Standards (ACS) document with the assistance of the aviation community. The FAA gratefully acknowledges the valuable support from the many individuals and organizations who contributed their time and expertise to assist in this endeavor.

AVAILABILITY

This ACS is available for download from www.faa.gov. Please send comments regarding this document to AFS630comments@faa.gov.

FOREWORD

The Federal Aviation Administration (FAA) has published the Private Pilot—Airplane Airman Certification Standards (ACS) document to communicate the aeronautical knowledge, flight proficiency, and risk management standards for private pilot certification in the airplane category, single-engine land and sea; and multiengine land and sea classes. This ACS incorporates and supersedes the previous Practical Test Standards (PTS).

The FAA views the ACS as the foundation of its transition to a more integrated and systematic approach to airman certification. The ACS is part of the safety management system (SMS) framework that the FAA uses to mitigate risks associated with airman certification training and testing to an acceptable level. Specifically, the ACS, associated guidance, and test item bank question components of the airman certification system are constructed around the four functional components of an SMS:

- Safety Policy that defines and describes aeronautical knowledge, flight proficiency, and risk management as integrated components of the airman certification system;
- Safety Risk Management processes through which internal and external stakeholders identify and evaluate regulatory changes, safety recommendations, or other factors that require modification of airman testing and training materials;
- Safety Assurance processes to ensure the prompt and appropriate incorporation of changes arising from new regulations and safety recommendations; and
- Safety Promotion in the form of ongoing engagement with both external stakeholders (e.g., the aviation training industry) and FAA policy divisions.

In this connection, the FAA gratefully acknowledges and deeply appreciates the many hours that aviation training experts throughout the industry have contributed to the development of this ACS, along with the associated guidance and a more systematic approach to knowledge test question development. This kind of collaboration, a hallmark of a robust safety culture, strengthens and enhances aviation safety at every level of the airman certification system.

John S. Duncan
Acting Director, Flight Standards Service

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INTRODUCTION

Airman Certification Standards Concept

The goal of the airman certification process is to ensure the applicant possesses the knowledge and skill as well as the ability to manage the risks of flight in order to act as pilot in command consistent with the privileges of the certificate or rating being exercised. In fulfilling its responsibilities for the airman certification process, the Federal Aviation Administration (FAA) Flight Standards Service (AFS) plans, develops, and maintains materials related to airman certification training and testing.

Historically, these materials have included several components. The FAA knowledge test measures mastery of the aeronautical knowledge areas listed in Title 14 of the Code of Federal Regulations (14 CFR) part 61. The Practical Test Standards (PTS) defined the acceptable parameters of flight proficiency in the Areas of Operation listed in14 CFR part 61. FAA H-series handbooks, test supplements, and other materials provide guidance to applicants, instructors, and evaluators on aeronautical knowledge, flight proficiency, and risk management.

The FAA recognizes that safe operations in today's complex National Airspace System (NAS) require a more systematic integration of aeronautical knowledge, flight proficiency standards, and risk management. The FAA further recognizes the need to more clearly standardize knowledge, skills, and risk management according to the level of the certificate or rating. To that end, the FAA drew upon the expertise of organizations and individuals across the aviation community to develop the Airman Certification Standards (ACS). The ACS incorporates and supersedes the PTS.

Based on aeronautical knowledge and flight proficiency standards specified in 14 CFR part 61, the ACS integrates the knowledge, skills, and risk management abilities necessary for the safe conduct of each Task. In keeping with this integrated and systematic approach, the knowledge, skills, and risk management sections of each Task stipulate that the applicant must demonstrate understanding of each specific item. The applicant demonstrates this understanding by passing the knowledge exam and practical test.

Throughout this process, the FAA expects evaluators to assess the applicant's mastery of the topic in accordance with the level of learning (i.e., rote, understanding, application, or correlation) most appropriate for the specified Task. For some topics, the evaluator will ask the applicant to describe or explain. For other items, the evaluator will assess the applicant's understanding by providing a scenario that requires the applicant to appropriately apply and/or correlate knowledge, experience, and information to the circumstances of the given scenario. The flight portion of the practical test requires the applicant to demonstrate flight proficiency, operational skill, and risk management in accordance with the ACS.

NOTE: As used in this ACS, an evaluator is any person authorized to conduct airman testing (e.g., an FAA aviation safety inspector, designated pilot examiner, or other individual authorized to conduct a practical test.

Using the ACS

The ACS consists of ***Areas of Operation,*** arranged in a logical sequence that begins with Preflight Preparation and ends with Postflight Procedures. Each Area of Operation includes ***Tasks*** appropriate to that Area of Operation. Each Task begins with an ***Objective*** stating what the applicant should know and/or do. The ACS then lists the aeronautical knowledge, skills, and risk management considerations relevant to the specific Task, along with the conditions and acceptable standards for performance. The ACS uses ***Notes*** to emphasize special considerations. The FAA will revise the ACS as circumstances require.

The abbreviation(s) within parenthesis immediately following a Task refer to the category and/or class aircraft appropriate to that Task. The meaning of each abbreviation is as follows.

ASEL: Airplane – Single Engine Land
ASES: Airplane – Single-Engine Sea
AMEL: Airplane – Multi Engine Land
AMES: Airplane – Multi Engine Sea

NOTE: When administering a test based on this ACS, the Tasks appropriate to the class airplane (ASEL, ASES, AMEL, or AMES) used for the test shall be included in the plan of action. The absence of a class indicates the Task is for all classes.

Each Task in the ACS is coded according to a scheme that includes up to five elements. For example:

PA.X.A.K1.a:

PA = Applicable ACS (private pilot airplane)
X = Area of Operation (night operation)
A = Task (night preparation)
K1= Knowledge task element 1 (physiological aspects of night flying as it relates to vision)

NOTE: A fifth element may be used to indicate the level of learning: a=rote; b=understanding; c= application; d= correlation.

Knowledge test questions are mapped to the ACS codes, which replace the previous system of "Learning Statement Codes." Because the airman knowledge test report will list an ACS code that correlates to a specific Task Element for a given Area of Operation and Task, remedial instruction and re-testing will be specific, targeted, and based on specified learning criteria. Similarly, a Notice of Disapproval for the practical test will use the ACS codes to identify the deficient skill(s).

Practical Tests will be based on the ACS in effect the day of the test. The FAA encourages applicants and instructors to use the ACS to measure progress during training, and as a reference to ensure the applicant is adequately prepared for the knowledge and practical tests.

Applicants for a combined private pilot certificate with instrument rating, in accordance with 14 CFR 61.65 (a) and (g), must pass all areas designated in the Private Pilot ACS and the Instrument Rating ACS. Examiners need not duplicate tasks. For example, only one preflight demonstration would be required; however, the Preflight Task from the Instrument Rating ACS may be more extensive than the Preflight Task from the Private Pilot ACS to ensure readiness for IFR flight.

A combined checkride should be treated as one practical test, requiring only one application and resulting in only one temporary certificate, disapproval notice, or letter of discontinuance, as applicable. Failure of any task will result in a failure of the entire test and application. Therefore, even if the deficient maneuver was instrument related and the performance of all VFR tasks was determined to be satisfactory, the applicant will receive a notice of disapproval.

The FAA expects evaluators to adhere to 14 CFR and this ACS. The ACS uses the terms "will" and "must" to convey directive (mandatory) information. The terms "should" and "may" denote items that are recommended, but not required.

The applicant must pass the knowledge test before taking the practical test. Further, the applicant must pass the oral portion of the practical test before beginning the flight portion because the oral portion of the practical test allows the evaluator to determine whether the applicant is sufficiently prepared to advance to the flight portion of the practical test.

AIRPLANE—SINGLE ENGINE, MULTI ENGINE LAND AND SEA AREAS OF OPERATION

I. Preflight Preparation

Task	***A. Pilot Qualifications***
Reference	14 CFR parts 61, 91; FAA-H-8083-25, FAA-H-8083-23
Objective	To determine the applicant exhibits satisfactory knowledge, skills and risk management associated with airman and medical certificates including privileges, limitations, currency, and operating as pilot-in-command as a private pilot.
Knowledge	The applicant demonstrates understanding of: 1. Required pilot documents. (PA.I.A.K1) a. Currency b. Privileges and limitations c. Required endorsements d. Certificate inspection 2. Logging pilot time. (PA.I.A.K2) a. PIC, SIC, Safety Pilot b. Required records 3. Compensation/Reimbursement. (PA.I.A.K3) a. Towing b. Charitable flights c. Shared expenses d. Search and rescue e. Aircraft demonstration f. Business trips
Skills	The applicant demonstrates the ability to apply requirements to act as PIC under Visual Flight Rules (VFR) in a scenario given by the evaluator. (PA.I.A.S1)
Risk Management	The applicant applies risk identification, assessment, and mitigation principles to: 1. Distinguishing proficiency vs. currency. (PA.I.A.R1) 2. Setting personal minimums. (PA.I.A.R2) 3. Maintaining fitness to fly. (PA.I.A.R3) 4. Flying unfamiliar aircraft. (PA.I.A.R4) 5. Flying with unfamiliar flight display systems or unfamiliar avionics. (PA.I.A.R5)

Task	***B. Airworthiness Requirements***
Reference	14 CFR parts 39, 43, 91; FAA-H-8083-25
Objective	To determine the applicant exhibits satisfactory knowledge, skills and risk management associated with airworthiness requirements, including aircraft certificates.
Knowledge	The applicant demonstrates understanding of: 1. General airworthiness requirements and compliance for airplanes. (PA.I.B.K1) a. Required certificates; location and expiration dates b. Inspections; requirements, limitations/expiration dates 2. Individuals and limitations of who can perform maintenance. (PA.I.B.K2) a. A&P, IA, Owner Operator 3. Flying with inoperative equipment. (PA.I.B.K3) a. Minimum Equipment List b. Kinds of Operation Equipment List c. Type Certificate requirements d. Special Flight Permit requirements 4. Experimental aircraft airworthiness, as applicable. (PA.I.B.K4)
Skills	The applicant demonstrates the ability to: 1. Locate aircraft airworthiness information. (PA.I.B.S1) 2. Determine the aircraft is airworthy in a scenario given by the evaluator. (PA.I.B.S2) 3. Explain requirements for flying with inoperative equipment. (PA.I.B.S3) 4. Explain requirements for obtaining and flying with a Special Flight Permit. (PA.I.B.S4)
Risk Management	The applicant applies risk identification, assessment, and mitigation principles to: 1. Flying with inoperative equipment. (PA.I.B.R1) 2. Equipment failure during flight. (PA.I.B.R2) 3. Recording, tracking, and resolving maintenance discrepancies. (PA.I.B.R3)

Task	***C. Weather Information***
Reference	14 CFR part 91; AC 00-6, AC 00-45, FAA-H-8083-25; AIM
Objective	To determine the applicant exhibits satisfactory knowledge, skills and risk management associated with weather information for a flight under VFR.
Knowledge	The applicant demonstrates understanding of: 1. Weather products required for preflight planning and enroute operations. (PA.I.C.K1) 2. Current and forecast weather for departure, arrival, enroute phases of flight. (PA.I.C.K2) 3. Meteorology applicable to local, departure, enroute, alternate, and destination of VFR flight in VMC to include expected climate and hazardous conditions such as: (PA.I.C.K3) a. Atmospheric composition and stability b. Wind c. Temperature d. Moisture e. Weather system formation, including air masses and fronts f. Clouds g. Turbulence h. Thunderstorms i. Wind shear j. Icing k. Fog l. Frost 4. Enroute weather resources. (PA.I.C.K4)
Skills	The applicant demonstrates the ability to: 1. Use available aviation weather resources to obtain an adequate weather briefing. (PA.I.C.S1) 2. Correlate weather information to determine appropriate alternate(s). (PA.I.C.S2) 3. Correlate available weather information to make an ongoing go-no-go decision. (PA.I.C.S3) 4. Perform procedures to update/interpret weather in flight. (PA.I.C.S4) 5. Given a deteriorating weather scenario, divert to a suitable alternate. (PA.I.C.S5)
Risk Management	The applicant applies risk identification, assessment, and mitigation principles to: 1. Making an informed go/no go decision. (PA.I.C.R1) 2. Limitations of portable weather equipment. (PA.I.C.R2) 3. Limitations of aviation weather reports and forecasts. (PA.I.C.R3) 4. Limitations of inflight aviation weather resources. (PA.I.C.R4) 5. Identifying weather conditions that may affect the planned flight. (PA.I.C.R5) 6. Establishing personal weather minimums based on the parameters of the flight (ceilings, visibility, cross-wind component, etc.), and determining when existing and/or forecast weather conditions exceed these minimums. (PA.I.C.R6)

Task	***D. Cross-Country Flight Planning***
Reference	14 CFR part 91; FAA-H-8083-25; Navigation Charts; A/FD; AIM; NOTAMS
Objective	To determine the applicant exhibits satisfactory knowledge, skills and risk management associated with cross-country flights and VFR flight planning.
Knowledge	The applicant demonstrates understanding of: 1. Route planning. (PA.I.D.K1) 2. Applying universal coordinated time to flight planning. (PA.I.D.K2) 3. Calculating: (PA.I.D.K3) a. Time, Rate, Distance b. Heading, Course, Fuel Consumption 4. Charting symbology. (PA.I.D.K4) 5. Elements of a VFR flight plan. (PA.I.D.K5) 6. Options for activating a VFR flight plan in controlled and non-controlled airspaces. (PA.I.D.K6)
Skills	The applicant demonstrates the ability to: 1. Prepare a cross-country flight assigned by the evaluator. (PA.I.D.S1) 2. Select appropriate route, altitudes, and checkpoints. (PA.I.D.S2) 3. Recalculate fuel reserves based on a scenario provided by the evaluator. (PA.I.D.S3) 4. File and activate a VFR Flight plan. (PA.I.D.S4) 5. Interpret VFR chart symbology. (PA.I.D.S5) 6. Divert to an alternate. (PA.I.D.S6)
Risk Management	The applicant applies risk identification, assessment, and mitigation principles to: 1. Flying in unfamiliar airspace, climates, or topography. (PA.I.D.R1) 2. Tendency to complete the flight in spite of worsening conditions. (PA.I.D.R2) 3. Not maintaining appropriate VFR altitudes. (PA.I.D.R3) 4. Limitations of ATC services. (PA.I.D.R4) 5. Establish Pfuel reserves and identify situations which would merit increasing minimum fuel reserves. (PA.I.D.R5) 6. Planning a route overflying significant environmental influences, such mountains, and large bodies of water. (PA.I.D.R6) 7. Overflying areas unsuitable for landing. (PA.I.D.R7) 8. Considerations unique to oceanic flights. (PA.I.D.R8)

Task	***E. National Airspace System***
Reference	14 CFR parts 71, 91, 93; Navigation Charts; AIM
Objective	To determine the applicant exhibits satisfactory knowledge, skills and risk management associated with the National Airspace System operating under VFR as a private pilot.
Knowledge	The applicant demonstrates understanding of: 1. Kinds and classes of airspace. (PA.I.E.K1) 2. Requirements for flying in that airspace. (PA.I.E.K2) 3. Charting symbology. (PA.I.E.K3) 4. Special use airspace. (PA.I.E.K4) 5. Temporary flight restrictions. (PA.I.E.K5) 6. Special VFR operations(PA.I.E.K6)
Skills	The applicant demonstrates the ability to: 1. Determine the requirements for flying in particular classes of airspace. (PA.I.E.S1) 2. Determine the requirements for flying in special use airspace, and special flight rule airspace. (PA.I.E.S2) 3. Properly identify airspace and operate accordingly with regards to communication and equipment requirements. (PA.I.E.S3)
Risk Management	The applicant applies risk identification, assessment, and mitigation principles to: 1. Various classes of airspace. (PA.I.E.R1) 2. Flights through or in the vicinity of special use airspace. (PA.I.E.R2) 3. Effectively planning for flying in or avoiding specific use airspace. (PA.I.E.R3)

Task	***F. Performance and Limitations***
Reference	FAA-H-8083-1, FAA-H-8083-25; Pilots Operation Handbook (POH)/Airplane Flight Manual (AFM)
Objective	To determine the applicant exhibits satisfactory knowledge, skills and risk management associated with operating an aircraft safely within the parameters of the aircraft performance capabilities and limitations.
Knowledge	The applicant demonstrates understanding of: 1. Elements related to performance and limitations (takeoff and landing, crosswind and headwind, density altitude, glide performance, weight and balance, climb, cruise, descent) by explaining the use of charts, tables, and data to determine performance. (PA.I.F.K1) 2. Factors affecting performance to include atmospheric conditions, pilot technique and aircraft condition, airport environment. (PA.I.F.K2) 3. Effects of adverse loading (weight and balance). (PA.I.F.K3) 4. Effects of weight and balance over the course of the flight. (PA.I.F.K4) 5. Aerodynamics applicable to principles of flight. (PA.I.F.K5)
Skills	The applicant demonstrates the ability to: 1. Given scenario, compute weight and balance, including practical techniques to resolve out-of-limits calculations. (PA.I.F.S1) 2. Use aircraft manufacturer's approved performance charts, tables, and data. (PA.I.F.S2) 3. Evaluate takeoff and landing performance based on the values calculated. (PA.I.F.S3) 4. Evaluate environmental conditions. (PA.I.F.S4)
Risk Management	The applicant applies risk identification, assessment, and mitigation principles to: 1. Performance charts. (PA.I.F.R1) 2. Exceeding limitations. (PA.I.F.R2) 3. Variations in flight performance resulting in operational loads. (PA.I.F.R3) 4. Applying published aircraft performance data to expected performance. (PA.I.F.R4) 5. Establish personal minimums for runway length based on computed/expected aircraft takeoff and landing performance. Identify situations that would merit increasing these minimums. (PA.I.F.R5)

Task	***G. Operation of Systems***
Reference	FAA-H-8083-25, FAA-H-8083-23; POH/AFM
Objective	To determine the applicant exhibits satisfactory knowledge, skills and risk management associated with the safe operation of systems on the airplane provided for the flight test.
Knowledge	The applicant demonstrates understanding of: 1. Major components of the systems: (PA.I.G.K1) a. Primary flight controls and trim b. Flaps, leading edge devices, and spoilers c. Powerplant and propeller (basic engine knowledge) d. Landing gear e. Fuel, oil, and hydraulic f. Electrical g. Avionics h. Pitot-static, vacuum/pressure and associated flight instruments i. Environmental j. Deicing and anti-icing k. Water rudders (ASES, AMES) 2. Normal operation of systems. (PA.I.G.K2) 3. Common mistakes made by pilots (operator error). (PA.I.G.K3) 4. Recognition of when a system is operating abnormally and description of procedures to address the abnormal operation. (PA.I.G.K4) 5. Systems interaction. (PA.I.G.K5)
Skills	The applicant demonstrates the ability to: 1. Explain operation of at least three systems/operate systems on the airplane provided for the flight test. (PA.I.G.S1) 2. Use checklist procedures. (PA.I.G.S2) 3. Use checklist memory items during emergency operations, as applicable. (PA.I.G.S3) 4. Ways to identify system failure, recognizing problems as they develop. (PA.I.G.S4)
Risk Management	The applicant applies risk identification, assessment, and mitigation principles to: 1. Handling failure or abnormal operation properly to include management of startle response.(PA.I.G.R1) 2. Pilot error, including improperly operating the system that creates failure or problem. (PA.I.G.R2) 3. Determining when to land as soon as practical, when to land as soon as possible, when to declare an emergency. (PA.I.G.R3) 4. Outside/environmental factors affecting the systems, including improper fueling, carburetor ice, extremely cold temperatures, vapor lock. (PA.I.G.R4)

Task	*H. Human Factors*
Reference	FAA-H-8083-25; AIM
Objective	To determine the applicant exhibits satisfactory knowledge, skills and risk management associated with personal health, flight physiology and human factors, as it relates to safety of flight.
Knowledge	The applicant demonstrates understanding of: 1. The symptoms, recognition, causes, effects, and corrective actions associated with: (PA.I.H.K1) a. hypoxia b. hyperventilation c. middle ear and sinus problems d. spatial disorientation e. motion sickness f. carbon monoxide poisoning g. stress and fatigue h. dehydration and nutrition i. hypothermia 2. The effects of alcohol, drugs, and over-the-counter medications, and associated regulations. (PA.I.H.K2) 3. The effects of excess nitrogen during scuba dives upon a pilot or passenger in flight. (PA.I.H.K3) 4. Aeronautical decision-making as affected by hazardous attitudes. (PA.I.H.K4) 5. Vision (including optical illusion, environmental impacts, day/night, haze, sloping runways). (PA.I.H.K5) 6. Collision Avoidance (Controlled Flight into Terrain (CFIT), scanning, wire strike avoidance). (PA.I.H.K6) 7. Human factors: vestibular illusions, spatial disorientation, especially involving distractions, and interaction with charts and avionics equipment. (PA.I.H.K7)
Skills	The applicant demonstrates the ability to: 1. Perform self-assessment including whether he or she is fit for flight. (PA.I.H.S1) 2. Show sound decision-making and judgment (based on reality of circumstances). (PA.I.H.S2) 3. Perform Safety Risk Management (SRM) tasks: Aeronautical Decision Making (ADM), risk management, automation management, task management, situational awareness, and avoidance of CFIT. (PA.I.H.S3) 4. Using examples, account for environmental impacts/visual cues at the airport, as well as at one airport vs. a different airport. (PA.I.H.S4) 5. Establish and adhere to personal limitations. (PA.I.H.S5)
Risk Management	The applicant applies risk identification, assessment, and mitigation principles to: 1. Environmental impacts on medication. (PA.I.H.R1) 2. Personal risk factors and the conflict between being goal oriented and personal limitations. (PA.I.H.R2) 3. Optical illusions, including awareness, being able to anticipate, and limiting the effects. (PA.I.H.R3 4. Circumstances of the flight (day/night, hot/cold) that affect the pilot's physiology. (PA.I.H.R4) 5. Inadvertent continued VFR into Instrument Meteorological Conditions (IMC) (check Weather) (PA.I.H.R5) 6. Hazardous attitudes. (PA.I.H.R6)

Task	***I. Water and Seaplane Characteristics, Seaplane Bases, Maritime Rules, and Aids to Marine Navigation (ASES, AMES)***
Reference	FAA-H-8083-23; AIM; USCG Navigation Rules, International-Inland; POH/AFM; A/FD
Objective	To determine the applicant exhibits satisfactory knowledge, skills and risk management associated with water and seaplane characteristics, seaplane bases, maritime rules, and aids to marine navigation.
Knowledge	The applicant demonstrates understanding of: 1. The characteristics of a water surface as affected by features, such as: (PA.I.I.K1) a. size and location b. protected and unprotected areas c. surface wind d. direction and strength of water current e. floating and partially submerged debris f. sandbars, islands, and shoals g. vessel traffic and wakes h. other features peculiar to the area 2. Float and hull construction, and their effect on seaplane performance. (PA.I.I.K2) 3. Causes of porpoising and skipping, and the pilot action required to prevent or correct these occurrences. (PA.I.I.K3) 4. How to locate and identify seaplane bases on charts or in directories. (PA.I.I.K4) 5. Operating restrictions at various bases. (PA.I.I.K5) 6. Right-of-way, steering, and sailing rules pertinent to seaplane operation. (PA.I.I.K6) 7. Marine navigation aids, such as buoys, beacons, lights, and sound signals. (PA.I.I.K7)
Skills	The applicant demonstrates the ability to: 1. Assess the water surface characteristics for today's flight. (PA.I.I.S1) 2. Locate and identify seaplane bases for the region. (PA.I.I.S2) 3. Identify restrictions at local bases. (PA.I.I.S3) 4. Perform correct right-of-way, steering, and sailing operations. (PA.I.I.S4) 5. Identify marine navigation aids in the local region. (PA.I.I.S5)
Risk Management	The applicant applies risk identification, assessment, and mitigation principles to: 1. Assessing the local conditions. (PA.I.I.R1) 2. The impact of marine traffic. (PA.I.I.R2)

Task	***J. Principles of Flight – Engine Inoperative (AMEL, AMES)***
Reference	FAA-H-8083-3, FAA-H-8083-25; FAA-P-8740-19, POH/AFM
Objective	To determine the applicant exhibits satisfactory knowledge, skills and risk management associated with the elements related to engine inoperative principles of flight.
Knowledge	The applicant demonstrates understanding of: 1. The "critical engine." (PA.I.J.K1) 2. The effects of density altitude on the Vmc demonstration. (PA.I.J.K2) 3. The effects of airplane weight and center of gravity on control. (PA.I.J.K3) 4. Relationship of Vmc to stall speed. (PA.I.J.K4) 5. Reasons for loss of directional control. (PA.I.J.K5) 6. Indications of loss of directional control. (PA.I.J.K6) 7. Importance of maintaining the proper pitch and bank attitude, and the proper coordination of controls. (PA.I.J.K7) 8. Loss of directional control recovery procedure. (PA.I.J.K8) 9. Engine failure during takeoff including planning, decisions, and single-engine operations. (PA.I.J.K9)
Skills	The applicant demonstrates the ability to: 1. Properly plan for engine failure during takeoff. (PA.I.J.S1)
Risk Management	The applicant applies risk identification, assessment, and mitigation principles to: 1. Single-engine operations. (PA.I.J.R1)

II. Preflight Procedures

Task	***A. Preflight Assessment***
Reference	FAA-H-8083-3, FAA-H-8083-23; POH/AFM
Objective	To determine the applicant exhibits satisfactory knowledge, skills and risk management associated with preparing for safe flight accounting for pilot, aircraft, environment, and external factors.
Knowledge	The applicant demonstrates understanding of: 1. Pilot self-assessment. (PA.II.A.K1) 2. Determine if the aircraft is appropriate for the mission by considering load, range, equipment and aircraft ability. (PA.II.A.K2) 3. Aircraft preflight inspection including which items must be inspected, the reasons for checking each item, and how to detect possible defects, and the associated regulations. (PA.II.A.K3) 4. Environmental factors including weather and flight plan (terrain, route selection, obstructions). (PA.II.A.K4) 5. External pressures. (PA.II.A.K5) 6. Formation flying hazards (PA.II.A.K6) 7. Aviation security. (PA.II.A.K7)
Skills	The applicant demonstrates the ability to: 1. Use checklist to systematically identify and manage pilot-related risks and personal minimums associated with the flight. (PA.II.A.S1) 2. Inspect the airplane with reference to an appropriate checklist. (PA.II.A.S2) 3. Verify the airplane is airworthy and in condition for safe flight. (PA.II.A.S3) 4. Assess the factors related to the environment (weather, airports, terrain, airspace). (PA.II.A.S4) 5. Given the requirements of the flight (load, distance, altitude, time constraints) determine if the aircraft is capable of making the flight. (PA.II.A.S5)
Risk Management	The applicant applies risk identification, assessment, and mitigation principles to: 1. Environmental factors. (PA.II.A.R1) 2. External pressures. (PA.II.A.R2) 3. Aviation security concerns. (PA.II.A.R3)

Task	***B. Cockpit Management***
Reference	FAA-H-8083-3; POH/AFM; AC 91-21.1
Objective	To determine the applicant exhibits satisfactory knowledge, skills and risk management associated with safe cockpit management practices.
Knowledge	The applicant demonstrates understanding of: 1. Pilot and passenger restraint and safety system rules and operational considerations. (PA.II.B.K1) 2. Oxygen use regulations, system operational guidelines, and system checks, if applicable. (PA.II.B.K2) 3. Passenger briefing requirements and appropriate information. (PA.II.B.K3) 4. PIC responsibility to have available material for the flight as planned. (PA.II.B.K4) 5. Purpose of a checklist. (PA.II.B.K5)
Skills	The applicant demonstrates the ability to: 1. Ensure all loose items in the cockpit and cabin are secured. (PA.II.B.S1) 2. Organize, access, and determine suitability of material, equipment, and technology in an efficient manner. (PA.II.B.S2) 3. Brief occupants on the use of safety belts, shoulder harnesses, doors, sterile cockpit, flight control freedom of movement, and emergency procedures. (PA.II.B.S3) 4. Properly program the navigational equipment available to the pilot on that particular aircraft. (PA.II.B.S4) 5. Brief and execute positive exchange of flight controls and PIC responsibility. (PA.II.B.S5)
Risk Management	The applicant applies risk identification, assessment, and mitigation principles to: 1. Positive exchange of the flight controls. (PA.II.B.R1) 2. Suitability of using portable electronic devices. (PA.II.B.R2) 3. Ensuring technology is an asset and not a distraction. (PA.II.B.R3) 4. Abandoning technology when it is not appropriate. (PA.II.B.R4) 5. Recognizing impact of reported discrepancies. (PA.II.B.R5)

Task	***C. Engine Starting***
Reference	FAA-H-8083-3, FAA-H-8083-25; AC 91-13, AC 91-55; POH/AFM
Objective	To determine the applicant exhibits satisfactory knowledge, skills and risk management associated with recommended engine starting procedures including proper airplane positioning.
Knowledge	The applicant demonstrates understanding of: 1. Options for starting with a weak or depleted battery. (PA.II.C.K1) 2. Starting under various atmospheric conditions. (PA.II.C.K2) 3. Starting procedures for carbureted and fuel injected engines.(PA.II.C.K3) 4. Equipment limitations (starter cycles). (PA.II.C.K4) 5. Proper positioning of the aircraft. (PA.II.C.K5)
Skills	The applicant demonstrates the ability to: 1. Position the airplane properly considering structures, other aircraft, and the safety of nearby persons and property. (PA.II.C.S1) 2. Utilize the appropriate checklist for starting procedure. (PA.II.C.S2)
Risk Management	The applicant applies risk identification, assessment, and mitigation principles to: 1. Propeller safety and awareness to include passenger briefing. (PA.II.C.R1) 2. Hand propping. (PA.II.C.R2) 3. Abnormal start. (PA.II.C.R3) 4. Cold weather operation. (PA.II.C.R4) 5. System failure following aircraft engine starts. (PA.II.C.R5)

Task	***D. Taxiing (ASEL, AMEL)***
Reference	A/FD; FAA-H-8083-3, FAA-H-8083-25; POH/AFM; AC 91-73, AC 150-5340-18
Objective	To determine the applicant exhibits satisfactory knowledge, skills and risk management associated with safe taxi operations, including runway incursion avoidance.
Knowledge	The applicant demonstrates understanding of: 1. Positioning aircraft controls for wind. (PA.II.D.K1) 2. Airport markings (including hold short lines), signs, and lights. (PA.II.D.K2) 3. Aircraft lighting. (PA.II.D.K3) 4. Towered and non-towered airport operations. (PA.II.D.K4) 5. Visual indicators for wind. (PA.II.D.K5) 6. Airport information resources (A/FD, airport diagram). (PA.II.D.K6) 7. Good cockpit discipline during taxi, including maintaining a sterile cockpit, proper speed, separation between other aircraft and vehicles, communication procedures. (PA.II.D.K7) 8. Procedures for appropriate cockpit activities during taxiing including taxi route planning, briefing the location of HOT SPOTS, communicating and coordinating with ATC. (PA.II.D.K8) 9. Rules for entering or crossing runways. (PA.II.D.K9) 10. Procedures unique to night operations. (PA.II.D.K10) 11. Hazards of low visibility operations. (PA.II.D.K11) 12. Proper engine management including leaning, per manufacturer recommendations (PA.II.D.K12) 13. Requesting progressive taxi instructions if there is any doubt on understanding or ability to comply with a taxi clearance. (PA.II.D.K13)
Skills	The applicant demonstrates the ability to: 1. Perform a brake check immediately after the airplane begins moving. (PA.II.D.S1) 2. Position the flight controls properly for the existing wind conditions. (PA.II.D.S2) 3. Control direction and speed without excessive use of brakes. (PA.II.D.S3) 4. Exhibit procedures for steering, maneuvering, maintaining taxiway, runway position, and situational awareness to avoid runway incursions. (PA.II.D.S4) 5. Exhibit proper positioning of the aircraft relative to hold lines. (PA.II.D.S5) 6. Exhibit procedures to ensure clearances/instructions are received, recorded, and read back correctly. (PA.II.D.S6) 7. Exhibit situational awareness and taxi procedures in the event the aircraft is on a taxiway that is between parallel runways. (PA.II.D.S7) 8. Uses an Airport Diagram (if published) during taxi.(PA.II.D.S8) 9. Comply with airport/taxiway markings, signals, ATC clearances and instructions. (PA.II.D.S9) 10. Utilize procedures for eliminating pilot distractions to avoid other aircraft or vehicles and hazards. (PA.II.D.S10)
Risk Management	The applicant applies risk identification, assessment, and mitigation principles to: 1. Distractions during aircraft taxi. (PA.II.D.R1) 2. Proper workload management. (PA.II.D.R2) 3. Confirmation or expectation bias as related to taxi instructions. (PA.II.D.R3) 4. Recording taxi instructions/clearances. (PA.II.D.R4) 5. Resource management. (PA.II.D.R5) 6. Sterile cockpit during taxi. (PA.II.D.R6)

Task	*E. Taxiing and Sailing (ASES, AMES)*
Reference	A/FD; FAA-H-8083-23, FAA-H-8083-25; POH/AFM; AC 91-73, AC 150-5340-18
Objective	To determine the applicant exhibits satisfactory knowledge, skills and risk management associated with safe taxiing and sailing operations, including runway incursion avoidance.
Knowledge	The applicant demonstrates understanding of: 1. Positioning aircraft controls for wind, water and sailing procedures, including the use of flaps, doors, water rudder, and power so as to follow the desired course while sailing. (PA.II.E.K1) 2. Airport markings (including hold short lines), signs, and lights. (PA.II.E.K2) 3. Aircraft lighting. (PA.II.E.K3) 4. Towered and non-towered airport operations. (PA.II.E.K4) 5. Visual indicators for wind. (PA.II.E.K5) 6. Airport information resources (A/FD, airport diagram). (PA.II.E.K6) 7. Good cockpit discipline during taxi and sailing, including maintaining a sterile cockpit, proper speed, separation between other aircraft and vehicles, communication procedures. (PA.II.E.K7) 8. Procedures for appropriate cockpit activities during taxiing and sailing including taxi route planning, briefing the location of HOT SPOTS, communicating and coordinating with ATC. (PA.II.E.K8) 9. Rules for entering or crossing runways. (PA.II.E.K9) 10.Procedures unique to night operations. (PA.II.E.K10) 11.Hazards of low visibility operations, other aircraft and vessels. (PA.II.E.K11) 12.Proper engine management including leaning, per manufacturer recommendations (PA.II.E.K12) 13.Requesting progressive taxi instructions if there is any doubt on understanding or ability to comply with a taxi clearance. (PA.II.E.K13) 14. Proper technique for the conditions, including idle, plow or step taxi, preventing and correcting for porpoising and skipping. (PA.II.E.K14)
Skills	The applicant demonstrates the ability to: 1. Perform a brake check immediately after the airplane begins moving. (PA.II.E.S1) 2. Position the flight controls, flaps, doors, water rudder, and power correctly for the existing wind, water and sailing conditions and to prevent and correct for porpoising and skipping. (PA.II.E.S2) 3. Uses the appropriate idle, plow, or step taxi technique. (PA.II.E.S3) 4. Exhibit procedures for steering, maneuvering, maintaining taxiway, runway position, and situational awareness to avoid runway incursions. (PA.II.E.S4) 5. Plans and follows the most favorable course while taxiing or sailing. Considers wind, water current, water conditions, and maritime regulations, as appropriate. (PA.II.E.S5) 6. Exhibit procedures to ensure clearances/instructions are received, recorded, and read back correctly. (PA.II.E.S6) 7. Exhibit situational awareness and taxi procedures in the event the aircraft is on a taxiway that is between parallel runways. (PA.II.E.S7) 8. Uses an Airport Diagram during taxi.(PA.II.E.S8) 9. Comply with airport/taxiway markings, signals, ATC clearances and instructions. (PA.II.E.S9) 10.Utilize procedures for eliminating pilot distractions to avoid other aircraft or vehicles and hazards. (PA.II.E.S10)
Risk Management	The applicant applies risk identification, assessment, and mitigation principles to: 1. Distractions during aircraft taxi. (PA.II.E.R1) 2. Proper workload management. (PA.II.E.R2) 3. Confirmation or expectation bias as related to taxi instructions. (PA.II.E.R3) 4. Recording taxi instructions/clearances. (PA.II.E.R4) 5. Resource management. (PA.II.E.R5) 6. Porpoising and skipping. (PA.II.E.R6) 7. Avoid other aircraft, vessels, and hazards while on the water. (PA.II.E.R7)

Task	***F. Before Takeoff Check***
Reference	FAA-H-8083-3, FAA-H-8083-23 (ASES, AMES), POH/AFM
Objective	To determine the applicant exhibits satisfactory knowledge, skills and risk management associated with the before takeoff check, including the reasons for checking each item, detecting malfunctions, and ensuring the airplane is in safe operating condition as recommended by the manufacturer.
Knowledge	The applicant demonstrates understanding of: 1. Purpose of the runup. (PA.II.F.K1) 2. Aircraft performance given expected conditions. (PA.II.F.K2) 3. Wake turbulence avoidance. (PA.II.F.K3)
Skills	The applicant demonstrates the ability to: 1. Position the airplane properly considering other aircraft, vessels, and wind. (PA.II.F.S1) 2. Divide attention inside and outside the cockpit. (PA.II.F.S2) 3. Ensure that powerplant and instrumentation are suitable for runup and takeoff. (PA.II.F.S3) 4. Accomplish the before takeoff checklist and departure briefing. (PA.II.F.S4) 5. Brief takeoff performance, such as airspeeds, crosswind component, takeoff distance, departure procedures, the need for sterile cockpit and takeoff-emergency procedures.(PA.II.F.S5)
Risk Management	The applicant applies risk identification, assessment, and mitigation principles to: 1. Division of attention and scanning. (PA.II.F.R1) 2. Different runway than expected. (PA.II.F.R2) 3. Positive exchange of flight controls. (PA.II.F.R3) 4. Wake turbulence and vessel avoidance. (PA.II.F.R4) 5. Automation management. (PA.II.F.R5) 6. Sterile cockpit during the takeoff check. (PA.II.F.R6)

III. Airport and Seaplane Base Operations

Task	***A. Communications and Light Gun Signals***
Reference	14 CFR part 91; FAA-H-8083-25; AIM
Objective	To determine the applicant exhibits satisfactory knowledge, skills and risk management associated with normal and emergency radio communications and ATC light signals to conduct radio communications safely while operating the aircraft.
Knowledge	The applicant demonstrates understanding of: 1. How to obtain frequency. (PA.III.A.K1) 2. Standard communication procedures and ATC standard phraseology. (PA.III.A.K2) 3. ATC light signal recognition. (PA.III.A.K3) 4. Communication procedures. (PA.III.A.K4) 5. Transponders. (PA.III.A.K5) 6. Emergency Locator Transmitter. (PA.III.A.K6) 7. Radar assistance. (PA.III.A.K7) 8. Lost communication procedures. (PA.III.A.K8) 9. Use of automated weather and airport information. (PA.III.A.K9)
Skills	The applicant demonstrates the ability to: 1. Select appropriate frequencies. (PA.III.A.S1) 2. Transmit using standard phraseology and procedures. (PA.III.A.S2) 3. Acknowledge radio communications and comply with instructions. (PA.III.A.S3) 4. Use of onboard communication equipment with emphasis on audio panel, if equipped (PA.III.A.S4) 5. Proper communications at towered and non-towered airports (PA.III.A.S5)
Risk Management	The applicant applies risk identification, assessment, and mitigation principles to: 1. Overcoming human factors associated with communication (PA.III.A.R1) 2. Overcoming human factors associated with declaring an emergency (PA.III.A.R2) 3. Equipment issues that could cause loss of communication. (PA.III.A.R3) 4. Automation management. (PA.III.A.R4)

Task	*B. Traffic Patterns*
Reference	FAA-H-8083-3, FAA-H-8083-25, FAA-H-8083-23; AC 90-66; AIM
Objective	To determine the applicant exhibits satisfactory knowledge, skills and risk management associated with safe operations in and around the airport traffic patterns.
Knowledge	The applicant demonstrates understanding of: 1. Towered and non-towered airport operations and runway selection. (PA.III.B.K1) 2. Airport markings, lighting, wind indicators. (PA.III.B.K2) 3. Collision avoidance. (PA.III.B.K3) 4. Right-of-way rules. (PA.III.B.K4) 5. Wake turbulence recognition and resolution. (PA.III.B.K5) 6. Wind shear avoidance. (PA.III.B.K6) 7. Runway incursion avoidance. (PA.III.B.K7) 8. Use of automated weather and airport information. (PA.III.B.K8) 9. Parachuting operations. (PA.III.B.K9)
Skills	The applicant demonstrates the ability to: 1. Properly identify and interpret airport/seaplane base runways, taxiways, markings, and lighting. (PA.III.B.S1) 2. Comply with proper traffic pattern procedures. (PA.III.B.S2) 3. Maintain proper spacing from other aircraft. (PA.III.B.S3) 4. Correct for wind drift to maintain the proper ground track. (PA.III.B.S4) 5. Maintain orientation with the runway/landing area in use. (PA.III.B.S5) 6. Maintain traffic pattern altitude, ±100 feet, and the appropriate airspeed, ±10 knots. (PA.III.B.S6) 7. Maintain an awareness of the position of other aircraft in the pattern. (PA.III.B.S7)
Risk Management	The applicant applies risk identification, assessment, and mitigation principles to: 1. Collision avoidance. (PA.III.B.R1) 2. Scanning. (PA.III.B.R2) 3. Wake turbulence. (PA.III.B.R3) 4. Lack of situational awareness. (PA.III.B.R4) 5. Aircraft separation and closure rates. (PA.III.B.R5) 6. Sterile cockpit. (PA.III.B.R6)

IV. Takeoffs, Landings, and Go-Arounds

Task	***A. Normal Takeoff and Climb***
Reference	FAA-H-8083-3, FAA-H-8083-23; POH/AFM
Objective	To determine the applicant exhibits satisfactory knowledge, skills and risk management associated with a normal takeoff, climb operations, and rejected takeoff procedures. **NOTE:** If a crosswind condition does not exist, the applicant's knowledge of crosswind elements shall be evaluated through oral testing.
Knowledge	The applicant demonstrates understanding of: 1. Takeoff distance. (PA.IV.A.K1) 2. Takeoff power. (PA.IV.A.K2) 3. Atmospheric conditions. (PA.IV.A.K3) 4. Minimum safe altitude. (PA.IV.A.K4) 5. Headwind, tailwind, crosswind component. (PA.IV.A.K5) 6. Application of V_X or V_Y and variations with altitude. (PA.IV.A.K6) 7. Emergency procedures during takeoff and climb. (PA.IV.A.K7)
Skills	The applicant demonstrates the ability to: 1. Verify ATC clearance and no aircraft is on final before crossing the Hold Line. (PA.IV.A.S1) 2. Verify aircraft is on the assigned/correct runway. (PA.IVA.A.S2) 3. Ascertain wind direction with or without visible wind direction indicators. (PA.IV.A.S3) 4. Determines if crosswind component exceeds pilot ability or is beyond aircraft manufacture limitations (PA.IV.A.S4) 5. Position the flight controls for the existing wind conditions. (PA.IV.A.S5) 6. Clear the area; taxi into the takeoff position and align the airplane on the runway center/takeoff path. (PA.IV.A.S6) 7. Confirm takeoff power, and proper engine and flight instrument indications prior to rotation. (ASEL, AMEL); Retracts the water rudders, as appropriate, confirm takeoff power, and proper engine instrument indications prior to rotation, establishes and maintains the most efficient planning/lift-off attitude, and corrects for porpoising and skipping (ASES, AMES). (PA.IV.A.S7) 8. Rotate and lift off at the recommended airspeed and accelerates to V_Y. (PA.IV.A.S8) 9. Establish a pitch attitude that will maintain V_Y +10/-5 knots. (PA.IV.A.S9) 10.Retract the landing gear and flaps in accordance with manufacturer guidance. (PA.IV.A.S10) 11.Maintain takeoff power and V_Y +10/-5 knots to a safe maneuvering altitude. (PA.IV.A.S11) 12.Maintain directional control and proper wind-drift correction throughout the takeoff and climb. (PA.IV.A.S12) 13.Comply with noise abatement and published departure procedures. (PA.IV.A.S13) 14.Complete the appropriate checklist. (PA.IV.A.S14) 15.Comply with manufacturer recommended emergency procedures relating to the takeoff sequence. (PA.IV.A.S15)
Risk Management	The applicant applies risk identification, assessment, and mitigation principles to: 1. Selection of runway based on wind, pilot capability, and aircraft limitations (PA.IV.A.R1) 2. Determining if crosswind component exceeds pilot ability or aircraft capability. (PA.IV.A.R2) 3. Windshear. (PA.IV.A.R3) 4. Tailwinds. (PA.IV.A.R4) 5. Wake turbulence. (PA.IV.A.R5) 6. Go/no go decision making. (PA.IV.A.R6) 7. Task management. (PA.IV.A.R7) 8. Low altitude maneuvering. (PA.IV.A.R8) 9. Wire strikes. (PA.IV.A.R9) 10.Situational awareness of obstacles on departure path. (PA.IV.A.R10) 11.Recognition of need for rejected takeoff and predetermines takeoff abort point. (PA.IV.A.R11) 12.Handling engine failure during takeoff and climb. (PA.IV.A.R12) 13.Criticality of takeoff distance available. (PA.IV.A.R13) 14.Plans for engine-failure after takeoff. (PA.IV.A.R14) 15.Sterile cockpit. (PA.IV.A.R15)

Task	***B. Normal Approach and Landing***
Reference	FAA-H-8083-3, FAA-H-8083-23 (ASES, AMES); POH/AFM
Objective	To determine the applicant exhibits satisfactory knowledge, skills and risk management associated with a normal approach and landing with emphasis on proper use and coordination of flight controls. **NOTE:** If a crosswind condition does not exist, the applicant's knowledge of crosswind elements shall be evaluated through oral testing.
Knowledge	The applicant demonstrates understanding of: 1. Landing distance. (PA.IV.B.K1) 2. Stabilized approach. (PA.IV.B.K2) 3. Energy management. (PA.IV.B.K3) 4. Atmospheric conditions. (PA.IV.B.K4) 5. Headwind, tailwind, crosswind component. (PA.IV.B.K5) 6. Emergency procedures during approach and landing. (PA.IV.B.K6) 7. Land and hold short operations. (PA.IV.B.K7)
Skills	The applicant demonstrates the ability to: 1. Ensure the aircraft is on the correct/assigned runway. (PA.IV.B.S1) 2. Scan the landing runway/areas and adjoining areas for possible wildlife, vehicular or other aircraft to avoid collision. (PA.IV.B.S2) 3. Complete the appropriate checklist. (PA.IV.B.S3) 4. Consider the wind conditions, landing surface, obstructions, and selects a suitable touchdown point prior to the 1000 foot distance markers (if available), or within the first 1/3 of the runway length. (PA.IV.B.S4) 5. Establish the recommended approach and landing configuration and airspeed, and adjusts pitch attitude and power as required. (PA.IV.B.S5) 6. Maintain a stabilized approach and recommended airspeed, or in its absence, not more than 1.3 V_{SO}, with wind gust factor applied, +10/-5knots. (PA.IV.B.S6) 7. Make smooth, timely, and correct control application during the round out and touchdown (ASEL, AMEL); Make smooth, timely, and correct control application during the round out and touchdown to contact the water at the proper pitch attitude (ASES, AMES). (PA.IV.B.S7) 8. Touch down smoothly at a speed that provides little or no aerodynamic lift. (PA.IV.B.S8) 9. Touch down within the available runway, within 400 feet beyond a specified point with no drift, and with the airplane's longitudinal axis aligned with and over the runway centerline. (PA.IV.B.S9) 10. Maintain crosswind correction and directional control throughout the approach and landing sequence. (PA.IV.B.S10) 11. Execute a timely go around decision when the approach cannot be made within the tolerances specified above or for any other condition that that may result in an unsafe approach or landing. (PA.IV.B.S11) 12. Utilize after landing runway incursion avoidance procedures. (PA.IV.B.S12)

Task continued on next page.

Task	***B. Normal Approach and Landing***
Risk Management	The applicant applies risk identification, assessment, and mitigation principles to: 1. Selection of runway based on wind, pilot capability and aircraft limitations – considering possibility of selecting a runway at a different airport. (PA.IV.B.R1) 2. Determines if crosswind component exceeds pilot ability or is beyond aircraft manufacturer limitations(PA.IV.B.R2) 3. Windshear. (PA.IV.B.R3) 4. Tailwinds. (PA.IV.B.R4) 5. Wake turbulence. (PA.IV.B.R5) 6. Task management. (PA.IV.B.R6) 7. Low altitude maneuvering. (PA.IV.B.R7) 8. Wire strikes. (PA.IV.B.R8) 9. Collision Avoidance. (PA.IV.B.R9) 10. Right-of-way. (PA.IV.B.R10) 11. Situational awareness of obstacles on approach and departure paths. (PA.IV.B.R11) 12. Recognition of need for go-around/rejected landing. (PA.IV.B.R12) 13. Stall/spin awareness. (PA.IV.B.R13) 14. Land and hold short operations. (PA.IV.B.R14) 15. Maintain a sterile cockpit. (PA.IV.B.R15)

Task	***C. Soft-Field Takeoff and Climb (ASEL)***
Reference	FAA-H-8083-3; POH/AFM
Objective	To determine the applicant exhibits satisfactory knowledge, skills and risk management associated with a soft-field takeoff, climb operations, and rejected takeoff procedures.
Knowledge	The applicant demonstrates understanding of: 1. Importance of weight transfer from wheels to wings. (PA.IV.C.K1) 2. Awareness of additional left turning tendencies. (PA.IV.C.K2) 3. Effects of aircraft configuration. (PA.IV.C.K3) 4. Effects of runway surface. (PA.IV.C.K4) 5. Takeoff distance. (PA.IV.C.K5) 6. Takeoff power. (PA.IV.C.K6) 7. Wind conditions and effects. (PA.IV.C.K7) 8. Density altitude. (PA.IV.C.K8) 9. Headwind, tailwind, crosswind component. (PA.IV.C.K9) 10. Application of V_X or V_Y. (PA.IV.C.K10) 11. Emergency procedures during takeoff and climb. (PA.IV.C.K11) 12. Hazards of other than hard surfaced runway. (PA.IV.C.K12)
Skills	The applicant demonstrates the ability to: 1. Verify ATC clearance and no aircraft is on final before crossing the Hold Line. (PA.IV.S.S1) 2. Ensure the aircraft is properly configured. (PA.IV.C.S2) 3. Ensure the aircraft is on the correct takeoff runway. (PA.IV.C.S3) 4. Ascertain wind direction with or without visible wind direction indicators. (PA.IV.C.S4) 5. Calculate the crosswind component and determine if it is above his or her ability or that of the aircraft's capability. (PA.IV.C.S5) 6. Position the flight controls for the existing wind conditions. (PA.IV.C.S6) 7. Clear the area; taxi into the takeoff position and align the airplane on the runway center without stopping while advancing the throttle smoothly to takeoff power. (PA.IV.C.S7) 8. Confirm takeoff power, and proper engine and flight instrument indications prior to rotation. (PA.IV.C.S8) 9. Establish and maintain a pitch attitude that will transfer the weight of the airplane from the wheels to the wings as rapidly as possible. (PA.IV.C.S9) 10.Rotate and lift off at the lowest possible airspeed consistent with safety and remains in ground effect while accelerating to V_X or V_Y, as appropriate. (PA.IV.C.S10) 11.Establish a pitch attitude for V_X or V_Y, as appropriate, and maintains selected airspeed +10/-5 knots during the climb. (PA.IV.C.S11) 12.Retract landing gear and flaps after a positive rate of climb has been verified or in accordance with aircraft manufacturer guidance. (PA.IV.C.S12) 13.Maintain takeoff power and V_X or V_Y +10/-5 knots to a safe maneuvering altitude. (PA.IV.C.S13) 14.Maintain directional control and proper wind-drift correction throughout the takeoff and climb. (PA.IV.C.S14) 15.Comply with noise abatement and published departure procedures. (PA.IV.C.S15) 16.Complete the appropriate checklist. (PA.IV.C.S16) 17.Comply with manufacturer recommended emergency procedures relating to the takeoff sequence. (PA.IV.C.S17)

Task continued on next page.

Task	***C. Soft-Field Takeoff and Climb (ASEL)***
Risk Management	The applicant applies risk identification, assessment, and mitigation principles to: 1. Selection of runway based on wind, pilot capability, and aircraft limitations. (PA.IV.C.R1) 2. Determines if crosswind component exceeds pilot ability or is beyond aircraft manufacture limitations(PA.IV.C.R2) 3. Other than hard surfaced runway. (PA.IV.C.R3) 4. Windshear. (PA.IV.C.R4) 5. Tailwinds. (PA.IV.C.R5) 6. Wake turbulence. (PA.IV.C.R6) 7. Go/no go decision making. (PA.IV.C.R7) 8. Task management. (PA.IV.C.R8) 9. Low altitude maneuvering. (PA.IV.C.R9) 10. Wire strikes. (PA.IV.C.R10) 11. Minimum safe altitude for climb. (PA.IV.C.R11) 12. Situational awareness of obstacles on departure path. (PA.IV.C.R12) 13. Recognition of need for rejected takeoff and predetermines takeoff abort point. (PA.IV.C.R13) 14. Strategies for handling engine failure during takeoff and climb. (PA.IV.C.R14) 15. Make a determination of when a soft field takeoff technique is required. (PA.IV.C.R15) 16. Criticality of takeoff distance available. (PA.IV.C.R16) 17. Plans for engine-failure after takeoff. (PA.IV.C.R17) 18. Sterile cockpit. (PA.IV.C.R18)

Task	***D. Soft-Field Approach and Landing (ASEL)***
Reference	FAA-H-8083-3; POH/AFM
Objective	To determine the applicant exhibits satisfactory knowledge, skills and risk management associated with a soft-field approach and landing with emphasis on proper use and coordination of flight controls.
Knowledge	The applicant demonstrates understanding of: 1. Landing distance. (PA.IV.D.K1) 2. Hazards of other than hard surfaced runway. (PA.IV.D.K2) 3. Stabilized approach. (PA.IV.D.K3) 4. Energy management. (PA.IV.D.K4) 5. Wind conditions and effects. (PA.IV.D.K5) 6. Density altitude. (PA.IV.D.K6) 7. Headwind, tailwind, crosswind component. (PA.IV.D.K7) 8. Emergency procedures during approach and landing. (PA.IV.D.K8)
Skills	The applicant demonstrates the ability to: 1. Ensure the aircraft is on the correct/assigned runway. (PA.IV.D.S1) 2. Scan the landing runway and adjoining areas for possible wildlife, vehicular or other aircraft to avoid collision. (PA.IV.D.S2) 3. Complete the appropriate checklist. (PA.IV.D.S3) 4. Consider the wind conditions, landing surface, obstructions, and selects a suitable touchdown point. (PA.IV.D.S4) 5. Establish the recommended approach and landing configuration and airspeed, and adjusts pitch attitude and power as required. (PA.IV.D.S5) 6. Maintain a stabilized approach and recommended airspeed, or in its absence, not more than 1.3 V_{SO}, with wind gust factor applied, +10/-5knots. (PA.IV.D.S6) 7. Make smooth, timely, and correct control application during the round out and touchdown and, for tricycle gear airplanes, keep the nose wheel off the surface until loss of elevator effectiveness. (PA.IV.D.S7) 8. Touch down softly with no drift, and with the airplane's longitudinal axis aligned in the runway center. (PA.IV.D.S8) 9. Maintain crosswind correction and directional control throughout the approach and landing sequence. (PA.IV.D.S9) 10.Execute a timely go around decision when the approach cannot be made within the tolerances specified above or for any other condition that that may result in an unsafe approach or landing. (PA.IV.D.S10) 11.Maintain proper position of the flight controls and sufficient speed to taxi on the soft surface. (PA.IV.D.S11)

Task continued on next page.

Task	***D. Soft-Field Approach and Landing (ASEL)***
Risk Management	The applicant applies risk identification, assessment, and mitigation principles to: 1. Selection of runway based on wind, pilot capability and aircraft limitations – considering possibility of selecting a runway at a different airport. (PA.IV.D.R1) 2. Determines if crosswind component exceeds pilot ability or is beyond aircraft manufacturer limitations. (PA.IV.D.R2) 3. Other than hard-surfaced runway. (PA.IV.D.R3) 4. Windshear avoidance. (PA.IV.D.R4) 5. Tailwinds. (PA.IV.D.R5) 6. Wake turbulence. (PA.IV.D.R6) 7. Task management. (PA.IV.D.R7) 8. Low altitude maneuvering. (PA.IV.D.R8) 9. Wire strikes. (PA.IV.D.R9) 10. Collision avoidance. (PA.IV.D.R10) 11. Right-of-way. (PA.IV.D.R11) 12. Situational awareness of obstacles on approach and departure paths. (PA.IV.D.R12) 13. Recognition of need for go-around/rejected landing. (PA.IV.D.R13) 14. Stall/spin awareness. (PA.IV.D.R14) 15. How to accomplish soft field landing without the use of power in power failure situation. (PA.IV.D.R15) 16. Maintaining a sterile cockpit environment. (PA.IV.D.R16)

Task	***E. Short-Field Takeoff and Maximum Performance Climb (ASEL, AMEL)***
Reference	FAA-H-8083-3; POH/AFM
Objective	To determine the applicant exhibits satisfactory knowledge, skills and risk management associated with a short-field takeoff, maximum performance climb operations, and rejected takeoff procedures.
Knowledge	The applicant demonstrates understanding of: 1. Effects of aircraft configuration. (PA.IV.E.K1) 2. Effects of runway surface. (PA.IV.E.K2) 3. Takeoff distance. (PA.IV.E.K3) 4. Takeoff power. (PA.IV.E.K4) 5. Obstruction clearance. (PA.IV.E.K5) 6. Wind conditions and effects. (PA.IV.E.K6) 7. Minimum safe altitude. (PA.IV.E.K7) 8. Density altitude. (PA.IV.E.K8) 9. Headwind, tailwind, crosswind component. (PA.IV.E.K9) 10. Application of V_X or V_Y. (PA.IV.E.K10) 11. Emergency procedures during takeoff and climb. (PA.IV.E.K11)
Skills	The applicant demonstrates the ability to: 1. Verify proper aircraft configuration. (PA.IV.E.S1) 2. Verify ATC clearance and no aircraft is on final before crossing the Hold Line. (PA.IV.E.S2) 3. Ensure the aircraft is on the correct takeoff runway. (PA.IV.E.S3) 4. Ascertain wind direction with or without visible wind direction indicators. (PA.IV.E.S4) 5. Determines if crosswind component exceeds pilot ability or is beyond aircraft manufacture limitations. (PA.IV.E.S5) 6. Position the flight controls for the existing wind conditions. (PA.IV.E.S6) 7. Clear the area; taxi into takeoff position utilizing maximum available takeoff area and align the airplane on the runway center line. (PA.IV.E.S7) 8. Apply brakes (if appropriate), while configuring aircraft power setting to achieve maximum performance.(PA.IV.E.S8) 9. Confirm takeoff power prior to brake release and proper engine and flight instrument indications prior to rotation. (PA.IV.E.S9) 10. Rotate and lift off at the recommended airspeed, and accelerate to the recommended obstacle clearance airspeed or V_X. (PA.IV.E.S10) 11. Establish a pitch attitude that will maintain the recommended obstacle clearance airspeed, or V_X, +10/-5 knots, until the obstacle is cleared, or until the airplane is 50 feet above the surface. (PA.IV.E.S11) 12. After clearing the obstacle, establish the pitch attitude for V_Y, accelerate to V_Y, and maintain V_Y, +10/-5 knots, during the climb. (PA.IV.E.S12) 13. Retract landing gear and flaps after a positive rate of climb has been verified or in accordance with aircraft manufacturer guidance. (PA.IV.E.S13) 14. Maintain takeoff power and V_X or V_Y +10/-5 knots to a safe maneuvering altitude. (PA.IV.E.S14) 15. Maintain directional control and proper wind-drift correction throughout the takeoff and climb. (PA.IV.E.S15) 16. Comply with noise abatement and published departure procedures. (PA.IV.E.S16) 17. Complete the appropriate checklist. (PA.IV.E.S17) 18. Comply with manufacturer recommended emergency procedures relating to the takeoff sequence.(PA.IV.E.S18)

Task continued on next page.

Task	***E. Short-Field Takeoff and Maximum Performance Climb (ASEL, AMEL)***
Risk Management	The applicant applies risk identification, assessment, and mitigation principles to: 1. Selection of runway based on wind and pilot capability and aircraft limitations. (PA.IV.E.R1) 2. Determines if crosswind component exceeds pilot ability or is beyond aircraft manufacturer limitations. (PA.IV.E.R2) 3. Other than hard-surfaced runway. (PA.IV.E.R3) 4. Obstruction clearance. (PA.IV.E.R4) 5. Obstruction clearance climb attitude and stall awareness. (PA.IV.E.R5) 6. Windshear. (PA.IV.E.R6) 7. Tailwinds. (PA.IV.E.R7) 8. Wake turbulence. (PA.IV.E.R8) 9. Go/no go decision making. (PA.IV.E.R9) 10. Task management. (PA.IV.E.R10) 11. Low altitude maneuvering. (PA.IV.E.R11) 12. Wire strikes. (PA.IV.E.R12) 13. Minimum safe altitude for climb. (PA.IV.E.R13) 14. Situational awareness of obstacles on departure and arrival paths. (PA.IV.E.R14) 15. Recognition of need for rejected takeoff and predetermines takeoff abort point. (PA.IV.E.R15) 16. Strategies for handling engine failure during takeoff and climb. (PA.IV.E.R16) 17. Criticality of takeoff distance available. (PA.IV.E.R17) 18. Plans for engine-failure after takeoff. (PA.IV.E.R18) 19. Sterile cockpit. (PA.IV.E.R19)

Task	*F. Short-Field Approach and Landing (ASEL, AMEL)*
Reference	FAA-H-8083-3; POH/AFM
Objective	To determine the applicant exhibits satisfactory knowledge, skills and risk management associated with a short-field approach and landing with emphasis on proper use and coordination of flight controls.
Knowledge	The applicant demonstrates understanding of: 1. Landing distance. (PA.IV.F.K1) 2. Hazards of other than hard-surfaced runways. (PA.IV.F.K2) 3. Obstruction clearance. (PA.IV.F.K3) 4. Stabilized approach. (PA.IV.F.K4) 5. Energy management. (PA.IV.F.K5) 6. Wind conditions and effects. (PA.IV.F.K6) 7. Density altitude. (PA.IV.F.K6) 8. Headwind, tailwind, crosswind component. (PA.IV.F.K7) 9. Emergency procedures during approach and landing. 10. Land and hold short operations.
Skills	The applicant demonstrates the ability to: 1. Ensure the aircraft is on the correct/assigned runway. (PA.IV.F.S1) 2. Scan the landing runway and adjoining areas for possible wildlife, vehicular or other aircraft to avoid collision. (PA.IV.F.S2) 3. Complete the appropriate checklist. (PA.IV.F.S3) 4. Consider the wind conditions, landing surface, obstructions, and select a suitable touchdown point. (PA.IV.F.S4) 5. Establish the recommended approach and landing configuration and airspeed, and adjust pitch attitude and power as required. (PA.IV.F.S5) 6. Maintain a stabilized approach and recommended airspeed, or in its absence, not more than 1.3 V_{SO}, with wind gust factor applied, +10/-5knots. (PA.IV.F.S6) 7. Make smooth, timely, and correct control application during the round out and touchdown. (PA.IV.F.S7) 8. Touch down smoothly at manufacturer's recommended airspeed. (PA.IV.F.S8) 9. Touch down within the available runway, at or within 200 feet beyond a the approach end of the runway, threshold markings or runway numbers, with no side drift, minimum float, and with the airplane's longitudinal axis aligned with and over the runway center line. (PA.IV.F.S9) 10. Maintain crosswind correction and directional control throughout the approach and landing sequence. (PA.IV.F.S10) 11. Execute a timely go around decision when the approach cannot be made within the tolerances specified above or for any other condition that that may result in an unsafe approach or landing. (PA.IV.F.S11) 12. Apply brakes as necessary, to stop in the shortest distance consistent with safety. (PA.IV.F.S12)

Task continued on next page.

Task	***F. Short-Field Approach and Landing (ASEL, AMEL)***
Risk Management	The applicant applies risk identification, assessment, and mitigation principles to: 1. Selection of runway based on wind, pilot capability and aircraft limitations – considering possibility of selecting a runway at a different airport. (PA.IV.F.R1) 2. Determines if crosswind component exceeds pilot ability or is beyond aircraft manufacture limitations (PA.IV.F.R2) 3. Other than hard surfaced runway. (PA.IV.F.R3) 4. Obstruction clearance. (PA.IV.F.R4) 5. Windshear. (PA.IV.F.R5) 6. Hazards of tailwinds. (PA.IV.F.R6) 7. Wake turbulence. (PA.IV.F.R7) 8. Task management. (PA.IV.F.R8) 9. Low altitude maneuvering. (PA.IV.F.R9) 10. Wire strikes. (PA.IV.F.R10) 11. Collision Avoidance. (PA.IV.F.R11) 12. Right-of-way. (PA.IV.F.R12) 13. Situational awareness of obstacles on approach and departure paths. (PA.IV.F.R13) 14. Recognition of need for go-around/rejected landing. (PA.IV.F.R14) 15. Stall/spin awareness. (PA.IV.F.R15) 16. Land and Hold Short Operations. (PA.IV.F.R16) 17. Maintaining a sterile cockpit environment. (PA.IV.F.R17)

Task	*G. Confined Area Takeoff and Maximum Performance Climb (ASES, AMES)*
Reference	FAA-H-8083-3, FAA-H-8083-23; POH/AFM
Objective	To determine the applicant exhibits satisfactory knowledge, skills and risk management associated with a confined area takeoff, maximum performance climb operations, and rejected takeoff procedures.
Knowledge	The applicant demonstrates understanding of: 1. Effects of aircraft configuration. (PA.IV.G.K1) 2. Effects of water surface. (PA.IV.G.K2) 3. Takeoff distance. (PA.IV.G.K3) 4. Takeoff power. (PA.IV.G.K4) 5. Obstruction clearance. (PA.IV.G.K5) 6. Wind conditions and effects. (PA.IV.G.K6) 7. Minimum safe altitude. (PA.IV.G.K7) 8. Density altitude. (PA.IV.G.K8) 9. Headwind, tailwind, crosswind component. (PA.IV.G.K9) 10. Application of V_X or V_Y. (PA.IV.G.K10) 11. Emergency procedures during takeoff and climb. (PA.IV.G.K11)
Skills	The applicant demonstrates the ability to: 1. Verify proper aircraft configuration. (PA.IV.G.S1) 2. Verify ATC clearance and no aircraft is on final before crossing the Hold Line. (PA.IV.G.S2) 3. Ensure the aircraft is on the correct takeoff center path. (PA.IV.G.S3) 4. Ascertain wind direction with or without visible wind direction indicators. (PA.IV.G.S4) 5. Determine if crosswind component exceeds pilot ability or is beyond aircraft manufacturer limitations. (PA.IV.G.S5) 6. Position the flight controls for the existing wind conditions. (PA.IV.G.S6) 7. Clear the area and select an appropriate takeoff path for the existing conditions; taxi into takeoff position utilizing maximum available takeoff area and align the airplane on the takeoff path. (PA.IV.G.S7) 8. Configure aircraft power to achieve maximum performance and confirm takeoff power and proper engine and flight instrument indications prior to rotation.(PA.IV.G.S8) 9. Establish and maintain the most efficient planning/lift-off attitude and correct for porpoising and skipping. (PA.IV.G.S9) 10. Rotate and lift off at the recommended airspeed, and accelerate to the recommended obstacle clearance airspeed or V_X. (PA.IV.G.S10) 11. Establish a pitch attitude that will maintain the recommended obstacle clearance airspeed, or V_X, +10/-5 knots, until the obstacle is cleared, or until the airplane is 50 feet above the surface. (PA.IV.G.S11) 12. After clearing the obstacle, establish the pitch attitude for V_Y, accelerate to V_Y, and maintain V_Y, +10/-5 knots, during the climb. (PA.IV.G.S12) 13. Retract flaps after a positive rate of climb has been verified or in accordance with aircraft manufacturer guidance. (PA.IV.G.S13) 14. Maintain takeoff power and V_X or V_Y +10/-5 knots to a safe maneuvering altitude. (PA.IV.G.S14) 15. Maintain directional control and proper wind-drift correction throughout the takeoff and climb. (PA.IV.G.S15) 16. Comply with noise abatement and published departure procedures. (PA.IV.G.S16) 17. Complete the appropriate checklist. (PA.IV.G.S17) 18. Comply with manufacturer recommended emergency procedures relating to the takeoff sequence.(PA.IV.G.S18)

Task continued on next page.

Task	***G. Confined Area Takeoff and Maximum Performance Climb (ASES, AMES)***
Risk Management	The applicant applies risk identification, assessment, and mitigation principles to: 1. Selection of appropriate takeoff path based on wind and pilot capability and aircraft limitations. (PA.IV.G.R1) 2. Determines if crosswind component exceeds pilot ability or is beyond aircraft manufacturer limitations. (PA.IV.G.R2) 3. Water conditions. (PA.IV.G.R3) 4. Obstruction clearance. (PA.IV.G.R4) 5. Obstruction clearance climb attitude and stall awareness. (PA.IV.G.R5) 6. Windshear. (PA.IV.G.R6) 7. Tailwinds. (PA.IV.G.R7) 8. Wake turbulence. (PA.IV.G.R8) 9. Go/no go decision making. (PA.IV.G.R9) 10. Task management. (PA.IV.G.R10) 11. Low altitude maneuvering. (PA.IV.G.R11) 12. Wire strikes. (PA.IV.G.R12) 13. Minimum safe altitude for climb. (PA.IV.G.R13) 14. Situational awareness of obstacles on departure and arrival paths. (PA.IV.G.R14) 15. Recognition of need for rejected takeoff and predetermines takeoff abort point. (PA.IV.G.R15) 16. Strategies for handling engine failure during takeoff and climb. (PA.IV.G.R16) 17. Criticality of takeoff distance available. (PA.IV.G.R17) 18. Plans for engine-failure after takeoff. (PA.IV.G.R18) 19. Sterile cockpit. (PA.IV.G.R19) 20. Confirms gear retracted in amphibious aircraft. (PA.IV.G.R20)

Task	*H. Confined Area Approach and Landing (ASES, AMES)*
Reference	FAA-H-8083-3, FAA-H-8083-23; POH/AFM
Objective	To determine the applicant exhibits satisfactory knowledge, skills and risk management associated with a confined area approach and landing with emphasis on proper use and coordination of flight controls.
Knowledge	The applicant demonstrates understanding of: 1. Landing distance. (PA.IV.H.K1) 2. Hazards of a confined area. (PA.IV.H.K2) 3. Obstruction clearance. (PA.IV.H.K3) 4. Stabilized approach. (PA.IV.H.K4) 5. Energy management. (PA.IV.H.K5) 6. Wind conditions and effects. (PA.IV.H.K6) 7. Density altitude. (PA.IV.H.K7) 8. Headwind, tailwind, crosswind component. (PA.IV.H.K8) 9. Emergency procedures during approach and landing. (PA.IV.H.K9) 10. Land and hold short operations. (PA.IV.H.K10)
Skills	The applicant demonstrates the ability to: 1. Ensure the aircraft is on the correct/assigned runway and adequately survey the intended landing area. (PA.IV.H.S1) 2. Scan the landing area and adjoining areas for possible wildlife, vehicular or other aircraft to avoid collision. (PA.IV.H.S2) 3. Complete the appropriate checklist. (PA.IV.H.S3) 4. Consider the wind conditions, landing surface, obstructions, and select the proper landing path. (PA.IV.H.S4) 5. Establish the recommended approach and landing configuration and airspeed, and adjust pitch attitude and power as required. (PA.IV.H.S5) 6. Maintain a stabilized approach and recommended airspeed, or in its absence, not more than 1.3 V_{SO}, with wind gust factor applied, +10/-5knots. (PA.IV.H.S6) 7. Make smooth, timely, and correct control application during the round out and touchdown. (PA.IV.H.S7) 8. Contact the water at the minimum safe airspeed with the proper pitch attitude for the surface conditions. (PA.IV.H.S8) 9. Touch down within the available water landing area, at or within 200 feet beyond a specified point, with no side drift, minimum float, and with the airplane's longitudinal axis aligned with and over the landing center area. (PA.IV.H.S9) 10. Maintain crosswind correction and directional control throughout the approach and landing sequence. (PA.IV.H.S10) 11. Execute a timely go around decision when the approach cannot be made within the tolerances specified above or for any other condition that that may result in an unsafe approach or landing. (PA.IV.H.S11) 12. Apply elevator control as necessary, to stop in the shortest distance consistent with safety. (PA.IV.H.S12)

Task continued on next page.

Task	*H. Confined Area Approach and Landing (ASES, AMES)*
Risk Management	The applicant applies risk identification, assessment, and mitigation principles to: 1. Selection of landing area based on wind, pilot capability and aircraft limitations – considering possibility of selecting an area at a different location. (PA.IV.H.R1) 2. Determines if crosswind component exceeds pilot ability or is beyond aircraft manufacture limitations (PA.IV.H.R2) 3. Water conditions. (PA.IV.H.R3) 4. Obstruction clearance. (PA.IV.H.R4) 5. Windshear. (PA.IV.H.R5) 6. Hazards of tailwinds. (PA.IV.H.R6) 7. Wake turbulence. (PA.IV.H.R7) 8. Task management. (PA.IV.H.R8) 9. Low altitude maneuvering. (PA.IV.H.R9) 10. Wire strikes. (PA.IV.H.R10) 11. Collision Avoidance. (PA.IV.H.R11) 12. Right-of-way. (PA.IV.H.R12) 13. Situational awareness of obstacles on approach and departure paths. (PA.IV.H.R13) 14. Recognition of need for go-around/rejected landing. (PA.IV.D.R14) 15. Stall/spin awareness. (PA.IV.H.R15) 16. Land and Hold Short Operations. (PA.IV.H.R16) 17. Maintaining a sterile cockpit environment. (PA.IV.H.R17)

Task	***I. Glassy Water Takeoff and Climb (ASES, AMES)***
Reference	FAA-H-8083-23; POH/AFM
Objective	To determine the applicant exhibits satisfactory knowledge, skills and risk management associated with a glassy water takeoff and climb. **NOTE:** If a glassy water condition does not exist, the applicant shall be evaluated by simulating the Task.
Knowledge	The applicant demonstrates understanding of: 1. Water effects on operations. (PA.IV.I.K1) 2. Effects of glassy water on acceleration and lift-off. (PA.IV.I.K2) 3. When and why to use the glassy water takeoff and climb technique. (PA.IV.I.K3)
Skills	The applicant demonstrates the ability to: 1. Position the flight controls and flaps for the existing conditions. (PA.IV.I.S1) 2. Clear the area; select an appropriate takeoff path considering surface hazards and/or vessels and surface conditions. (PA.IV.I.S2) 3. Retract the water rudders as appropriate; advance the throttle smoothly to takeoff power. (PA.IV.I.S3) 4. Establish and maintain an appropriate planning attitude, directional control, and correct for porpoising, skipping, and increase in water drag. (PA.IV.I.S4) 5. Utilize appropriate techniques to lift seaplane from the water considering surface conditions. (PA.IV.I.S5) 6. Establish proper attitude/airspeed, and accelerate to Vy +10/-5 knots during the climb. (PA.IV.I.S6) 7. Retract flaps after a positive rate of climb has been verified or in accordance with aircraft manufacturer guidance. (PA.IV.I.S7) 8. Maintain takeoff power Vy +10/-5 to a safe maneuvering altitude. (PA.IV.I.S8) 9. Maintain directional control and proper wind-drift correction throughout takeoff and climb. (PA.IV.I.S9) 10. Complete the appropriate checklist (PA.IV.I.S10)
Risk Management	The applicant applies risk identification, assessment, and mitigation principles to: 1. Selection of appropriate takeoff path based on wind and pilot capability and aircraft limitations. (PA.IV.I.R1) 2. Determines if crosswind component exceeds pilot ability or is beyond aircraft manufacturer limitations. (PA.IV.I.R2) 3. Water conditions. (PA.IV.I.R3) 4. Obstruction clearance. (PA.IV.I.R4) 5. Obstruction clearance climb attitude and stall awareness. (PA.IV.I.R5) 6. Windshear. (PA.IV.I.R6) 7. Tailwinds. (PA.IV.I.R7) 8. Wake turbulence. (PA.IV.I.R8) 9. Go/no go decision making. (PA.IV.I.R9) 10. Task management. (PA.IV.I.R10) 11. Low altitude maneuvering. (PA.IV.I.R11) 12. Wire strikes. (PA.IV.I.R12) 13. Minimum safe altitude for climb. (PA.IV.I.R13) 14. Situational awareness of obstacles on departure and arrival paths. (PA.IV.I.R14) 15. Recognition of need for rejected takeoff and predetermines takeoff abort point. (PA.IV.I.R15) 16. Strategies for handling engine failure during takeoff and climb. (PA.IV.I.R16) 17. Criticality of takeoff distance available. (PA.IV.I.R17) 18. Plans for engine-failure after takeoff. (PA.IV.I.R18) 19. Sterile cockpit. (PA.IV.I.R19) 20. Confirms gear retracted in amphibious aircraft. (PA.IV.I.R20)

Task	***J. Glassy Water Approach and Landing (ASES, AMES)***
Reference	FAA-H-8083-23; POH/AFM
Objective	To determine the applicant exhibits satisfactory knowledge, skills and risk management associated with a glassy water approach and landing. **NOTE:** If a glassy water condition does not exist, the applicant shall be evaluated by simulating the Task.
Knowledge	The applicant demonstrates understanding of: 1. When and why glassy water techniques are used. (PA.IV.J.K1) 2. How a glassy water approach and landing is executed. (PA.IV.J.K2) 3. Landing distance. (PA.IV.J.K3) 4. Stabilized approach. (PA.IV.J.K4) 5. Energy management. (PA.IV.J.K5) 6. Wind conditions and effects. (PA.IV.J.K7) 7. Density altitude. (PA.IV.J.K8) 8. Headwind, tailwind, crosswind component. (PA.IV.J.K9) 9. Emergency procedures during approach and landing. (PA.IV.J.K10)
Skills	The applicant demonstrates the ability to: 1. Adequately survey the intended landing area. (PA.IV.J.S1) 2. Consider the wind conditions, water depth, hazards, surrounding terrain, and other watercraft. (PA.IV.J.S2) 3. Select the most suitable approach path and touchdown area. (PA.IV.J.S3) 4. Establish the recommended approach and landing configuration and airspeed, and adjust pitch attitude and power as required. (PA.IV.J.S4) 5. Maintain a stabilized approach and the recommended approach airspeed, +10/-5 knots and maintain a touchdown pitch attitude and descent rate from the last altitude reference until touchdown. (PA.IV.J.S5) 6. Make smooth, timely, and correct power and control adjustments to maintain proper pitch attitude and rate of descent to touchdown. (PA.IV.J.S6) 7. Contact the water in the proper pitch attitude, and slow to idle taxi speed. (PA.IV.J.S7) 8. Maintain crosswind correction and directional control throughout the approach and landing sequence. (PA.IV.J.S8) 9. Complete the appropriate checklist. (PA.IV.J.S9)
Risk Management	The applicant applies risk identification, assessment, and mitigation principles to: 1. Performing a go-around/rejected landing. (PA.IV.J.R1) 2. Importance of landing in direction of momentum, with wheels pointed forward on touchdown. (PA.IV.J.R2) 3. Stall/spin awareness. (PA.IV.J.R3) 4. Windshear. (PA.IV.J.R4) 5. Tailwinds. (PA.IV.J.R5) 6. Wake turbulence. (PA.IV.J.R6) 7. Task management. (PA.IV.J.R7) 8. Low altitude maneuvering. (PA.IV.J.R8) 9. Wire strikes. (PA.IV.J.R9) 10. Collision avoidance. (PA.IV.J.R10) 11. Right-of-way. (PA.IV.J.R11) 12. Situational awareness of obstacles on approach and departure paths. (PA.IV.J.R12) 13. Sterile cockpit. (PA.IV.J.R13)

Task	***K. Rough Water Takeoff and Climb (ASES, AMES)***
Reference	FAA-H-8083-23; POH/AFM
Objective	To determine the applicant exhibits satisfactory knowledge, skills and risk management associated with a rough water takeoff and climb. **NOTE:** If a rough water condition does not exist, the applicant shall be evaluated by simulating the Task.
Knowledge	The applicant demonstrates understanding of: 1. Water effects on operations. (PA.IV.K.K1) 2. Effects of rough water on acceleration and lift-off. (PA.IV.K.K2) 3. When and why to use the rough water takeoff and climb technique. (PA.IV.K.K3)
Skills	The applicant demonstrates the ability to: 1. Position the flight controls and flaps for the existing conditions. (PA.IV.K.S1) 2. Clear the area; select an appropriate takeoff path considering surface hazards and/or vessels and surface conditions. (PA.IV.K.S2) 3. Retract the water rudders as appropriate; advance the throttle smoothly to takeoff power. (PA.IV.K.S3) 4. Establish and maintain an appropriate planning attitude, directional control, and correct for porpoising, skipping, and increase in water drag. (PA.IV.K.S4) 5. Lift off at minimum airspeed and accelerate to Vy, +10/-5 knots before leaving ground effect. (PA.IV.K.S5) 6. Retract flaps after a positive rate of climb has been verified or in accordance with aircraft manufacturer guidance. (PA.IV.K.S6) 7. Maintain takeoff power Vy +10/-5 to a safe maneuvering altitude. (PA.IV.K.S7) 8. Maintain directional control and proper wind-drift correction throughout takeoff and climb. (PA.IV.K.S8) 9. Complete the appropriate checklist (PA.IV.K.S9)
Risk Management	The applicant applies risk identification, assessment, and mitigation principles to: 1. Selection of appropriate takeoff path based on wind and pilot capability and aircraft limitations. (PA.IV.K.R1) 2. Determines if crosswind component exceeds pilot ability or is beyond aircraft manufacturer limitations. (PA.IV.K.R2) 3. Water conditions. (PA.IV.K.R3) 4. Obstruction clearance. (PA.IV.K.R4) 5. Obstruction clearance climb attitude and stall awareness. (PA.IV.K.R5) 6. Windshear. (PA.IV.K.R6) 7. Tailwinds. (PA.IV.K.R7) 8. Wake turbulence. (PA.IV.K.R8) 9. Go/no go decision making. (PA.IV.K.R9) 10. Task management. (PA.IV.K.R10) 11. Low altitude maneuvering. (PA.IV.K.R11) 12. Wire strikes. (PA.IV.K.R12) 13. Minimum safe altitude for climb. (PA.IV.K.R13) 14. Situational awareness of obstacles on departure and arrival paths. (PA.IV.K.R14) 15. Recognition of need for rejected takeoff and predetermines takeoff abort point. (PA.IV.K.R15) 16. Strategies for handling engine failure during takeoff and climb. (PA.IV.K.R16) 17. Criticality of takeoff distance available. (PA.IV.K.R17) 18. Plans for engine-failure after takeoff. (PA.IV.K.R18) 19. Sterile cockpit. (PA.IV.K.R19) 20. Confirms gear retracted in amphibious aircraft. (PA.IV.K.R20)

Task	***L. Rough Water Approach and Landing (ASES, AMES)***
Reference	FAA-H-8083-23; POH/AFM
Objective	To determine the applicant exhibits satisfactory knowledge, skills and risk management associated with a rough water approach and landing. **NOTE:** If a rough water condition does not exist, the applicant shall be evaluated by simulating the Task.
Knowledge	The applicant demonstrates understanding of: 1. When and why rough water techniques are used. (PA.IV.L.K1) 2. How a rough water approach and landing is executed. (PA.IV.L.K2) 3. Landing distance. (PA.IV.L.K3) 4. Stabilized approach. (PA.IV.L.K4) 5. Energy management. (PA.IV.L.K5) 6. Wind conditions and effects. (PA.IV.L.K7) 7. Density altitude. (PA.IV.L.K8) 8. Headwind, tailwind, crosswind component. (PA.IV.L.K9) 9. Emergency procedures during approach and landing. (PA.IV.L.K10)
Skills	The applicant demonstrates the ability to: 1. Adequately survey the intended landing area. (PA.IV.L.S1) 2. Consider the wind conditions, water depth, hazards, surrounding terrain, and other watercraft. (PA.IV.L.S2) 3. Select the most suitable approach path and touchdown area. (PA.IV.L.S3) 4. Establish the recommended approach and landing configuration and airspeed, and adjust pitch attitude and power as required. (PA.IV.L.S4) 5. Maintain a stabilized approach and the recommended approach airspeed, or in its absence not more than 1.3 Vso +10/-5 knots with wind gust factor applied. (PA.IV.L.S5) 6. Make smooth, timely, and correct power and control adjustments to maintain proper pitch attitude and rate of descent to touchdown. (PA.IV.L.S6) 7. Contact the water in the proper pitch attitude, considering the type of rough water. (PA.IV.L.S7) 8. Maintain crosswind correction and directional control throughout the approach and landing sequence. (PA.IV.L.S8) 9. Complete the appropriate checklist. (PA.IV.L.S9)
Risk Management	The applicant applies risk identification, assessment, and mitigation principles to: 1. Performing a go-around/rejected landing. (PA.IV.L.R1) 2. Importance of landing in direction of momentum, with wheels pointed forward on touchdown. (PA.IV.L.R2) 3. Stall/spin awareness. (PA.IV.L.R3) 4. Windshear. (PA.IV.L.R4) 5. Tailwinds. (PA.IV.L.R5) 6. Wake turbulence. (PA.IV.L.R6) 7. Task management. (PA.IV.L.R7) 8. Low altitude maneuvering. (PA.IV.L.R8) 9. Wire strikes. (PA.IV.L.R9) 10. Collision avoidance. (PA.IV.L.R10) 11. Right-of-way. (PA.IV.L.R11) 12. Situational awareness of obstacles on approach and departure paths. (PA.IV.L.R12) 13. Sterile cockpit. (PA.IV.L.R13)

Task	***M. Forward Slip to a Landing (ASEL, ASES)***
Reference	FAA-H-8083-3; POH/AFM
Objective	To determine the applicant exhibits satisfactory knowledge, skills and risk management associated with a forward slip to a landing.
Knowledge	The applicant demonstrates understanding of: 1. When and why forward slips are used and differences between side and forward slips. (PA.IV.M.K1) 2. How forward slips are executed. (PA.IV.M.K2) 3. Landing distance. (PA.IV.M.K3) 4. Stabilized approach. (PA.IV.M.K4) 5. Energy management. (PA.IV.M.K5) 6. Effects of forward slips changing indicated airspeed vs. true airspeed. (PA.IV.M.K6) 7. Wind conditions and effects. (PA.IV.M.K7) 8. Density altitude. (PA.IV.M.K8) 9. Headwind, tailwind, crosswind component. (PA.IV.M.K9) 10. Emergency procedures during approach and landing. (PA.IV.M.K10) 11. Land and hold short operations. (PA.IV.M.K11)
Skills	The applicant demonstrates the ability to: 1. Select runway based on wind and pilot capability and aircraft limitations. (PA.IV.M.S1) 2. Determine if crosswind component is above his or her ability or that of the aircraft's capability. (PA.IV.M.S2) 3. Select touchdown point. (PA.IV.M.S3) 4. Establish the slipping attitude at the point from which a landing can be made using the recommended approach and landing configuration and airspeed; adjust pitch attitude as required. (PA.IV.M.S4) 5. Maintain a ground track aligned with the runway centerline and an airspeed, which results in minimum float during the round out. (PA.IV.M.S5) 6. Make smooth, timely, and correct control application during the recovery from the slip, the round out, and the touchdown. (PA.IV.M.S6) 7. Touch down within 400 feet beyond a specified point with no drift, and with the airplane's longitudinal axis aligned with and over the runway centerline. (PA.IV.M.S7) 8. Maintain crosswind correction and directional control throughout the approach and landing sequence. (PA.IV.M.S8) 9. Complete the appropriate checklist. (PA.IV.M.S9) 10.Execute a timely go-around decision when the approach cannot be made within the tolerances specified above. (PA.IV.M.S10)
Risk Management	The applicant applies risk identification, assessment, and mitigation principles to: 1. Performing a go-around/rejected landing. (PA.IV.M.R1) 2. Importance of landing in direction of momentum, with wheels pointed forward on touchdown. (PA.IV.M.R2) 3. Correlating any cross wind effects with direction of forward slip and transition to side slip for landing. (PA.IV.M.R3) 4. Stall/spin awareness. (PA.IV.M.R4) 5. Windshear. (PA.IV.M.R5) 6. Land and hold short operations. (PA.IV.M.R6) 7. Tailwinds. (PA.IV.M,R7) 8. Wake turbulence. (PA.IV.M.R8) 9. Task management. (PA.IV.M.R9) 10. Low altitude maneuvering. (PA.IV.M.R10) 11. Wire strikes. (PA.IV.M.R11) 12. Collision avoidance. (PA.IV.M.R12) 13. Right-of-way. (PA.IV.M.R13) 14. Situational awareness of obstacles on approach and departure paths. (PA.IV.M.R14) 15. Risks associated with forward slip operations, including fuel flowage, tail stalls with flaps, and airspeed control. (PA.IV.M.R15) 16. Sterile cockpit. (PA.IV.M.R16)

Task	***N. Go-Around/Rejected Landing***
Reference	FAA-H-8083-3, FAA-H-8083-23; POH/AFM
Objective	To determine the applicant exhibits satisfactory knowledge, skills and risk management associated with a go around/rejected landing with emphasis on factors that contribute to landing conditions that may require a go around.
Knowledge	The applicant demonstrates understanding of: 1. Landing distance. (PA.IV.N.K1) 2. Stabilized approach. (PA.IV.N.K2) 3. Energy management. (PA.IV.N.K3) 4. Wind conditions and effects. (PA.IV.N.K4) 5. Headwind, tailwind, crosswind component. (PA.IV.N.KI5) 6. Emergency procedures during approach and landing. (PA.IV.N.K6) 7. Communication procedures. (PA.IV.N.K7)
Skills	The applicant demonstrates the ability to: 1. Make a timely decision to discontinue the approach to landing. (PA.IV.N.S1) 2. Promptlyandsmoothlyapplypowerwhileconfiguringtheairplaneinaccordancewiththemanufacturer'sinstructionstoachievemaximumperformance. (PA.IV.N.S2) 3. Retract the landing gear in accordance with manufacturer guidance. (PA.IV.N.S3) 4. Maneuver to the side of the runway/landing area when necessary to clear and avoid conflicting traffic.(PA.IV.N.S4) 5. Maintain takeoff power V_Y +10/-5 to a safe maneuvering altitude. (PA.IV.N.S5) 6. Maintain directional control and proper wind-drift correction throughout the climb. (PA.IV.N.S6) 7. Complete the appropriate checklist. (PA.IV.N.S7)
Risk Manageme nt	The applicant applies risk identification, assessment, and mitigation principles to: 1. Timeliness for making and executing decision. (PA.IV.N.R1) 2. Task management. (PA.IV.N.R2) 3. Low altitude maneuvering. (PA.IV.N.R3) 4. Slow flight. (PA.IV.N.R4) 5. Wire strikes. (PA.IV.N.R5) 6. Collision avoidance. (PA.IV.N.R6) 7. Right-of-way. (PA.IV.N.R7) 8. Situational awareness of obstacles on approach and departure paths. (PA.IV.N.R8) 9. Spin awareness. (PA.IV.N.R9) 10. Elevator trim stalls. (PA.IV.N.R10) 11. Pilot changing mind regarding the go-around decision (PA.IV.N.R11) 12. Sterile cockpit. (PA.IV.N.R12)

V. Performance Maneuvers

Task	***A. Steep Turns***
Reference	FAA-H-8083-3; POH/AFM
Objective	To determine the applicant exhibits satisfactory knowledge, skills and risk management associated with steep turns.
Knowledge	The applicant demonstrates understanding of: 1. Coordinated flight. (PA.V.A.K1) 2. Attitude control at various airspeeds. (PA.V.A.K2) 3. Maneuvering speed, including changes in weight. (PA.V.A.K3) 4. Controlling rate and radius of turn. (PA.V.A.K4) 5. Accelerated stalls. (PA.V.A.K5) 6. Overbanking tendencies. (PA.V.A.K6) 7. Use of trim in a turn. (PA.V.A.K7) 8. Aerodynamics associated with steep turns. (PA.V.A.K8) 9. Aerobatic requirements and limitations(PA.V.A.K9)
Skills	The applicant demonstrates the ability to: 1. Establish the manufacturer's recommended airspeed or if one is not stated, a safe airspeed not to exceed V_A. (PA.V.A.S1) 2. Coordination entering, during, andexitinga45bankturnfor360degrees. (PA.V.A.S2) 3. Perform the task in the opposite direction, as specified by the evaluator. (PA.V.A.S3) 4. Maintain the entry altitude, ±100 feet, airspeed, ±10 knots, bank, and ±5 °; and roll out on the entry heading, ±10°. (PA.V.A.S4)
Risk Management	The applicant applies risk identification, assessment, and mitigation principles to: 1. Dividing attention between airplane control and orientation. (PA.V.A.R1) 2. Task management. (PA.V.A.R2) 3. Energy management. (PA.V.A.R3) 4. Stall/spin awareness. (PA.V.A.R4) 5. Situational awareness. (PA.V.A.R5) 6. Rate and radius of turn with confined area operations. (PA.V.A.R6)

Task	***B. Ground Reference Maneuvers***
Reference	FAA-H-8083-3; 14 CFR part 61
Objective	To determine the applicant exhibits satisfactory knowledge, skills and risk management associated with ground reference maneuvering which may include a rectangular course, s-turns, or turns around a point.
Knowledge	The applicant demonstrates understanding of: 1. Effects of wind on ground track and relation to a ground reference point. (PA.V.B.K1) 2. Effect of bank angle and groundspeed on rate and radius of turn.(PA.V.B.K2) 3. Entry/exit requirements of maneuver. (PA.V.B.K3) 4. Relation of maneuver to airport traffic pattern. (PA.V.B.K4) 5. Emergency landing considerations during conduct of the maneuver, including entry and exit. (PA.V.B.K5) 6. Correlation of S-Turns as one option to increase separation from other aircraft. (PA.V.B.K6)
Skills	The applicant demonstrates the ability to: 1. Clear area of terrain, obstacles, possible airspace incursion and other aircraft. (PA.V.B.S1) 2. Select a suitable ground reference.(PA.V.B.S2) 3. Identify a suitable emergency landing area. (PA.V.B.S3) 4. Plan the maneuver: (PA.V.B.S4) a. Rectangular course: enter a left or right pattern, 600 to 1,000 feet Above Ground Level (AGL) at an appropriate distance from the selected reference area, 45° to the downwind leg b. S-turns: enter perpendicular to the selected reference line, 600 to 1,000 feet AGL at an appropriate distance from the selected reference area. c. Turns Around a Point: enter at an appropriate distance from the reference point, 600 to 1,000 feet AGL at an appropriate distance from the selected reference area. 5. Apply adequate wind-drift correction during straight-and turning flight to maintain a constant ground track if around a rectangular reference area or to track a constant radius turn on each side of the selected reference line. (PA.V.B.S5) 6. If performing a pattern such as s-turns, reverse the turn directly over the selected reference line; if performing turns around a point, complete turns in either direction around the selected reference point. (PA.V.B.S6) 7. Divide attention between airplane control, traffic avoidance and the ground track while maintaining coordinated flight. (PA.V.B.S7) 8. Maintain altitude, ±100 feet; maintains airspeed, ±10 knots. (PA.V.B.S8)
Risk Management	The applicant applies risk identification, assessment, and mitigation principles to: 1. Collision avoidance. (PA.V.B.R1) 2. CFIT avoidance. (PA.V.B.R2) 3. Task management. (PA.V.B.R3) 4. Wire strike avoidance. (PA.V.B.R4) 5. Airmanship as exhibited by positive aircraft control. (PA.V.B.R5) 6. Planning for a suitable landing area in the case of an engine failure. (PA.V.B.R6)

VI. Navigation

Task	***A. Pilotage and Dead Reckoning***
Reference	FAA-H-8083-25; 14 CFR part 61; Navigation Chart
Objective	To determine the applicant exhibits satisfactory knowledge, skills and risk management associated with pilotage and dead reckoning.
Knowledge	The applicant demonstrates understanding of: 1. Navigation process selection. (PA.VI.A.K1) 2. Determining heading, speed, course. (PA.VI.A.K2) 3. Estimating time, speed, and distance.(PA.VI.A.K3) 4. True airspeed and density altitude. (PA.VI.A.K4) 5. Wind correction angle. (PA.VI.A.K5) 6. Checkpoint selection. (PA.VI.A.K6) 7. Planned vs. actual flight plan calculations and required corrections. (PA.VI.A.K7) 8. Topography. (PA.VI.A.K8) 9. Plotting a course. (PA.VI.A.K9) 10. Magnetic compass errors. (PA.VI.A.K10) 11. Route selection. (PA.VI.A.K11) 12. Altitude selection. (PA.VI.A.K12) 13. Power setting selection. (PA.VI.A.K13)
Skills	The applicant demonstrates the ability to: 1. Prepare a document or electronic equivalent to be used in flight for comparisons with planned fuel usages and times over waypoints while dead reckoning. (PA.VI.A.S1) 2. Follow the preplanned course by reference to landmarks. (PA.VI.A.S2) 3. Identify landmarks by relating surface features to chart symbols. (PA.VI.A.S3) 4. Navigate by means of pre-computed headings, groundspeeds, and elapsed time. (PA.VI.A.S4) 5. Demonstrate use of magnetic direction indicator in navigation, to include turns to headings(PA.VI.A.S5) 6. Correct for and record the differences between preflight groundspeed, fuel consumption, and heading calculations and those determined en route. (PA.VI.A.S6) 7. Verify the airplane's position within 3 nautical miles of the flight-planned route. (PA.VI.A.S7) 8. Arrive at the en route checkpoints within 5 minutes of the initial or revised ETA and provide a destination estimate. (PA.VI.A.S8) 9. Maintain the selected altitude, ±200 feet and headings, ±15°. (PA.VI.A.S9) 10. Determine compass heading based on wind, magnetic variation, and deviation. (PA.VI.A.S10)
Risk Management	The applicant applies risk identification, assessment, and mitigation principles to: 1. CFIT risk avoidance plan. (PA.VI.A.R1) 2. Avoiding/recovering from misidentification of landmarks. (PA.VI.A.R2) 3. Bracketing strategy. (PA.VI.A.R3) 4. Selecting an alternate. (PA.VI.A.R4) 5. Situational awareness. (PA.VI.A.R5) 6. Task management. (PA.VI.A.R6) 7. Actual vs. planned fuel consumption. (PA.VI.A.R7) 8 Exit strategies. (PA.VI.A.R8) 9. Preflight pilot/operation risk assessment and planning. (PA.VI.A.R9) 10. Determine the impact of corrected groundspeed, time enroute and fuel consumption on the overall safety of flight to destination. (PA.IV.A.R10)

Task	B. Navigation Systems and Radar Services
Reference	FAA-H-8083-3, FAA-H-8083-6, FAA-H-8083-25; Navigation Equipment Operation Manuals; AIM
Objective	To determine the applicant exhibits satisfactory knowledge, skills and risk management associated with navigation systems and radar services.
Knowledge	The applicant demonstrates understanding of: 1. Ground-based navigation (orientation, course determination, equipment, tests and regulations). (PA.VI.B.K1) 2. Global Positioning System (GPS) (equipment, regulations, databases authorized use, Receiver Autonomous Integrity Monitoring (RAIM)). (PA.VI.B.K2) 3. Radar assistance to VFR aircraft (operations, equipment, available services, traffic advisories). (PA.VI.B.K3) 4. Transponder (Mode A, C, and S). (PA.VI.B.K4)
Skills	The applicant demonstrates the ability to: 1. Demonstrate the ability to use installed electronic navigation system. (PA.VI.B.S1) 2. Locate the airplane's position using the navigation system. (PA.VI.B.S2) 3. Intercept and track a given course, radial, or bearing, as appropriate. (PA.VI.B.S3) 4. Recognize and describe the indication of station passage, if appropriate. (PA.VI.B.S4) 5. Recognize signal loss and take appropriate action. (PA.VI.B.S5) 6. Use proper communication procedures when utilizing radar services. (PA.VI.B.S6) 7. Maintain the appropriate altitude, ±200 feet and headings ±15°. (PA.VI.B.S7)
Risk Management	The applicant applies risk identification, assessment, and mitigation principles to: 1. Automation management. (PA.VI.B.R1) 2. Task management. (PA.VI.B.R2) 3. Situational awareness. (PA.VI.B.R3) 4. Limitations of the navigation system in use. (PA.VI.B.R4) 5. Planning to avoid automation distractions. (PA.VI.B.R5)

Task	***C. Diversion***
Reference	FAA-H-8083-25; AIM; Navigation Chart
Objective	To determine the applicant exhibits satisfactory knowledge, skills and risk management associated with diversion.
Knowledge	The applicant demonstrates understanding of: 1. Selecting divert destination. (PA.VI.C.K1) 2. Deviating from ATC instructions and/or the flight plan. (PA.VI.C.K2)
Skills	The applicant demonstrates the ability to: 1. Select an appropriate diversion airport and route. (PA.VI.C.S1) 2. Make an accurate estimate of heading, groundspeed, arrival time, and fuel consumption to the divert airport. (PA.VI.C.S2) 3. Maintain the appropriate altitude, ±200 feet and heading, ±15°. (PA.VI.C.S3)
Risk Management	The applicant applies risk identification, assessment, and mitigation principles to: 1. Selection of appropriate airport. (PA.VI.C.R1) 2. Timely decision to divert. (PA.VI.C.R2) 3. Improving situation by diversion. (PA.VI.C.R3) 4. Maintaining airmanship during diversion. (PA.VI.C.R4) 5. Collision avoidance. (PA.VI.C.R5) 6. CFIT. (PA.VI.C.R6) 7. Task management. (PA.VI.C.R7) 8. Situational awareness. (PA.VI.C.R8) 9. Utilizing all available resources (automation, ATC, cockpit planning aids). (PA.VI.C.R9)

Task	***D. Lost Procedures***
Reference	FAA-H-8083-25; AIM; Navigation Chart
Objective	To determine the applicant exhibits satisfactory knowledge, skills and risk management associated with lost procedures and taking appropriate steps to achieve a satisfactory outcome if lost.
Knowledge	The applicant demonstrates understanding of: 1. Understands value of recording time at waypoints. (PA.VI.D.K1) 2. Assistance available if lost (radar services, communication procedures). (PA.VI.D.K2) 3. Responsibility and authority of PIC. (PA.VI.D.K3) 4. Deviation from ATC instructions. (PA.VII.D.K4) 5. Declaring an emergency. (PA.VI.D.K5)
Skills	The applicant demonstrates the ability to: 1. Select an appropriate course of action. (PA.VI.D.S1) 2. Maintain an appropriate heading and climbs, if necessary. (PA.VI.D.S2) 3. Identify prominent landmarks. (PA.VI.D.S3) 4. Use navigation systems/facilities and/or contacts an ATC facility for assistance, as appropriate. (PA.VI.D.S4)
Risk Management	The applicant applies risk identification, assessment, and mitigation principles to: 1. Following a procedure of recording times over waypoints. (PA.VI.D.R1) 2. Task management. (PA.VI.D.R2) 3. Situational awareness. (PA.VI.D.R3) 4. CFIT. (PA.VI.D.R4) 5. Collision avoidance. (PA.VI.D.R5) 6. Recognition of a deteriorating situation and seeking assistance. (PA.VI.D.R6) 7. Knowing when to declare an emergency. (PA.VI.D.R7)

VII. Slow Flight and Stalls

Task	***A. Maneuvering During Slow Flight***
Reference	FAA-H-8083-3; POH/AFM
Objective	To determine the applicant exhibits satisfactory knowledge, skills and risk management associated with maneuvering during slow flight.
Knowledge	The applicant demonstrates understanding of: 1. Maneuver relative to a real-life portion of a flight. (PA.VII.A.K1) 2. Relationship between Airport Operations Area (AOA), airspeed, load factor, aircraft configuration, aircraft weight, and aircraft attitude. (PA.VI.A.K2) 3. Importance of reliance on aircraft performance indications (aircraft buffet) instead of artificial warning systems (stall horn). (PA.VII.A.K3) 4. The difference between AOA and aircraft attitude during all flight conditions and how it relates to aircraft performance. (PA.VII.A.K4) 5. How environmental elements affect aircraft performance. (PA.VII.A.K5) 6. Importance of the 1,500 foot AGL minimum altitude. (PA.VII.A.K6)
Skills	The applicant demonstrates the ability to: 1. Select an entry altitude that will allow the task to be completed no lower than 1,500 feet AGL (ASEL, ASES) ***OR*** 3,000 feet AGL (AMEL, AMES). (PA.VII.A.S1) 2. Establish and maintain an airspeed at which any further increase in angle of attack, increase in load factor, or reduction in power, would result in an immediate stall. (PA.VII.A.S2) 3. Accomplish coordinated straight-and-level flight, turns, climbs, and descents with landing gear and flap configurations specified by the evaluator. (PA.VII.A.S3) 4. Divide attention between airplane control, traffic avoidance and orientation. (PA.VII.A.S4) 5. Maintain the specified altitude, ±100 feet; specified heading, ±10°; airspeed, +10/-0 knots; and specified angle of bank, ±10°. (PA.VII.A.S5)
Risk Management	The applicant applies risk identification, assessment, and mitigation principles to: 1. Relationship between angle of attack, airspeed, load factor, aircraft configuration, aircraft weight, and aircraft attitude. (PA.VII.A.R1) 2. Reliance on aircraft performance indications, such as aircraft buffet instead of artificial warning systems such as a stall horn. (PA.VII.A.R2) 3. Understanding how environmental elements affect aircraft performance. (PA.VII.A.R3)

Task	***B. Power-Off Stalls***
Reference	FAA-H-8083-3; AC 61-67; POH/AFM
Objective	To determine the applicant exhibits satisfactory knowledge, skills and risk management associated with power-off stalls.
Knowledge	The applicant demonstrates understanding of: 1. Importance of the 1,500 foot AGL minimum altitude. (PA.VII.B.K1) 2. Relating the maneuver to a real-life portion of a flight. (PA.VII.B.K2) 3. Components of a stabilized descent. (PA.VII.B.K3) 4. Approach to stall indications. (PA.VII.B.K4) 5. Full stall indications. (PA.VII.B.K5) 6. Determining which aircraft inputs are required to meet heading or bank angle requirements. (PA.VII.B.K6) 7. Determining the most efficient stall recovery procedure. (PA.VII.B.K7) 8. Importance of establishing the correct aircraft configuration during the recovery process and the consequences of failing to do so. (PA.VII.B.K8) 9. Aerodynamics associated with stalls and spins in various aircraft configurations and attitudes. (PA.VII.B.K9) 10. Circumstances that can lead to an inadvertent stall or spin. (PA.VII.B.K10)
Skills	The applicant demonstrates the ability to: 1. Select an entry altitude that will allow the task to be completed no lower than 1,500 feet AGL (ASEL, ASES) ***OR*** 3,000 feet AGL (AMEL, AMES). (PA.VII.B.S1) 2. Establish a stabilized descent in the approach or landing configuration, as specified by the evaluator. (PA.VII.B.S2) 3. Transition smoothly from the approach or landing attitude to a pitch attitude that will induce a stall. (PA.VII.B.S3) 4. Maintain a specified heading, ±10°, if in straight flight; maintain a specified angle of bank not to exceed 20°, ±10°; if in turning flight, while inducing the stall. (PA.VII.B.S4) 5. Recognize and recover promptly after a full stall has occurred. (PA.VII.B.S5) 6. Retract the flaps to the recommended setting; retract the landing gear, if retractable, after a positive rate of climb is established. (PA.VII.B.S6) 7. Execute stall recovery in accordance with procedures set forth in the POH. (PA.VII.B.S7) 8. Accelerates to V_X or V_Y speed before the final flap retraction; returns to the altitude, heading and airspeed specified by the examiner. (PA.VII.B.S8)
Risk Management	The applicant applies risk identification, assessment, and mitigation principles to: 1. Dynamic aerodynamic relationship between angle of attack, airspeed, load factor, aircraft configuration, aircraft weight, and aircraft attitude. (PA.VII.B.R1) 2. Reliance on aircraft performance indications such as aircraft buffet instead of artificial warning systems such as a stall horn. (PA.VII.B.R2) 3. Understanding how environmental elements affect aircraft performance. (PA.VII.B.R3) 4. Understanding the required actions for aircraft maximum performance and the consequences of failing to do so. (PA.VII.B.R4)

Task	*C. Power-On Stalls*
Reference	FAA-H-8083-3; AC 61-67; POH/AFM
Objective	To determine the applicant exhibits satisfactory knowledge, skills and risk management associated with power-on stalls. **NOTE:** In some high performance airplanes, the power setting may have to be reduced below the practical test standards guideline power setting to prevent excessively high pitch attitudes (greater than 30° nose up).
Knowledge	The applicant demonstrates understanding of: 1. Importance of the 1,500 foot AGL minimum altitude. (PA.VII.C.K1) 2. Relating the maneuver to a real-life portion of a flight. (PA.VII.C.K2) 3. Rationale for power setting variances. (PA.VII.C.K3) 4. Approach to stall indications. (PA.VII.C.K4) 5. Full stall indications. (PA.VII.C.K5) 6. Determining which aircraft inputs are required to meet heading or bank angle requirements. (PA.VII.C.K6) 7. Determining the most efficient stall recovery procedure. (PA.VII.C.K7) 8. Importance of establishing the correct aircraft configuration during the recovery process and the consequences of failing to do so. (PA.VII.C.K8) 9. Aerodynamics associated with stalls and spins in various aircraft configurations and attitudes. (PA.VII.C.K9) 10. Circumstances that can lead to an inadvertent stall or spin. (PA.VII.C.K10)
Skills	The applicant demonstrates the ability to: 1. Select an entry altitude that will allow the task to be completed no lower than 1,500 feet AGL (ASEL, ASES) ***OR*** 3,000 feet AGL (AMEL, AMES). (PA.VII.C.S1) 2. Establish the takeoff, departure, or cruise configuration as specified by the evaluator. (PA.VII.C.S2) 3. Set power (as assigned by evaluator) to no less than 65 percent available power. (PA.VII.C.S3) 4. Transition smoothly from the takeoff or departure attitude to the pitch attitude that will induce a stall. (PA.VII.C.S4) 5. Maintain a specified heading, ±10°, if in straight flight; maintain a specified angle of bank not to exceed 20°, ±10°, if in turning flight, while inducing the stall. (PA.VII.C.S5) 6. Recognize and recover promptly after a fully developed stall occurs. (PA.VII.C.S6) 7. Retract the flaps to the recommended setting; retract the landing gear if retractable, after a positive rate of climb is established. (PA.VII.C.S7) 8. Accelerate to V_X or V_Y speed before the final flap retraction; return to the altitude, heading, and airspeed specified by the evaluator. (PA.VII.C.S8)
Risk Management	The applicant applies risk identification, assessment, and mitigation principles to: 1. Dynamic aerodynamic relationship between angle of attack, airspeed, load factor, aircraft configuration, aircraft weight, and aircraft attitude. (PA.VII.C.R1) 2. Reliance on aircraft performance indications such as aircraft buffet instead of artificial warning systems such as stall horn. (PA.VII.C.R2) 3. Understanding how environmental elements affect aircraft performance. (PA.VII.C.R3) 4. Understanding the required actions for aircraft maximum performance and the consequences of failing to do so. (PA.VII.C.R4)

Task	***D. Spin Awareness***
Reference	FAA-H-8083-3; AC 61-67; POH/AFM
Objective	To determine the applicant exhibits satisfactory knowledge, skills and risk management associated with spins, flight situations where unintentional spins may occur and procedures for recovery from unintentional spins.
Knowledge	The applicant demonstrates understanding of: 1. Aerodynamics associated with stalls and spins in various aircraft configurations and attitudes. (PA.VII.D.K1) 2. Circumstances that can lead to an inadvertent stall or spin. (PA.VII.D.K2) 3. Different spin types, causes, recovery strategies. (PA.VII.D.K3)
Skills	The applicant demonstrates the ability to: 1. Assess and avoid situations where unintentional spins may occur. (PA.VII.D.S1) 2. Explain procedures for recovery from unintentional spins. (PA.VII.D.S2)
Risk Management	The applicant applies risk identification, assessment, and mitigation principles to: 1. Dynamic aerodynamic relationship between angle of attack, airspeed, load factor, aircraft configuration, aircraft weight, and aircraft attitude. (PA.VII.D.R1) 2. Reliance on aircraft performance indications such as aircraft buffet instead of artificial warning systems such as stall horn. (PA.VII.D.R2) 3. Understanding how environmental elements affect aircraft performance. (PA.VII.D.R3) 4. Understanding the required actions for aircraft maximum performance and the consequences of failing to do so. (PA.VII.D.R4) 5. Uncoordinated flight. (PA.VII.D.R5)

VIII. Emergency Operations

NOTE (AMEL, AMES): Examiners shall select an entry altitude that will allow the single engine demonstrations task to be completed no lower than 3,000 feet AGL or the manufacturer's recommended altitude, whichever is higher. At altitudes lower than 3,000 feet AGL, engine failure shall be simulated by reducing throttle to idle and then establishing zero thrust.

Task	***A. Inadvertent IMC***
Reference	FAA-H-8083-3; FAA-H-8083-15
Objective	To determine the applicant exhibits satisfactory knowledge, skills and risk management associated with inadvertent flight into IMC, including controlling the airplane solely by instrument reference, recognizing and recovering from unusual attitudes and using available communication and navigation facilities and services.
Knowledge	The applicant demonstrates understanding of: 1. Flight instrument function and operation. (PA.VIII.A.K1) 2. Flight instrument sensitivity, limitations, and potential errors in unusual attitudes. (PA.VIII.A.K2) 3. Flight instrument correlation (pitch instruments/bank instruments). (PA.VIII.A.K3) 4. Aerodynamic factors related to maintaining straight flight and level flight, constant airspeed climb and descent, establishing and making turns while climbing, descending, and maintaining level flight and returning to level flight. (PA.VIII.A.K4) 5. Aerodynamic factors related to unusual pitch and bank attitudes and returning to level flight. (PA.VIII.A.K5) 6. Appropriate pitch, bank, and power settings for airplane being flown. (PA.VIII.A.K6) 7. Hazards of inappropriate control response to stabilizing an unusual attitude. (PA.VIII.A.K7) 8. How to determine the minimum safe altitude for location. (PA.VIII.A.K8) 9. Radio communications equipment and procedures. (PA.VIII.A.K9) 10. Air traffic control facilities and services. (PA.VIII.A.K10) 11. Installed navigation equipment function and displays. (PA.VIII.A.K11)
Skills	The applicant demonstrates the ability to control the aircraft solely by reference to instruments: 1. Performs an instrument scan and instrument cross-check. (PA.VIII.A.S1) 2. Straight-and-level flight, Constant airspeed climbs, Constant airspeed Descents: Perform coordinated, smooth control application to correct for altitude, heading, airspeed, and bank deviations during straight-and-level, climb, descent, and return to level off. (PA.VIII.A.S2) 3. Standard-rate turns and Turns to Headings: Perform coordinated, smooth control application to establish a standard-rate turn and to correct for altitude and bank deviations and rollout on specified heading. (PA.VIII.A.S3) 4. Promptly recognizes unusual flight attitudes solely by reference to instruments; recovers promptly to a stabilized level flight attitude using proper instrument cross-check and interpretation and smooth, coordinated control application in the correct sequence. (PA.VIII.A.S4) 5. Perform appropriate trimming to relieve control pressures. (PA.VIII.A.S5) 6. Maintain altitude ±200 feet, heading ±10°, and airspeed ±10 knots. (PA.VIII.A.S6) 7. Maintain controlled flight while selecting proper communications frequencies and setting up navigation equipment to select desired course. (PA.VIII.A.S7) 8. Maintain aircraft control while complying with ATC instructions. (PA.VIII.A.S8) 9. Maintain aircraft control while navigating using radio aids. (PA.VIII.A.S9)
Risk Management	The applicant applies risk identification, assessment, and mitigation principles to: 1. Maintaining proficiency in flight by reference to instruments. (PA.VIII.A.R1) 2. Good cockpit management. (PA.VIII.A.R2) 3. Awareness of the direction for nearest VMC. (PA.VIII.A.R3) 4. Avoiding continuing flight into IMC or any conditions outside of personal minimums. (PA.VIII.A.R4) 5. Awareness of the potential risks of losing situational awareness during low visibility and/or instrument conditions. (PA.VIII.A.R5) 6. Benefits of conducting straight-descents and level-turns when controlling flight by reference to instruments. (PA.VIII.A.R6) 7. Correlating the relationship between recovery techniques and load factor. (PA.VIII.A.R7)

Task	***B. Emergency Approach and Landing (Simulated)***
Reference	FAA-H-8083-3; POH/AFM
Objective	To determine the applicant exhibits satisfactory knowledge, skills and risk management associated with emergency approach and landing procedures.
Knowledge	The applicant demonstrates understanding of: 1. Glide speed, distance. (PA.VIII.B.K1) 2. Landing distance. (PA.VIII.B.K2) 3. Hazards of other than hard surfaced runway. (PA.VIII.B.K3) 4. Stabilized approach. (PA.VIII.B.K4) 5. Energy management. (PA.VIII.B.K5) 6. Wind conditions and effects. (PA.VIII.B.K6) 7. Density altitude. (PA.VIII.B.K7) 8. Headwind, tailwind, crosswind component. (PA.VIII.B.K8) 9. Emergency procedures. (PA.VIII.B.K9) 10. Communications. (PA.VIII.B.K10) 11. Regulations pertaining to emergencies safe altitudes. (PA.VIII.B.K11) 12. ATC clearance deviations. (PA.VIII.B.K12) 13. Minimum fuel. (PA.VIII.B.K13) 14. Selecting a landing location. (PA.VIII.B.K14) 15. ELTs. (PA.VIII.B.K15) 16. Radar assistance to VFR aircraft. (PA.VIII.B.K16) 17. Transponder. (PA.VIII.B.K17)
Skills	The applicant demonstrates the ability to: 1. Analyze the situation and select an appropriate course of action. (PA.VIII.B.S1) 2. Establish and maintain the recommended best-glide airspeed, ±10 knots. (PA.VIII.B.S2) 3. Plan and follow a flight pattern to the selected landing area considering altitude, wind, terrain, and obstructions that would allow a safe landing. (PA.VIII.B.S3) 4. Prepare for landing, or go-around, as specified by the evaluator. (PA.VIII.B.S4) 5. Completes the appropriate checklist. (PA.VIII.B.S5) 6. Makes appropriate radio calls. (PA.VIII.B.S6)
Risk Management	The applicant applies risk identification, assessment, and mitigation principles to: 1. Accounting for wind. (PA.VIII.B.R1) 2. Selecting a suitable landing area. (PA.VIII.B.R2) 3. Planning and following a flight pattern to the selected landing area considering altitude, wind, terrain, and obstructions. (PA.VIII.B.R3) 4. Task management. (PA.VIII.B.R4) 5. Low altitude maneuvering. (PA.VIII.B.R5) 6. Manages startle response. (PA.VIII.B.R6) 7. Wire strike avoidance. (PA.VIII.B.R7) 8. Collision Avoidance. (PA.VIII.B.R8) 9. Right-of-way. (PA.VIII.B.R9) 10. Situational awareness of obstacles on approach and departure paths. (PA.VIII.B.R10) 11. Stall/Spin Awareness. (PA.VIII.B.R11)

Task	***C. Systems and Equipment Malfunction***
Reference	FAA-H-8083-3; POH/AFM
Objective	To determine the applicant exhibits satisfactory knowledge, skills and risk management associated with system and equipment malfunctions appropriate to the airplane provided for the practical test and analyzing the situation and take appropriate action for simulated emergencies.
Knowledge	The applicant demonstrates understanding of: 1. Elements related to system and equipment malfunctions appropriate to the airplane, including the following— (PA.VIII.C.K1) a. partial or complete power loss. b. engine roughness or overheat. c. carburetor or induction icing. d. loss of oil pressure. e. fuel starvation. f. electrical malfunction. g. vacuum/pressure, and associated flight instruments malfunction. h. pitot/static system malfunction. i. landing gear or flap malfunction. j. inoperative trim. k. inadvertent door or window opening. l. structural icing. m. smoke/fire/engine compartment fire. n. any other emergency appropriate to the airplane. 2. Supplemental oxygen. (PA.VIII.C.K2) 3. Load factors. (PA.VIII.C.K3) 4. High drag versus low drag. (PA.VIII.C.K4)
Skills	The applicant demonstrates the ability to: 1. Analyze the situation and take appropriate action for simulated emergencies appropriate to the airplane provided for at least three of the system and equipment malfunctions in the knowledge element. (PA.VIII.C.S1) 2. Completes appropriate checklist or procedure. (PA.VIII.C.S2)
Risk Management	The applicant applies risk identification, assessment, and mitigation principles to: 1. Hazardous attitudes. (PA.VIII.C.R1) 2. Preflight inspections. (PA.VIII.C.R2) 3. Maintenance. (PA.VIII.C.R3) 4. Checklist usage. (PA.VIII.C.R4) 5. Recognizing situations, such as depressurization (if applicable), cockpit smoke, and/or fire that require an emergency descent. (PA.VIII.C.R5) 6. Orientation, division of attention, and proper planning. (PA.VIII.C.R6) 7. Energy management. (PA.VIII.C.R7)

Task	***D. Emergency Equipment and Survival Gear***
Reference	FAA-H-8083-3; POH/AFM
Objective	To determine the applicant exhibits satisfactory knowledge, skills and risk management associated with emergency equipment, personal, and survival gear appropriate to the airplane and environment encountered during flight and identifying appropriate equipment that should be onboard the airplane.
Knowledge	The applicant demonstrates understanding of: 1. Emergency equipment. (PA.VIII.D.K1) 2. Climate extremes (hot/cold). (PA.VIII.D.K2) 3. Mountainous terrain. (PA.VIII.D.K3) 4. Overwater operations. (PA.VIII.D.K4) 5. Gear to meet basic physical needs until rescue. (PA.VIII.D.K5) 6. ELT operation, limitations and testing requirements. (PA.VIII.D.K6)
Skills	The applicant demonstrates the ability to: 1. Identify appropriate equipment that should be onboard the airplane. (PA.VIII.D.S1) 2. Identify appropriate personal gear to meet physical needs until rescue. (PA.VIII.D.S2) 3. Brief the proper use of the fire extinguisher, if installed. (PA.VII.D.S3)
Risk Management	The applicant applies risk identification, assessment, and mitigation principles to: 1. Meeting basic needs (water, clothing, shelter) for 48 to 72 hours until search and rescue is made. (PA.VIII.D.R1)

Task	***E. Engine Failure During Takeoff Before Vmc (Simulated) (AMEL, AMES)***
Reference	FAA-H-8083-3; FAA-P-8740-19; POH/AFM
Objective	To determine the applicant exhibits satisfactory knowledge, skills and risk management associated with an engine failure during takeoff before Vmc. **NOTE:** Engine failure (simulated) shall be accomplished before reaching 50 percent of the calculated Vmc.
Knowledge	The applicant demonstrates understanding of: 1. Vmc. (PA.VIII.E.K1) 2. Runway distances. (PA.VIII.E.K2)
Skills	The applicant demonstrates the ability to: 1. Close the throttles smoothly and promptly when simulated engine failure occurs. (PA.VIII.E.S1) 2. Maintain directional control and apply brakes, as necessary. (PA.VIII.E.S2)
Risk Management	The applicant applies risk identification, assessment, and mitigation principles to: 1. Emergency planning and communications. (PA.VIII.E.R1) 2. Task management. (PA.VIII.E.R2) 3. Low altitude maneuvering. (PA.VIII.E.R3) 4. Wire strike avoidance. (PA.VIII.E.R4) 5. Collision Avoidance. (PA.VIII.E.R5) 6. Right-of-way. (PA.VIII.E.R6) 7. Situational awareness of obstacles on approach and departure paths. (PA.VIII.E.R7) 8. Stall/Spin Awareness. (PA.VIII.E.R8)

Task	***F. Engine Failure After Lift-Off (Simulated) (AMEL, AMES)***
Reference	FAA-H-8083-3; FAA-P-8740-19; POH/AFM
Objective	To determine the applicant exhibits satisfactory knowledge, skills and risk management associated with an engine failure after lift-off. **NOTE:** Simulated engine failure of the most critical engine shall be demonstrated after lift-off. However, the failure of an engine shall not be simulated until attaining at least Vsse/Vxse/Vyse and at an altitude not lower than 400 feet AGL.
Knowledge	The applicant demonstrates understanding of: 1. Vmc. (PA.VIII.F.K1) 2. Runway distances. (PA.VIII.F.K2) 3. Drag reduction. (PA.VIII.F.K3) 4. How to identify the inoperative engine. (PA.VIII.F.K4) 5. Aircraft configuration for best performance during single-engine operations. (PA.VIII.F.K5) 6. Feathering and zero-thrust procedures. (PA.VIII.F.K6)
Skills	The applicant demonstrates the ability to: 1. Recognize a simulated engine failure promptly, maintain control and utilize appropriate emergency procedures. (PA.VIII.F.S1) 2. Reduce drag, identify and verify the inoperative engine after simulated engine failure. (PA.VIII.F.S2) 3. Simulate feathering the propeller on the inoperative engine. Evaluator shall then establish a zero-thrust on the inoperative engine. (PA.VIII.F.S3) 4. Establish Vyse; if obstructions are present, establish Vxse or Vmc +5 knots, whichever is greater, until obstructions are cleared. Then transition to Vyse. (PA.VIII.F.S4) 5. Bank toward the operating engine as required for best performance. (PA.VIII.F.S5) 6. Monitor operating engine and make adjustments as necessary. (PA.VIII.F.S6) 7. Recognize the airplane’s performance capabilities. If a climb is not possible at Vyse, maintain Vyse and return to the departure airport for landing, or initiate an approach to the most suitable landing area available. (PA.VIII.F.S7) 8. Simulate securing the inoperative engine. (PA.VIII.F.S8) 9. Maintain heading +10 degrees, and airspeed ±5 knots. (PA.VIII.F.S9) 10. Complete appropriate emergency checklist. (PA.VIII.F.S10)
Risk Management	The applicant applies risk identification, assessment, and mitigation principles to: 1. Emergency planning and communications. (PA.VIII.F.R1) 2. Task management. (PA.VIII.F.R2) 3. Low altitude maneuvering. (PA.VIII.F.R3) 4. Wire strike avoidance. (PA.VIII.F.R4) 5. Collision Avoidance. (PA.VIII.F.R5) 6. Right-of-way. (PA.VIII.F.R6) 7. Situational awareness of obstacles on approach and departure paths. (PA.VIII.F.R7) 8. Stall/Spin Awareness. (PA.VIII.F.R8)

Task	***G. Approach and Landing with an Inoperative Engine (Simulated) (AMEL, AMES)***
Reference	FAA-H-8083-3; FAA-P-8740-19; POH/AFM
Objective	To determine the applicant exhibits satisfactory knowledge, skills and risk management associated with an approach and landing with an engine inoperative, including engine failure on final approach.
Knowledge	The applicant demonstrates understanding of: 1. Vmc. (PA.VIII.G.K1) 2. Runway distances. (PA.VIII.G.K2) 3. Drag reduction. (PA.VIII.G.K3) 4. How to identify the inoperative engine. (PA.VIII.G.K4) 5. Aircraft configuration for best performance during single-engine operations. (PA.VIII.G.K5) 6. Feathering and zero-thrust procedures. (PA.VIII.G.K6)
Skills	The applicant demonstrates the ability to: 1. Recognize engine failure and take appropriate action, maintain control, and utilize manufacturer's recommended emergency procedures. (PA.VIII.G.S1) 2. Bank toward the operating engine, as required, for best performance. (PA.VIII.G.S2) 3. Monitor the operating engine and make adjustments as necessary. (PA.VIII.G.S3) 4. Maintain the manufacturer's recommended approach airspeed +10/-5, and landing configuration with a stabilized approach, until landing is assured. (PA.VIII.G.S4) 5. Make smooth, timely, and correct control applications, during round out and touchdown. (PA.VIII.G.S5) 6. Touch down on the first one-third of available runway, with no drift and the airplane's longitudinal axis aligned with and over the runway center path. (PA.VIII.G.S6) 7. Maintain crosswind correction and directional control throughout the approach and landing sequence. (PA.VIII.G.S7) 8. Complete appropriate checklists. (PA.VIII.G.S8)
Risk Management	The applicant applies risk identification, assessment, and mitigation principles to: 1. Accounting for wind. (PA.VIII.G.R1) 2. Selecting a suitable landing area. (PA.VIII.G.R2) 3. Planning and following a flight pattern to the selected landing area considering altitude, wind, terrain, and obstructions. (PA.VIII.G.R3) 4. Task management. (PA.VIII.G.R4) 5. Low altitude maneuvering. (PA.VIII.G.R5) 6. Wire strike avoidance. (PA.VIII.G.R6) 7. Collision Avoidance. (PA.VIII.G.R7) 8. Right-of-way. (PA.VIII.G.R8) 9. Situational awareness of obstacles on approach and departure paths. (PA.VIII.G.R9) 10. Stall/Spin Awareness. (PA.VIII.G.R10)

IX. Multiengine Operations

NOTE: If the applicant does not hold an instrument rating airplane, Tasks C and D need not be accomplished. All other Tasks need to be completed.

Task	***A. Maneuvering with One Engine Inoperative (AMEL, AMES)***
Reference	FAA-H-8083-3, FAA-P-8740-19; POH/AFM
Objective	To determine the applicant exhibits satisfactory knowledge, skills and risk management associated with one engine inoperative. **NOTE:** The feathering of one propeller shall be demonstrated in flight, unless the manufacturer prohibits the intentional feathering of the propellers during flight. The maneuvers shall be performed at altitudes above 3,000 feet AGL or the manufacturer's recommended altitude, whichever is higher, and positions where safe landings on established airports can be readily accomplished. In the event a propeller cannot be unfeathered during the practical test, it shall be treated as an emergency.
Knowledge	The applicant demonstrates understanding of: 1. Vmc. (PA.IX.A.K1) 2. Drag reduction. (PA.IX.A.K3) 3. How to identify the inoperative engine. (PA.IX.A.K4) 4. Aircraft configuration for best performance during single-engine operations. (PA.IX.A.K5) 5. Feathering and zero-thrust procedures. (PA.IX.A.K6)
Skills	The applicant demonstrates the ability to: 1. Recognize engine failure and maintain control. (PA.IX.A.S1) 2. Set the engine controls, reduce drag, identify and verify the inoperative engine, and feather appropriate propeller. (PA.IX.A.S2) 3. Establish and maintain a bank toward the operating engine as required for best performance in straight and level flight. (PA.IX.A.S3) 4. Follow the manufacturer's prescribed checklists to verify procedures for securing the inoperative engine. (PA.IX.A.S4) 5. Monitor the operating engine and make necessary adjustments. (PA.IX.A.S5) 6. Demonstrate coordinated flight with one engine inoperative (propeller feathered). (PA.IX.A.S6) 7. Restart the inoperative engine using appropriate manufacturer's restart procedures. (PA.IX.A.S7) 8. Maintain altitude ±100 feet or minimum sink as appropriate and heading ±10 degrees. (PA.IX.A.S8) 9. Complete the appropriate checklist. (PA.IX.A.S9)
Risk Management	The applicant applies risk identification, assessment, and mitigation principles to: 1. Collision avoidance. (PA.IX.A.R1) 2. CFIT avoidance. (PA.IX.A.R2) 3. Task management. (PA.IX.A.R3) 4. Wire strike avoidance. (PA.IX.A.R4) 5. Situational awareness. (PA.IX.A.R5)

Task	***B. Vmc Demonstration (AMEL, AMES)***
Reference	FAA-H-8083-3, FAA-P-8740-19; POH/AFM
Objective	To determine the applicant exhibits satisfactory knowledge, skills and risk management associated with a Vmc demonstration. **NOTE:** An applicant seeking an airplane-multiengine land rating, “Limited to Center Thrust,” is not required to be evaluated on this Task. **NOTE:** Airplane with normally aspirated engines will lose power as altitude increases because of the reduced density of the air entering the induction system of the engine. This loss of power will result in a Vmc lower than the stall speed at higher altitudes. Therefore, recovery should be made at the first indication of loss of directional control, stall warning, or buffet. Do not perform this maneuver by increasing the pitch attitude to a high angle with both engines operating and then reducing power on the critical engine. This technique is hazardous and may result in loss of airplane control.
Knowledge	The applicant demonstrates understanding of: 1. Vmc and factors affecting Vmc. (PA.IX.B.K1) 2. Cause of loss of directional controls at airspeeds less than Vmc. (PA.IX.B.K2) 3. Safe recovery procedures. (PA.IX.B.K3)
Skills	The applicant demonstrates the ability to: 1. Configure the airplane in accordance with the manufacturer’s recommendation, in the absence of the manufacturer’s recommendations, then at Vsse/Vyse, as appropriate-(PA.IX.B.S1) a. Landing gear retracted. b. Flaps set for takeoff. c. Cowl flaps set for takeoff. d. Trim set for takeoff. e. Propellers set for high RPM. f. Power on critical engine reduce to idle. g. Power on operating engine set to takeoff or maximum available power. 2. Establish a single-engine climb attitude with the airspeed at approximately 10 knots above Vsse. (PA.IX.B.S2) 3. Establish a bank toward the operating engine, as required for best performance and controllability. (PA.IX.B.S3) 4. Increase the pitch attitude slowly to reduce the airspeed at approximately 1 knot per second while applying rudder pressure to maintain directional control until full rudder is applied. (PA.IX.B.S4) 5. Recognize indications of loss of directional control, stall warning, or buffet. (PA.IX.B.S5) 6. Recover promptly by simultaneously reducing power sufficiently on the operating engine while decreasing the angle of attack as necessary to regain airspeed and directional control. Recovery SHOULD NOT be attempted by increasing the power on the simulated failed engine. (PA.IX.B.S6) 7. Recover within 20 degrees of the entry heading. (PA.IX.B.S7) 8. Advance power smoothly on operating engine and accelerate to Vxse/Vyse, as appropriate, +10/-5 knots, during the recovery. (PA.IX.B.S8)
Risk Management	The applicant applies risk identification, assessment, and mitigation principles to: 1. Collision avoidance. (PA.IX.B.R1) 2. CFIT avoidance. (PA.IX.B.R2) 3. Task management. (PA.IX.B.R3) 4. Wire strike avoidance. (PA.IX.B.R4) 5. Situational awareness. (PA.IX.B.R5)

Task	***C. Engine Failure During Flight (by reference to instruments) (AMEL, AMES)***
Reference	FAA-H-8083-3, FAA-P-8740-19; POH/AFM
Objective	To determine the applicant exhibits satisfactory knowledge, skills and risk management associated with instrument flight with one engine inoperative.
Knowledge	The applicant demonstrates understanding of: 1. Instrument procedures used with one engine inoperative. (PA.IX.C.K1)
Skills	The applicant demonstrates the ability to: 1. Recognize engine failure, set the engine controls, reduce drag, identify and verify the inoperative engine, and feather appropriate engine propeller. (PA.IX.C.S1) 2. Establish and maintain a bank toward the operating engine as required for best performance in straight-and-level. (PA.IX.C.S2) 3. Follow the prescribed checklists to verify procedures for securing the inoperative engine. (PA.IX.C.S3) 4. Monitor the operating engine and make necessary adjustments. (PA.IX.C.S4) 5. Demonstrate coordinated flight with one engine inoperative. (PA.IX.C.S5) 6. Maintain altitude ±100 feet, or minimum sink as appropriate and heading ±10 degrees bank, bank ±5 degrees, and levels off from climbs and descents within ±100 feet. (PA.IX.C.S6)
Risk Management	The applicant applies risk identification, assessment, and mitigation principles to: 1. Collision avoidance. (PA.IX.C.R1) 2. CFIT avoidance. (PA.IX.C.R2) 3. Task management. (PA.IX.C.R3) 4. Wire strike avoidance. (PA.IX.C.R4) 5. Situational awareness. (PA.IX.C.R5)

Task	***D. Instrument Approach and Landing with an Inoperative Engine (Simulated) by Reference to Instruments (AMEL, AMES)***
Reference	FAA-H-8083-3, FAA-P-8740-19; POH/AFM
Objective	To determine the applicant exhibits satisfactory knowledge, skills and risk management associated with executing a published instrument approach with one engine inoperative.
Knowledge	The applicant demonstrates understanding of: 1. Instrument approach procedures used with one engine inoperative. (PA.IX.D.K1)
Skills	The applicant demonstrates the ability to: 1. Recognize engine failure, set the engine controls, reduce drag, identify and verify the inoperative engine, and feather appropriate engine propeller. (PA.IX.D.S1) 2. Establish and maintain a bank toward the operating engine, as required for best performance in straight-and-level flight. (PA.IX.D.S2) 3. Follow the manufacturer's prescribed checklists to verify procedures for securing the inoperative engine. (PA.IX.D.S3) 4. Monitor the operating engine and make necessary adjustments. (PA.IX.D.S4) 5. Request and receive an actual or a simulated ATC clearance for an instrument approach. (PA.IX.D.S5) 6. Follow the actual or a simulated ATC clearance for an instrument approach. (PA.IX.D.S6) 7. Maintain altitude within 100 feet, the airspeed within ±10 knots if within the aircraft's capability, and heading +-10 degrees. (PA.IX.D.S7) 8. Establish a rate of descent that will ensure arrival at the MDA or DH/DA, with the airplane in a position from which a descent to a landing, on the intended runway can be made, either straight in or circling as appropriate. (PA.IX.D.S8) 9. On final approach segment, no more than three-quarter-scale deflection of the CDI/glide slope indicator. For RMI or ADF indicators, within 10 degrees of the course. (PA.IX.D.S9) 10. Avoid loss of aircraft control, or attempted flight contrary to the engine-inoperative operating limitations of the aircraft. (PA.IX.D.S10) 11. Comply with the published criteria for the aircraft approach category when circling. (PA.IX.D.S11) 12. Complete landing and appropriate manufacturer's checklists. (PA.IX.D.S12)
Risk Management	The applicant applies risk identification, assessment, and mitigation principles to: 1. Collision avoidance. (PA.IX.D.R1) 2. CFIT avoidance. (PA.IX.D.R2) 3. Task management. (PA.IX.D.R3) 4. Wire strike avoidance. (PA.IX.D.R4) 5. Situational awareness. (PA.IX.D.R5)

X. Night Operation

Task	***A. Night Preparation***
Reference	FAA-H-8083-3, FAA-H-8083-25; AIM; POH/AFM
Objective	To determine the applicant exhibits satisfactory knowledge, skills and risk management associated with night operations.
Knowledge	The applicant demonstrates understanding of: 1. Physiological aspects of night flying as it relates to vision. (PA.X.A.K1) 2. Lighting systems identifying airports, runways, taxiways and obstructions, as well as pilot controlled lighting. (PA.X.A.K2) 3. Airplane equipment requirements for night operations. (PA.X.A.K3) 4. Airplane lighting systems – type, interpretation in flight, when to use what. (PA.X.A.K4) 5. Personal equipment essential for night flight. (PA.X.A.K5) 6. Night orientation, navigation, and chart reading techniques. (PA.X.A.K6) 7. Safety precautions and emergencies unique to night flying. (PA.X.A.K7) 8. Somatogravic illusion and black hole approach illusion. (PA.X.A.K8) 9. Disorientation experienced in unusual attitudes at night. (PA.X.A.K9) 10. Visual scanning techniques during night operations. (PA.X.A.K10) 11. Hazards of inadvertent IMC. (PA.X.A.K11)
Skills	[Not generally evaluated in flight. If the practical test is conducted at night, all PTS tasks are evaluated in that environment, thus there is no need for explicit task elements to exist here.]
Risk Management	The applicant applies risk identification, assessment, and mitigation principles to: 1. Collision avoidance. (PA.X.A.R1) 2. CFIT avoidance. (PA.X.A.R2) 3. Task management. (PA.X.A.R3) 4. Wire strike avoidance. (PA.X.A.R4) 5. Situational awareness. (PA.X.A.R5) 6. Environmental considerations at night: i.e. IMC; terrain (roads), etc. (PA.X.A.R6) 7. Maintaining VFR at night underneath airspace. (PA.X.A.R7)

XI. Postflight Procedures

Task	***A. Parking, and Securing***
Reference	FAA-H-8083-3; POH/AFM
Objective	To determine the applicant exhibits satisfactory knowledge, skills and risk management associated with after landing, parking, and securing procedures.
Knowledge	The applicant demonstrates understanding of: 1. Positioning aircraft controls for wind. (PA.XI.A.K1) 2. Familiarity with airport markings (including hold short lines), signs, and lights. (PA.XI.A.K2) 3. Aircraft lighting. (PA.XI.A.K3) 4. Towered and non-towered airport operations. (PA.XI.A.K4) 5. Visual indicators for wind. (PA.XI.A.K5) 6. Airport information resources (A/FD, airport diagram). (PA.XI.A.K6) 7. Good cockpit discipline during taxi. (PA.XI.A.K7) 8. Appropriate taxi speeds. (PA.XI.A.K8) 9. Exhibiting procedures for appropriate cockpit activities during taxiing including taxi route planning, briefing the location of HOT SPOTS, communicating and coordinating with ATC. (PA.XI.A.K9) 10. Procedures unique to night operations. (PA.XI.A.K10) 11. Hazards of low visibility operations. (PA.XI.A.K11) 12. Importance of documenting any in-flight/post-flight discrepancies. (PA.XI.A.K12) 13. NTSB accident/incident reporting. (PA.XI.A.K13)
Skills	The applicant demonstrates the ability to: 1. Utilize after landing runway incursion avoidance procedures. (PA.XI.A.S1) 2. Park in an appropriate area, considering the safety of nearby persons and property. (PA.XI.A.S2) 3. Follow the appropriate procedure for engine shutdown. (PA.XI.A.S3) 4. Completes the After Landing checklist after the airplane is stopped. (PA.XI.A.S4) 5. Plan the taxi route to the ramp up. (PA.XI.A.S5) 6. Complete the Engine Shutdown Checklist. (PA.XI.A.S6) 7. Disembark passengers safely and remain aware of passenger movement while on the ramp area. (PA.XI.A.S7) 8. Record aircraft discrepancies and notes for possible service needs before next flight. (PA.XI.A.S8) 9. Conduct an appropriate post flight inspection, secure the aircraft. (PA.XI.A.S9)
Risk Management	The applicant applies risk identification, assessment, and mitigation principles to: 1. Distractions during aircraft taxi and parking. (PA.X.A.R1) 2. Proximity of other aircraft/vehicles/people when operating on airport surfaces. (PA.XI.A.R2) 3. Propeller safety. (PA.XI.A.R3) 4. Proper workload management. (PA.XI.A.R4) 5. Confirmation or expectation bias. (PA.XI.A.R5) 6. Automation Management. (PA.XI.A.R6) 7. Airport security. (PA.XI.A.R7)

Task	***B. Seaplane Post-Landing Procedures (ASES, AMES)***
Reference	FAA-H-8083-23; POH/AFM
Objective	To determine the applicant exhibits satisfactory knowledge, skills and risk management associated with anchoring, docking, mooring, and ramping/beaching. **NOTE:** The examiner shall select at least one after-landing procedure (anchoring, docking and mooring, or ramping/beaching).
Knowledge	The applicant demonstrates understanding of: 1. Mooring. (PA.XI.B.K1) 2. Docking. (PA.XI.B.K2) 3. Anchoring. (PA.XI.B.K3) 4. Ramping/beaching. (PA.XI.B.K4) 5. Post-landing procedures. (PA.XI.B.K5)
Skills	The applicant demonstrates the ability to: 1. Selects a suitable area for anchoring, considering seaplane movement, water depth, tide, wind, and weather changes. (PA.XI.B.S1) 2. Uses an adequate number of anchors and lines of sufficient strength and length to ensure the seaplane's security. (PA.XI.B.S2) 3. Approaches the dock or mooring buoy in the proper direction considering speed, hazards, wind, and water current. (PA.XI.B.S3) 4. Approaches the ramp/beach considering persons and property, in the proper attitude and direction, at a safe speed, considering water depth, tide, current, and wind. (PA.XI.B.S4) 5. Ensures seaplane security in a manner that will protect it from the harmful effect of wind, waves, and changes in water level. (PA.XI.B.S5)
Risk Management	The applicant applies risk identification, assessment, and mitigation principles to: 1. Distractions during aircraft taxi and parking. (PA.XI.B.R1) 2. Proximity of other aircraft/vehicles/people when operating on airport surfaces. (PA.XI.B.R2) 3. Propeller safety. (PA.XI.B.R3) 4. Proper workload management. (PA.XI.B.R4) 5. Confirmation or expectation bias. (PA.XI.B.R5) 6. Automation Management. (PA.XI.B.R6) 7. Airport security. (PA.XI.B.R7) 8. Water and environmental impacts on securing a seaplane. (PA.XI.B.R8)

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APPENDIX 1: THE KNOWLEDGE TEST

The knowledge test is an important part of the airman certification process. Applicants must pass the knowledge test before taking the practical test.

Knowledge Test Description

The knowledge test consists of objective, multiple-choice questions. There is a single best response for each test question. Each test question is independent of other questions. A correct response to one does not depend upon, or influence, the correct response to another.

Test Code	Test Name	Number of Questions	Allotted Time	Passing Score
PAR	Private Pilot Airplane	60	2.5	70%
PAT	Private Pilot Airplane/Recreational Pilot – Transition	30	1.5	70%
PCP	Private Pilot Canadian Conversion	40	2.0	70%

Knowledge Test Eligibility Requirements

For information concerning eligibility for Private Pilot certification, please refer to:

- Medical Certificates: Requirement and Duration: 14 CFR 61.23
- Knowledge Test: Prerequisites and Passing Grades: 14 CFR 61.35
- Eligibility: 14 CFR 61.83; 14 CFR 61.96; 14 CFR 61.103

Knowledge Test Centers

The FAA authorizes hundreds of knowledge testing center locations. For information on authorized testing centers and to register for the knowledge test, contact one of the providers listed at www.faa.gov.

Test Authorization

In order to take the Private Pilot knowledge test, you must provide one of the following:

- Graduation certificate issued by a Federal Aviation Administration (FAA) certificated pilot school (14 CFR 61.71), or a
- Written statement or logbook endorsement from an authorized instructor certifying that the applicant completed an applicable ground training or home study course and is prepared for the knowledge test (14 CFR 61.35, 61.96(b)(3) or 61.103(d)(2)).

Acceptable forms of authorization for PCP only:

- Confirmation of Verification Letter issued by the Airmen Certification Branch (AFS-760).

Acceptable forms of retest authorization for ALL Private Pilot tests:

- Original failed, passing, or expired Airman Knowledge Test Report, provided the applicant still has the test report in his or her possession.

  NOTE: If the applicant no longer possesses the original test report, he or she may present an 'expired test/credit' letter issued by AFS-760.

- An applicant retesting AFTER FAILURE is required to submit the applicable test report indicating failure, along with an endorsement from an authorized instructor who gave the applicant the required additional training. The endorsement must certify that the applicant is competent to pass the test. The test proctor must retain the original failed test report presented as authorization and attach it to the applicable sign-in/out log.

Knowledge Test Procedures

Before starting the actual test, the testing center will provide an opportunity to practice navigating through the test. This practice or tutorial session may include sample questions to familiarize the applicant with the look and feel of the software. (e.g., selecting an answer, marking a question for later review, monitoring time remaining for the test, and other features of the testing software).

The applicant may use the following aids, reference materials, and test materials, as long as the material does not include actual test questions or answers:

Acceptable Materials	Unacceptable Materials	Notes
Supplement book provided by proctor	Written materials that are handwritten, printed, or electronic	Testing centers may provide calculators and/or deny the use of personal calculators
All models of aviation-oriented calculators or small electronic calculators that perform only arithmetic functions	Electronic calculators incorporating permanent or continuous type memory circuits without erasure capability	Unit Member (proctor) may prohibit the use of your calculator if he or she is unable to determine the calculator's erasure capability
Calculators with simple programmable memories, which allow addition to, subtraction from, or retrieval of one number from the memory; or simple functions, such as square root and percentages	Magnetic cards, magnetic tapes, modules, computer chips, or any other device upon which pre-written programs or information related to the test can be stored and retrieved	Printouts of data must be surrendered at the completion of the test if the calculator incorporates this design feature.
Scales, straightedges, protractors, plotters, navigation computers, blank log sheets, holding pattern entry aids, and electronic or mechanical calculators that are directly related to the test	Dictionaries	Before, and upon completion of the test, while in the presence of the Unit Member, actuate the ON/OFF switch or RESET button, and perform any other function that ensures erasure of any data stored in memory circuits
Manufacturer's permanently inscribed instructions on the front and back of such aids, e.g., formulas, conversions, regulations, signals, weather data, holding pattern diagrams, frequencies, weight and balance formulas, and air traffic control procedures	Any booklet or manual containing instructions related to use of test aids	Unit Member makes the final determination regarding aids, reference materials, and test materials

FAA Knowledge Test Question Coding

Each task in the Airman Certification Standard includes an Airman Certification Standards (ACS) code. This ACS code is displayed on the airman test report to indicate what task element was proven deficient on the Knowledge Exam. Instructors can then provide remedial training in the deficient areas and evaluators can re-test this element during the practical exam.

The ACS coding consists of 5 elements. For example: this code is deciphered accordingly: **PA.X.A.1.a**

PA.X.A.K1.a:

PA = Applicable ACS (private pilot airplane)
X = Area of Operation (night operation)
A = Task (night preparation)
K1= Knowledge task element 1 (physiological aspects of night flying as it relates to vision)
a = rote; **b** = understanding; **c** = application; **d**= correlation), representing the level of learning which also informs the manner of the question (rote = define, recall, list, name, match, label)

Every question is correlated to a specific ACS task/element. This coding methodology will be useful to all involved with airman certification—the applicant, the evaluator, and the flight instructor. It indicates what test subjects (tasks) were satisfactorily passed and what tasks need to be reviewed prior to the practical test.

Testing Procedures for Applicants Requesting Special Accommodations

An applicant with a learning or reading disability may request approval from AFS-630 through the local Flight Standards District Offices (FSDO) or International Field Offices (IFO) to take an airman knowledge test using one of the three options listed below, in preferential order:

Option 1: Use current testing facilities and procedures whenever possible.

Option 2: Use a self-contained, electronic device which pronounces and displays typed-in words (e.g., the Franklin Speaking Wordmaster®) to facilitate the testing process.

NOTE: The device should consist of an electronic thesaurus that audibly pronounces typed-in words and presents them on a display screen. The device should also have a built-in headphone jack in order to avoid disturbing others during testing.

Option 3: Request the proctor's assistance in reading specific words or terms from the test questions and/or supplement book. To prevent compromising the testing process, the proctor must be an individual with no aviation background or expertise. The proctor may provide reading assistance only (i.e., no explanation of words or terms). When an applicant requests this option, the FSDO or IFO inspector must contact the Airman Testing Standards Branch (AFS-630) for assistance in selecting the test site and assisting the proctor. Before approving any option, the FSDO or IFO inspector must advise the applicant of the regulatory certification requirement to be able to read, write, speak, and understand the English language.

Cheating or Other Unauthorized Conduct

Computer testing centers must follow strict security procedures to avoid test compromise in accordance with FAA Order 8080.6 (as amended), Conduct of Airman Knowledge Tests. Testing centers will terminate a test any time the test proctor suspects an occurrence of cheating.

The FAA will conduct an investigation of the incident. If the investigation determines that cheating or unauthorized conduct occurred, any airman certificate or rating the applicant holds may be revoked. In addition, the applicant may be prohibited from applying for or taking any test for a certificate or rating under 14 CFR part 61 for a period of one year.

Airman Knowledge Test Report

Immediately upon completion of the knowledge test, the applicant receives a printed Airman Knowledge Test Report documenting the score with the testing center's raised, embossed seal. The applicant must retain the original Airman Knowledge Test Report and present it to the evaluator conducting the practical test.

An Airman Knowledge Test Report expires 24-calendar months from the month the applicant completes the knowledge test. If the Airman Knowledge Test Report expires before completion of the practical test, the applicant must retake the knowledge test.

To obtain a duplicate Airman Knowledge Test Report due to loss or destruction of the original, the applicant can send a signed request accompanied by a check or money order for $1.00, payable to the FAA to:

> Federal Aviation Administration
> Airmen Certification Branch, AFS-760
> P.O. Box 25082
> Oklahoma City, OK 73125

APPENDIX 2: THE PRACTICAL TEST

The evaluator must conduct the practical test in accordance with this ACS. The evaluator must assess the applicant on all tasks included in each Area of Operation of the ACS unless otherwise noted.

NOTE: The applicant must pass the knowledge test before taking the practical test, and the applicant must pass the oral portion of the practical test before beginning the flight portion.

For an applicant who holds at least a private pilot certificate and seeks an additional airplane category and/or class rating at the private pilot level, the examiner shall evaluate that applicant in the Areas of Operation and Tasks listed in the Additional Rating Task Table. Please note, however, that the evaluator has the discretion to evaluate the applicant's competence in the remaining Areas of Operation and Tasks.

If the applicant holds two or more category or class ratings at least at the private level, and the ratings table indicates differing required Tasks, the "least restrictive" entry applies. For example, if "ALL" and "NONE" are indicated for one Area of Operation, the "NONE" entry applies. If "B" and "B, C" are indicated, the "B" entry applies.

Conduct of the Practical Test

The evaluator must develop a written Plan of Action to conduct the test, which includes all required Areas of Operation and Tasks. The Plan of Action will include a scenario that evaluates as many of the required Areas of Operation and Tasks as possible. As the scenario unfolds during the test, the examiner will interject problems and emergencies the applicant must manage.

The evaluator has the discretion and flexibility to change the Plan of Action in order to accommodate unexpected situations as they arise. The evaluator will evaluate any selected Task in its entirety. The evaluator may elect to suspend a scenari006F and then resume the scenario in order to assess certain tasks.

If performing aspects of a given maneuver, such as emergency procedures, would jeopardize safety, the evaluator will ask the applicant to simulate that portion of the maneuver.

Use of Checklists

Throughout the practical test, the applicant is evaluated on the use of an approved manufacturer's checklist or equivalent.

NOTE: If there is no published manufacturer's checklist, the applicant may use the appropriate FAA handbook or equivalent checklist.

Assessing proper checklist use depends upon the specific Task. In all cases, the evaluator should determine the applicant appropriately divides attention and uses proper visual scanning. In some situations, reading the actual checklist may be impractical or unsafe. In such cases, the evaluator should assess the applicant's performance of published or recommended immediate action "memory" items along with his or her review of the appropriate checklist once conditions permit.

Use of Distractions

Research and accident analysis indicate that pilot distraction during critical phases of flight is a factor in many accidents. The evaluator will cause realistic distractions during the flight portion of the practical test in order to evaluate the applicant's ability to use and maintain proper control technique while dividing attention both inside and/or outside the cockpit.

Positive Exchange of Flight Controls

There must always be a clear understanding of who has control of the aircraft. Prior to flight, the pilots involved should conduct a briefing that includes reviewing the procedures for exchanging flight controls.

The FAA recommends a positive three-step process for exchanging flight controls between pilots:

- When one pilot seeks to have the other pilot take control of the aircraft, he or she will say, "You have the flight controls."
- The second pilot acknowledges immediately by saying, "I have the flight controls."
- The first pilot again says, "You have the flight controls."

Pilots should follow this procedure during any exchange of flight controls, including any occurrence during the practical test. The FAA also recommends that both pilots use a visual check to verify that the exchange has occurred. There must never be any doubt as to who is flying the aircraft.

Stall and Spin Awareness

During flight training and testing, the applicant and the instructor or evaluator must always recognizeandavoidoperationthatcouldleadtoaninadvertentstallorspin

Possible Outcomes of the Practical Test

There are three possible outcomes of the practical test :(1) pass, (2) fail, or (3) discontinuance.

<u>Pass</u>

Satisfactory performance requires the applicant to:

- Perform the Tasks specified in the Areas of Operation for the certificate or rating sought within the approved standards;
- Demonstrate mastery of the aircraft by performing each Task successfully;
- Demonstrate proficiency and competency in accordance with the approved standards;
- Demonstrate sound judgment and exercise aeronautical decision-making/risk management;
- Demonstrate single-pilot competence if the aircraft is type certificated for single-pilot operations.

Satisfactory performance will result in the issuance of a temporary certificate.

NOTE: The tolerances listed in the ACS represent the performance expected in good flying conditions.

<u>Fail</u>

If, in the judgment of the evaluator, the applicant does not meet the standards for any Task, the applicant fails the Task and associated Area of Operation, the test is unsatisfactory, and the examiner issues a Notice of Disapproval. When the examiner issues a Notice of Disapproval, he or she shall list the Area of Operation in which the applicant did not meet the standard. The Notice of Disapproval must also list the Area(s) of Operation not tested, and the number of practical test failures.

The examiner or the applicant may end the test if the applicant fails a Task. The examiner may continue the test only with the consent of the applicant and examiner, and the applicant is entitled to credit for only those Areas of Operation and the associated Tasks performed satisfactorily. Though not required, the examiner has discretion to reevaluate any Task, including those previously passed, during the retest.

Typical areas of unsatisfactory performance and grounds for disqualification include:

- Any action or lack of action by the applicant that requires corrective intervention by the examiner to maintain safe flight.
- Failure to use proper and effective visual scanning techniques to clear the area before and while performing maneuvers.
- Consistently exceeding tolerances stated in the Objectives.
- Failure to take prompt corrective action when tolerances are exceeded.
- Failure to exercise Risk Management

Discontinuance

When it is necessary to discontinue a practical test for reasons other than unsatisfactory performance (e.g., equipment failure, weather, illness), the evaluator returns all the test paperwork to the applicant. The evaluator must prepare, sign, and issue a Letter of Discontinuance that lists those Areas of Operation the applicant successfully completed and the time remaining to complete the test. The evaluator should advise the applicant to present the Letter of Discontinuance to the evaluator when the practical test resumes in order to receive credit for the items successfully completed. The Letter of Discontinuance becomes part of the applicant's certification file.

Prerequisites for the Test

According to 14 CFR part 61, an applicant for the Private Pilot Practical Test must:

- Be able to read, speak, write, and understand the English language as detailed in AC 60-28;
- Have passed the appropriate private pilot knowledge test since the beginning of the 24th month before the month in which he or she takes the practical test;
- Have satisfactorily accomplished the required training and obtained the prescribed aeronautical experience;
- Possess at least a current third class medical certification or, when a military pilot of the U.S. Armed Forces, show and present evidence of an up-to-date medical examination by the U.S. Armed Forces authorizing pilot status;
- Have an endorsement from an authorized instructor certifying that the applicant has received and logged training time within two (2) calendar months preceding the date of application in preparation for the practical test, and is prepared for the practical test;
- Receive and log ground training from an authorized instructor or complete a home-study course on the aeronautical knowledge areas of 14 CFR part 61.105 paragraph (b) that apply to the aircraft category and class rating sought; and
- Have an endorsement certifying that the applicant has demonstrated satisfactory knowledge of the subject areas in which the applicant was deficient on the airman knowledge test (not required for power aircraft to non-power aircraft or power aircraft to power aircraft for additional category or class rating).

Aircraft and Equipment Required for the Practical Test

The Private Pilot—Airplane applicant is required by 14 CFR 61.45 to provide an airworthy, certificated aircraft for use during the practical test. This section states that the aircraft must:

- Be of U.S., foreign, or military registry of the same category, class, and type, if applicable, for the certificate and/or rating for which the applicant is applying;
- Have fully functioning dual controls, except as provided for in 14 CFR 61.45(c) and (e); and
- Be capable of performing all Areas of Operation appropriate to the rating sought and have no operating limitations which prohibit its use in any of the Areas of Operation required for the practical test.

Instructor Responsibilities

Instructors are responsible for training the applicant to acceptable standards in knowledge, skills, and risk management procedures in all the Tasks, even if the applicant is simply adding an additional Private pilot certificate.

Evaluator Responsibilities

The evaluator who conducts the practical test is responsible for determining the applicant meets the acceptable standards of aeronautical knowledge, skills, and risk management for each Task in the appropriate ACS.

The evaluator must test at least one item in each of the Knowledge and Risk Management elements for every Task, emphasizing the topics (if any) the applicant missed on the Knowledge Test. The evaluator must test each item in the Skills elements unless otherwise noted in the Task.

Applicants must complete the oral portion of the practical test before the flight portion; however, oral questioning will continue throughout the flight. To the greatest extent practicable, evaluators shall test the applicant's ability to apply and correlate information, and only use rote questions when appropriate for the material being tested.

If the evaluator determines that a Task is incomplete, or the outcome is uncertain, the evaluator may require the applicant to repeat that Task, or portions of that Task. The FAA made this provision in the interest of fairness, but it does not mean that instruction, practice, or the repetition of an unsatisfactory task is permitted during the practical test.

On multiengine practical tests, where the failure of the most critical engine after liftoff is required, the examiner must give consideration to local atmospheric conditions, terrain, and type of aircraft used. However, the failure of an engine shall not be simulated until attaining at least $V_{SSE}/V_{XSE}/V_{YSE}$ and at an altitude not lower than 400 feet AGL.

During simulated engine failures on multiengine practical tests, the examiner shall set zero thrust after the applicant has simulated feathering the propeller. The examiner shall require the applicant to demonstrate at least one landing with a simulated-feathered propeller with the engine set to zero thrust. The feathering of one propeller shall be demonstrated in flight, unless the manufacturer prohibits the intentional feathering of the propellers during flight.

The evaluator will assess the applicant's use of visual scanning and collision avoidance procedures throughout the entire test.

APPENDIX 3: ADDITIONAL RATING TASK TABLES

Addition of an Airplane Single-Engine Land Rating to an existing Private Pilot Certificate

Required Tasks are indicated by either the Task letter(s) that apply(s) or an indication that all or none of the Tasks must be tested based on the notes in each Area of Operation.

PRIVATE PILOT RATING(S) HELD								
AREAS OF OPERATION	**ASES**	**AMEL**	**AMES**	**RH**	**RG**	**Glider**	**Balloon**	**Airship**
I	F,G	F,G	F,G	F,G	F,G	F,G	F,G	F,G
II	D	D	D	A,C,D, F	A,D,F	ALL	ALL	ALL
III	B	NONE	B	B	NONE	B	B	B
IV	A,B,C, D,E,F	A,B,C, D,E,F	A,B,C, D,E,F	A,B,C, D,E,F, M,N	A,B,C, D,E,F, M,N	A,B,C, D,E,F, M,N	A,B,C, D,E,F, M,N	A,B,C, D,E,F, M,N
V	NONE	NONE	NONE	ALL	A	ALL	ALL	ALL
VI	NONE	NONE	NONE	NONE	NONE	ALL	ALL	NONE
VII	NONE	NONE	NONE	ALL	ALL	ALL	ALL	ALL
VIII	B,C	B,C	B,C	ALL	ALL	ALL	ALL	ALL
IX	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE
X	NONE	NONE	NONE	NONE	NONE	ALL	ALL	ALL
XI	A	NONE	A	A	A	A	A	A

Addition of an Airplane Single-Engine Sea Rating to an existing Private Pilot Certificate

Required Tasks are indicated by either the Task letter(s) that apply(s) or an indication that all or none of the Tasks must be tested based on the notes in each Area of Operation.

	PRIVATE PILOT RATING(S) HELD							
AREAS OF OPERATION	**ASEL**	**AMEL**	**AMES**	**RH**	**RG**	**Glider**	**Balloon**	**Airship**
I	F,G,I	F,G	F,G,,I	F,G,I	F,G,I	F,G,I	F,G,I	F,G,I
II	E	E	E	ALL	A,B,E, F	ALL	ALL	ALL
III	B	B	NONE	B	B	B	B	B
IV	A,B,G, H,J,K,L	A,B,G, H,I,J,K,L	A,B,G, H,I,J,K,L	A,B,G, H,I,J,K,L, M,N	A,B,G, H,I,J,K,L, M,N	A,B,G, H,I,J,K,L, M,N	A,B,G, H,I,J,K,L, M,N	A,B,G, H,I,J,K,L, M,N
V	NONE	NONE	NONE	ALL	A	ALL	ALL	ALL
VI	NONE	NONE	NONE	NONE	NONE	ALL	ALL	NONE
VII	NONE	NONE	NONE	ALL	ALL	ALL	ALL	ALL
VIII	B	B	B	ALL	ALL	ALL	ALL	ALL
IX	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE
X	NONE	NONE	NONE	NONE	NONE	ALL	ALL	ALL
XI	B	NONE	B	B	B	B	B	B

Addition of an Airplane Multi-Engine Land Rating to an existing Private Pilot Certificate

Required Tasks are indicated by either the Task letter(s) that apply(s) or an indication that all or none of the Tasks must be tested based on the notes in each Area of Operation.

PRIVATE PILOT RATING(S) HELD								
AREAS OF OPERATION	**ASEL**	**ASES**	**AMES**	**RH**	**RG**	**Glider**	**Balloon**	**Airship**
I	F,G,J	F,G,J	F,G	F,G,J	F,G,J	F,G,J	F,G,J	F,G,J
II	ALL	ALL	D	ALL	ALL	ALL	ALL	ALL
III	NONE	B	B	B	NONE	B	B	B
IV	A,B,C,D	A,B,C,D	A,B,C,D	A,B,C,D,N	A,B,C,D,N	A,B,C,D,N	A,B,C,D,N	A,B,C,D,N
V	A	A	NONE	ALL	A	ALL	ALL	ALL
VI	NONE	NONE	NONE	NONE	NONE	ALL	ALL	NONE
VII	ALL	ALL	NONE	ALL	ALL	ALL	ALL	ALL
VIII	B,C,D,E,F,G	B,C,D,E,F,G	E,G,C	ALL	ALL	ALL	ALL	ALL
IX	ALL	ALL	NONE	ALL	ALL	ALL	ALL	ALL
X	NONE	NONE	NONE	NONE	NONE	ALL	ALL	ALL
XI	NONE	A	A	A	A	A	A	A

Addition of an Airplane Multi-Engine Sea Rating to an existing Private Pilot Certificate

Required Tasks are indicated by either the Task letter(s) that apply(s) or an indication that all or none of the Tasks must be tested based on the notes in each Area of Operation

PRIVATE PILOT RATING(S) HELD								
AREAS OF OPERATION	**AMEL**	**ASEL**	**ASES**	**RH**	**RG**	**Glider**	**Balloon**	**Airship**
I	F,G,I	F,G,I,J	F,G,J	F,G,I,J	F,G,I,J	F,G,I,J	F,G,I,J	F,G,I,J
II	E	ALL	ALL	ALL	ALL	ALL	ALL	ALL
III	B	B	NONE	B	B	B	B	B
IV	A,B,G, H,J,K,L	A,B,G, H,I,J,K,L	A,B,G, H,I,J,K,L	ALL	ALL	ALL	ALL	ALL
V	NONE	A	A	ALL	A	ALL	ALL	ALL
VI	NONE	NONE	NONE	ALL	NONE	ALL	ALL	ALL
VII	NONE	ALL	ALL	ALL	ALL	ALL	ALL	ALL
VIII	B,C,D, E,F,G	B,C,D, E,F,G	B,C,D, E,F,G	ALL	ALL	ALL	ALL	ALL
IX	NONE	ALL	ALL	ALL	ALL	ALL	ALL	ALL
X	NONE	NONE	NONE	NONE	NONE	ALL	ALL	ALL
XI	B	B	NONE	ALL	B	ALL	ALL	ALL

APPENDIX 4: PRACTICAL TEST CHECKLIST

Applicant's Practical Test Checklist

Appointment with Evaluator

Evaluator's Name: ____________________________________

Location: ____

Date/Time: ____

ACCEPTABLE AIRCRAFT

- ☐ Aircraft Documents:
  - ☐ Airworthiness Certificate
  - ☐ Registration Certificate
  - ☐ Operating Limitations
- ☐ Aircraft Maintenance Records:
  - ☐ Logbook Record of Airworthiness Inspections and AD Compliance
- ☐ Pilot's Operating Handbook, FAA-Approved Aircraft Flight Manual

PERSONAL EQUIPMENT

- ☐ View-Limiting Device
- ☐ Current Aeronautical Charts (Printed or Electronic)
- ☐ Computer and Plotter
- ☐ Flight Plan Form
- ☐ Flight Plan Form and Flight Logs (printed or electronic)
- ☐ Airport Facility Directory, Airport Diagrams and Appropriate Publications
- ☐ Current AIM

PERSONAL RECORDS

- ☐ Identification—Photo/Signature ID
- ☐ Pilot Certificate
- ☐ Current Medical Certificate
- ☐ Completed FAA Form 8710-1, Airman Certificate and/or Rating Application with Instructor's Signature
- ☐ Original Knowledge Test Report
- ☐ Pilot Logbook with appropriate Instructor Endorsements
- ☐ FAA Form 8060-5, Notice of Disapproval (if applicable)
- ☐ Letter of Discontinuance (if applicable)
- ☐ Approved School Graduation Certificate (if applicable)
- ☐ Evaluator's Fee (if applicable)

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APPENDIX 5: REFERENCES

This ACS is based on the following 14 CFR parts, FAA guidance material, manufacturer's publications, and other documents.

14 CFR part 39	Airworthiness Directives
14 CFR part 43	Maintenance, Preventive Maintenance, Rebuilding, and Alteration
14 CFR part 61	Certification: Pilots, Flight Instructors, and Ground Instructors
14 CFR part 71	Designation of Class A, B, C, D and E Airspace Areas; Air Traffic Service Rotes; and Reporting Points
14 CFR part 91	General Operating and Flight Rules
14 CFR part 93	Special Air Traffic Rules
AC 00-6	Aviation Weather
AC 00-45	Aviation Weather Services
AC 60-28	English Language Skill Standards Required by 14 CFR Parts 61, 63 and 65
AC 61-67	Stall and Spin Awareness Training
AC 90-66	Recommended Standard Traffic Patterns and Practices for Aeronautical Operations at Airports Without Operating Control Towers
AC 91-13	Cold Weather Operation of Aircraft
AC 91-21.1	Use of Portable Electronic Devices Aboard Aircraft
AC 91-55	Reduction of Electrical System Failures Following Aircraft Engine Starting
AC 91-73	Part 91 and 135 Single-Pilot Procedures During Taxi Operations
AC 150-5340-18	Standards for Airport Sign Systems
AIM	Aeronautical Information Manual
A/FD	Airport Facility Directory
FAA-H-8083-1	Aircraft Weight and Balance Handbook
FAA-H-8083-3	Airplane Flying Handbook
FAA-H-8083-6	Advanced Avionics Handbook
FAA-H-8083-23	Seaplane, Skiplane, and Float/Ski Equipped Helicopter Operations Handbook
FAA-H-8083-25	Pilot's Handbook of Aeronautical Knowledge
NOTAM	Notices to Airmen
POH/AFM	Pilot's Operating Handbook/FAA-Approved Aircraft Flight Manual
Other	Navigation Charts
	Navigation Equipment Manual

NOTE: Users should reference the current edition of the reference documents listed above. The current edition of all FAA publications can be found at www.faa.gov.

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APPENDIX 6: ABBREVIATIONS AND ACRONYMS

The following abbreviations and acronyms are used in this ACS.

14 CFR	Title 14 of the Code of Federal Regulations
AC	Advisory Circular
ACS	Airman Certification Standards
ADM	Aeronautical Decision-Making
AFS	Flight Standards Service
AGL	Above Ground Level
AMEL	Airplane Multiengine Land
AMES	Airplane Multiengine Sea
AOA	Airport Operations Area
ASEL	Airplane Single Engine Land
ASES	Airplane Single Engine Sea
ATC	Air Traffic Control
CFIT	Controlled Flight Into Terrain
ELT	Emergency Locator Transmitter
FAA	Federal Aviation Administration
FSDO	Flight Standards District Office
GPS	Global Positioning System
IFO	International Field Office
IMC	Instrument Meteorological Conditions
NAS	National Airspace System
NTSB	National Transportation Safety Board
PAR	Private Pilot Airplane
PAT	Private Pilot Airplane/Recreational Pilot – Transition
PCP	Private Pilot Canadian Conversion
POH	Pilot’s Operating Handbook
PTS	Practical Test Standards
RAIM	Receiver Autonomous Integrity Monitoring
SRM	Safety Risk Management
SMS	Safety Management System
VFR	Visual Flight Rules
VOR	Very High Frequency Omni-Directional Range
$\mathbf{V_X}$	Best Angle of Climb Speed
$\mathbf{V_Y}$	Best Rate of Climb Speed
$\mathbf{V_{S0}}$	Stalling Speed or the Minimum Steady Flight Speed in the Landing Configuration

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APPENDIX B: DRAFT INSTRUMENT RATING ACS + TRACKING MATRIX

Appendix B includes the draft Instrument Rating Airman Certification Standards (ACS), as well as the Tracking Matrix documenting the transition from FAA-S-8081-4E, Instrument Rating Practical Test Standards (PTS) for Airplane, Helicopter, and Powered Lift to the Instrument Rating ACS. This draft incorporates the relevant comments received when the ATST WG published the first draft of the ACS for comment (Docket No. FAA-2013-0316), as well as the comments received when the second draft of the document was published for comment (Docket No. FAA-2013-0649).

NOTE: The Instrument Rating Practical Test Standards Tracking Matrix appears first as an integrated component of this appendix, and the draft Instrument Rating ACS immediately follows as a stand-alone document.

FAA-S-8081-4E, Instrument Rating Practical Test Standards for Airplane, Helicopter, and Powered Lift Change Tracking Matrix				
PTS Task Reference	**Name of PTS Task**	**ACS Task Reference**	**Name of ACS Task**	**Notes & Rationale for Changes**
I.A.	Pilot Qualifications	I.A.	Pilot Qualifications	Added Risk Management elements related to this task. Added physiological factors specific to instrument flying.
I.B.	Weather Information	I.B.	Weather Information	Removed Note: If adequate flight planning information is not available, the applicant cannot be properly evaluated. Removed list of specific weather products to allow flexibility in weather planning sources. Added Risk Management elements related to this task.
I.C.	Cross-Country Flight Planning	I.C.	Cross-Country Flight Planning	Added risk management elements related to this task.
II.A.	Aircraft Systems Related to IFR Operations	II.A.	Aircraft Systems Related to IFR Operations	
II.B.	Aircraft Flight Instruments and Navigation Equipment	II.B.	Aircraft Flight Instruments and Navigation Equipment	
II.C.	Instrument Cockpit Check	II.C.	Instrument Cockpit Check	Addressed the tendency to rationalize equipment failures as merely erroneous readings.
III.A.	Air Traffic Control Clearances	III.A.	Air Traffic Control Clearances	Many applicants are only familiar with one way of obtaining a clearance, either through clearance delivery or ground control. Some are familiar with obtaining a clearance at a non-towered airport, but quite typically many pilots are only familiar with one way. Added the word “copy” as it is a necessary skill often lacking in applicants. Expanded and added greater objectivity/specificity. Accentuates the hazards of being in a hurry and/or rushing that a short void time can create. It further reinforces the responsibilities of PIC. The number of CFIT accidents associated with airborne pickups necessitates this task.

FAA-S-8081-4E, Instrument Rating Practical Test Standards for Airplane, Helicopter, and Powered Lift
Change Tracking Matrix

PTS Task Reference	Name of PTS Task	ACS Task Reference	Name of ACS Task	Notes & Rationale for Changes
III.B.	Compliance with Departure, En Route, and Arrival Procedures and Clearances	III.B.	Compliance with Departure, En Route, and Arrival Procedures and Clearances	Addressed glass cockpits with heading and altitude bugs and altitude pre-select (if installed), as well as proper programming of GPS/FMS.
III.C.	Holding Procedures	III.C.	Holding Procedures	Added risk management elements.
IV.A.	Basic Instrument Flight Maneuvers (IA, IH, PL, AA, HA, PLA, PC)	IV.A.	Basic Instrument Flight Maneuvers (IA, IH, PL, AA, HA, PLA, PC)	
IV.B.	Recovery from Unusual Flight Attitudes	IV.B.	Recovery from Unusual Flight Attitudes	Countermeasure to the loss-of-control problem.
V.A.	Intercepting and Tracking Navigational Systems and DME Arcs	V.A.	Intercepting and Tracking Navigational Systems and DME Arcs	
VI.A.	Nonprecision Approach (NPA)	VI.A.	Nonprecision Approach (NPA)	Added knowledge element to insure applicant understands when GPS switches to approach mode.
VI.B.	Precision Approach (PA)	VI.B.	Precision Approach (PA)	Added knowledge element to insure applicant understands when GPS switches to approach mode.
VI.C.	Missed Approach	VI.C.	Missed Approach	Added knowledge element to ensure applicant knows when to cancel “suspend” and sequence the GPS/FMS to the MAP holding waypoint. Added element to ensure applicant knows proper AP usage in a MAP. Added element to ensure applicant understands PIC responsibilities and has a “plan B” in place before executing the approach. Added element as an “antidote” to “impulsivity”.
VI.D.	Circling Approach	VI.D.	Circling Approach	
VI.E.	Landing From a Straight-In or Circling Approach	VI.E.	Landing From a Straight-In or Circling Approach	

FAA-S-8081-4E, Instrument Rating Practical Test Standards for Airplane, Helicopter, and Powered Lift
Change Tracking Matrix

PTS Task Reference	Name of PTS Task	ACS Task Reference	Name of ACS Task	Notes & Rationale for Changes
VII.A.	Loss of Communications	VII.A.	Loss of Communications	
VII.B.	One Engine Inoperative During Straight-and-Level Flight and Turns (Multiengine Airplane)	VII.B.	One Engine Inoperative During Straight-and-Level Flight and Turns (Multiengine Airplane)	
VII.C.	One Engine Inoperative -- Instrument Approach (Multiengine Airplane)	VII.C.	One Engine Inoperative -- Instrument Approach (Multiengine Airplane)	
VII.D.	Approach with Loss of Primary Flight Instrument Indicators	VII.D.	Approach with Loss of Primary Flight Instrument Indicators	
VIII.A.	Checking Instruments and Equipment	VIII.A.	Checking Instruments and Equipment	

FAA-S-8081-XX

U.S. Department
of Transportation

**Federal Aviation
Administration**

INSTRUMENT RATING – AIRPLANE

Airman Certification Standards

Date TBD

FLIGHT STANDARDS SERVICE
Washington, DC 20591

ACKNOWLEDGMENTS

The U.S. Department of Transportation, Federal Aviation Administration (FAA), Airman Testing Standards Branch, AFS-630, P.O. Box 25082, Oklahoma City, OK 73125 developed this Airman Certification Standards (ACS) document with the assistance of the aviation community. The FAA gratefully acknowledges the valuable support from the many individuals and organizations who contributed their time and expertise to assist in this endeavor.

AVAILABILITY

This ACS is available for download from www.faa.gov. Please send comments regarding this document to AFS630comments@faa.gov.

FOREWORD

The Federal Aviation Administration (FAA) has published the Instrument Rating—Airplane Airman Certification Standards (ACS) document to communicate the aeronautical knowledge, flight proficiency, and risk management standards for the instrument rating in the airplane category, single-engine land and sea; and multiengine land and sea classes. This ACS incorporates and supersedes the previous Practical Test Standards (PTS).

The FAA views the ACS as the foundation of its transition to a more integrated and systematic approach to airman certification. The ACS is part of the safety management system (SMS) framework that the FAA uses to mitigate risks associated with airman certification training and testing to an acceptable level. Specifically, the ACS, associated guidance, and test item bank question components of the airman certification system are constructed around the four functional components of an SMS:

- Safety Policy that defines and describes aeronautical knowledge, flight proficiency, and risk management as integrated components of the airman certification system;
- Safety Risk Management processes through which internal and external stakeholders identify and evaluate regulatory changes, safety recommendations, or other factors that require modification of airman testing and training materials;
- Safety Assurance processes to ensure the prompt and appropriate incorporation of changes arising from new regulations and safety recommendations; and
- Safety Promotion in the form of ongoing engagement with both external stakeholders (e.g., the aviation training industry) and FAA policy divisions.

In this connection, the FAA gratefully acknowledges and deeply appreciates the many hours that aviation training experts throughout the industry have contributed to the development of this ACS, along with the associated guidance and a more systematic approach to knowledge test question development. This kind of collaboration, a hallmark of a robust safety culture, strengthens and enhances aviation safety at every level of the airman certification system.

John S. Duncan
Acting Director, Flight Standards Service

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INTRODUCTION

Airman Certification Standards Concept

The goal of the airman certification process is to ensure the applicant possesses the knowledge and skill as well as the ability to manage the risks of flight in order to act as pilot in command consistent with the privileges of the certificate or rating being exercised. In fulfilling its responsibilities for the airman certification process, the Federal Aviation Administration (FAA) Flight Standards Service (AFS) plans, develops, and maintains materials related to airman certification training and testing.

Historically, these materials have included several components. The FAA knowledge test measures mastery of the aeronautical knowledge areas listed in Title 14 of the Code of Federal Regulations (14 CFR) part 61. The Practical Test Standards (PTS) defined the acceptable parameters of flight proficiency in the Areas of Operation listed in14 CFR part 61. FAA H-series handbooks, test supplements, and other materials provide guidance to applicants, instructors, and evaluators on aeronautical knowledge, flight proficiency, and risk management.

The FAA recognizes that safe operations in today's complex National Airspace System (NAS) require a more systematic integration of aeronautical knowledge, flight proficiency standards, and risk management. The FAA further recognizes the need to more clearly calibrate knowledge, skills, and risk management according to the level of the certificate or rating. To that end, the FAA drew upon the expertise of organizations and individuals across the aviation community to develop the Airman Certification Standards (ACS). The ACS incorporates and supersedes the PTS.

Based on aeronautical knowledge and flight proficiency standards specified in 14 CFR part 61, the ACS integrates the knowledge, skills, and risk management abilities necessary for the safe conduct of each Task. In keeping with this integrated and systematic approach, the knowledge, skills, and risk management sections of each Task stipulate that the applicant must demonstrate understanding of each specific item. The applicant demonstrates this understanding by passing the knowledge exam and practical test.

Throughout this process, the FAA expects evaluators to assess the applicant's mastery of the topic in accordance with the level of learning (i.e., rote, understanding, application, or correlation) most appropriate for the specified Task. For some topics, the evaluator will ask the applicant to describe or explain. For other items, the evaluator will assess the applicant's understanding by providing a scenario that requires the applicant to appropriately apply and/or correlate knowledge, experience, and information to the circumstances of the given scenario. The flight portion of the practical test requires the applicant to demonstrate flight proficiency, operational skill, and risk management in accordance with the ACS.

NOTE: As used in this ACS, an evaluator is any person authorized to conduct airman testing (e.g., an FAA aviation safety inspector, designated pilot examiner, or other individual authorized to conduct a practical test.

Using the ACS

The ACS consists of ***Areas of Operation,*** arranged in a logical sequence that begins with Preflight Preparation and ends with Postflight Procedures. Each Area of Operation includes ***Tasks*** appropriate to that Area of Operation. Each Task begins with an ***Objective*** stating what the applicant should know and/or do. The ACS then lists the aeronautical knowledge, skills, and risk management considerations relevant to the specific Task, along with the conditions and acceptable standards for performance. The ACS uses ***Notes*** to emphasize special considerations. The FAA will revise the ACS as circumstances require.

Each Task in the ACS is coded according to a scheme that includes up to five elements. For example:

IR.VIII.A.K1.a:

IR = Applicable ACS (instrument rating)
VIII = Area of Operation (postflight procedures)
A = Task (checking instruments and equipment);
K1 = Knowledge task element 1 (the requirements for documenting equipment malfunctions)

NOTE: A fifth element may be used to indicate the level of learning: a=rote; b=understanding; c= application; d= correlation.

Knowledge test questions are mapped to the ACS codes, which replace the previous system of "Learning Statement Codes." Because the airman knowledge test report will list an ACS code that correlates to a specific Task Element for a given Area of Operation and Task, remedial instruction and re-testing will be specific, targeted, and based on specified learning criteria. Similarly, a Notice of Disapproval for the practical test will use the ACS codes to identify the deficient skill(s).

Practical Tests will be based on the ACS in effect the day of the test. The FAA encourages applicants and instructors to use the ACS to measure progress during training, and as a reference to ensure the applicant is adequately prepared for the knowledge and practical tests.

The FAA expects evaluators to adhere to 14 CFR and this ACS. The ACS uses the terms "will" and "must" to convey directive (mandatory) information. The terms "should" and "may" denote items that are recommended, but not required.

The applicant must pass the knowledge test before taking the practical test. Further, the applicant must pass the oral portion of the practical test before beginning the flight portion because the oral portion of the practical test allows the evaluator to determine whether the applicant is sufficiently prepared to advance to the flight portion of the practical test.

AREAS OF OPERATION

I. Preflight Preparation

Task	*A. Pilot Qualifications*
Reference	14 CFR 61, FAA 8083-15, FAA 8083-2
Objective	To determine the applicant exhibits satisfactory knowledge, skills, and risk management associated with the requirements to act as pilot-in-command under Instrument Flight Rules (IFR).
Knowledge	The applicant demonstrates understanding of: 1. When an instrument rating is required. (IR.I.A.K1) 2. Recent instrument flight experience requirements. (IR.I.A.K2) 3. Meteorological requirements necessary to qualify for logging currency. (IR.I.A.K3) 4. Requirements when recent instrument rating flight experience has not been met. (IR.I.A.K4) 5. Pilot logbook/record-keeping. (IR.I.A.K5) 6. Physiological factors that might affect the pilot's ability to fly under instrument conditions.
Skills	The applicant demonstrates the ability to: 1. Apply requirements to act as PIC under IFR in a scenario given by the evaluator. (IR.I.A.S1)
Risk Management	The applicant applies risk management identification, assessment, and mitigation principles to: 1. Maintaining currency versus proficiency. (IR.I.A.R1) 2. Setting personal minimums. (IR.I.A.R2) 3. Flying with unfamiliar flight display systems. (IR.I.A.R3)

Task	*B. Weather Information*
Reference	14 CFR 91, FAA 8083-15, FAA 8083-2
Objective	To determine the applicant exhibits satisfactory knowledge, skills, and risk management associated with obtaining, understanding, and applying weather information for a flight under IFR.
Knowledge	The applicant demonstrates understanding of: 1. Weather products required for preflight planning, enroute operations, and proceeding to the destination or alternate. (IR.I.B.K1) 2. General elements of weather systems. (IR.I.B.K2) 3. Types and hazards of icing. (IR.I.B.K3) 4. Meteorology to include: (IR.I.B.K4) a. Weather system formation, including air masses and fronts (IR.I.B.K4a) b. Cloud types and hazards (IR.I.B.K4b) c. Turbulence (IR.I.B.K4c) d. Thunderstorms (IR.I.B.K4d) e. Wind shear (IR.I.B.K4e) f. Fog (IR.I.B.K4f) g. Frost (IR.I.B.K4g) 5. Enroute weather resources. (IR.I.B.K5)
Skills	The applicant demonstrates the ability to: 1. Use available aviation weather resources to obtain an adequate weather briefing. (IR.I.B.S1) 2. Correlate weather information to determine alternate requirements. (IR.I.B.S2) 3. Correlate weather information to make a competent go-no go decision. (IR.I.B.S3) 4. Obtain weather in-flight. (IR.I.B.S4)
Risk Management	The applicant applies risk management identification, assessment, and mitigation principles to: 1. Limitations of aviation weather reports and forecasts. (IR.I.B.R1) 2. Limitations of inflight aviation weather resources. (IR.I.B.R2) 3. Identifying alternate airports along the intended route of flight. (IR.I.B.R3) 4. Anticipating circumstances that would make diversion prudent. (IR.I.B.R4) 5. Identifying hazardous weather conditions that may affect the planned flight. (IR.I.B.R5) 6. Flying in known or forecast icing conditions. (IR.I.B.R6)

Task	*C. Cross-Country Flight Planning*
Reference	14 CFR 91, FAA 8083-15, FAA 8083-2
Objective	To determine the applicant exhibits satisfactory knowledge, skills, and risk management associated with planning and filing an IFR cross-country flight.
Knowledge	The applicant demonstrates understanding of: 1. How to compute fuel reserves. (IR.I.C.K1) 2. Definitions of minimum or emergency fuel. (IR.I.C.K2) 3. Conditions conducive to icing, windshear, microbursts, and turbulence. (IR.I.C.K3) 4. Symbology found on IFR enroute charts. (IR.I.C.K4) 5. Where to locate and how to apply preferred IFR routing. (IR.I.C.K5) 6. Elements of an IFR flight plan. (IR.I.C.K6) 7. Procedures for activating and closing an IFR flight plan in controlled and non-controlled airspace. (IR.I.C.K7)
Skills	The applicant demonstrates the ability to: 1. Recalculate fuel reserves based on a scenario provided by the evaluator. (IR.I.C.S1) 2. Create and file an IFR flight plan for a route assigned by the evaluator. (IR.I.C.S2) 3. Interpret Departure, Enroute, Arrival, and Instrument Approach Procedures. (IR.I.C.S3) 4. Divert to a suitable alternate. (IR.I.C.S4)
Risk Management	The applicant applies risk management identification, assessment, and mitigation principles to: 1. Selecting inappropriate IFR altitudes. (IR.I.C.R1) 2. Strategies for dynamic, changing weather. (IR.I.C.R2) 3. Managing inadvertent icing encounters. (IR.I.C.R3) 4. Understanding the limitations of ATC services. (IR.I.C.R4) 5. Establish fuel reserves and identify situations which would merit increasing minimum fuel reserves. (IR.I.C.R5) 6. Not declaring minimum or emergency fuel. (IR.I.C.R6) 7. Planning a route overflying significant environmental influences, mountains, and large bodies of water. (IR.I.C.R7) 8. Managing human factors that may impact making an initial, and on-going, go-no go decision. (IR.I.C.R8)

II. Preflight Procedures

Task	***A. Aircraft Systems Related to IFR Operations***
Reference	FAA 8083-15, AFM, FAA 8083-2
Objective	To determine the applicant exhibits satisfactory knowledge, skills, and risk management associated with Anti-Icing and De-Icings systems.
Knowledge	The applicant demonstrates understanding of: 1. General operational characteristics and limitations of anti-icing and de-icing equipment. (IR.II.A.K1)
Skills	The applicant demonstrates the ability to: 1. Understand and operate anti-icing and deicing equipment, applicable to their aircraft, in icing conditions. (IR.II.A.S1)
Risk Management	The applicant applies risk management identification, assessment, and mitigation principles to: 1. Fuselage, wing, tailplane, propeller, carburetor and intake pitot icing. (IR.II.A.R1) 2. Anti and deicing equipment limitations. (IR.II.A.R2) 3. Limitations of systems certified for flight into known icing. (IR.II.A.R3)

Task	*B. Aircraft Flight Instruments and Navigation Equipment*
Reference	14 CFR 91, FAA 8083-15, AFM, FAA 8083-2
Objective	To determine the applicant exhibits satisfactory knowledge, skills, and risk management associated with managing instruments appropriate for an IFR flight.
Knowledge	The applicant demonstrates understanding of: 1. General operation of flight instruments. (IR.II.B.K1) 2. General characteristics of navigation instruments. (IR.II.B.K2) 3. General characteristics and common failure modes of autopilot systems. (IR.II.B.K3) 4. Common failure modes of flight and navigation instruments. (IR.II.B.K4) 5. Difference between approved and non-approved navigation devices. (IR.II.B.K5) 6. Limitations of portable navigation devices for guidance or reference. (IR.II.B.K6)
Skills	The applicant demonstrates the ability to: 1. Operate and manage installed flight control and navigation equipment. (IR.II.B.S1)
Risk Management	The applicant applies risk management identification, assessment, and mitigation principles to: 1. Improper Automation Management. (IR.II.B.R1) 2. Operating and interpreting unfamiliar flight and navigation instruments. (IR.II.B.R2) 3. Distractions created by programming advanced avionics. (IR.II.B.R3) 4. Using an electronic flight bag. (IR.II.B.R4)

Task	***C. Instrument Cockpit Check***
Reference	14 CFR 91, FAA 8083-15, FAA 8083-2
Objective	To determine the applicant exhibits satisfactory knowledge, skills, and risk management associated with preflighting the aircraft instruments necessary for an IFR flight.
Knowledge	The applicant demonstrates understanding of: 1. Purpose of performing an instrument cockpit check. (I.II.C.K1) 2. Procedures for flying with inoperative equipment. (IR.II.C.K2) 3. Required documentation for flying with inoperative equipment. (IR.II.C.K3) 4. Limitations of flying with inoperative equipment. (IR.II.C.K4) 5. Requirement for having a current aviation database. (IR.II.C.K5)
Skills	The applicant demonstrates the ability to: 1. Perform an adequate preflight inspection of installed flight instruments and navigation equipment. (IR.II.C.S1) 2. Make a determination if the aircraft is legal and/or safe to fly with inoperative equipment. (IR.II.C.S2) 3. Properly document inoperative equipment. (IR.II.C.S3) 4. Determine if data bases are current. (IR.II.C.S4)
Risk Management	The applicant applies risk management identification, assessment, and mitigation principles to 1. Flying with inoperative equipment. (IR.II.C.R1) 2. Programming avionics during taxi. (IR.II.C.R2) 3. Flying with outdated navigation publications or databases. (IR.II.C.R3)

III. Air Traffic Control Clearances and Procedures

Task	*A. Compliance with Air Traffic Control Clearances*
Reference	14 CFR 91, FAA 8083-15, FAA 8083-2
Objective	To determine the applicant exhibits satisfactory knowledge, skills, and risk management associated with understanding and complying with ATC clearances and procedures.
Knowledge	The applicant demonstrates understanding of: 1. Responsibilities associated with accepting a clearance. (IR.III.A.K1) 2. Requirements to read back ATC clearances. (IR.III.A.K2) 3. Pilot in Command (PIC) emergency authority associated while flying under IFR. (IR.III.A.K3) 4. Methods to obtain ATC clearances. (IR.III.A.K4) 5. Terrain clearance requirements associated with departure procedures. 6. Lost communication procedures. (IR.III.A.K5) 7. Purpose of “expect” in a clearance. (IR.III.A.K6) 8. Procedures involved for departure, enroute, and arrival procedures. (IR.III.A.K7) 9. Position reporting. (IR.III.A.K8)
Skills	The applicant demonstrates the ability to: 1. Use and understand standard phraseology. (IR.III.A.S1) 2. Correctly copy, read back, interpret, and comply with ATC clearances. (IR.III.A.S2) 3. Correctly set up communication frequencies, navigation systems and transponder codes in compliance with the ATC clearance. (IR.III.A.S3) 4. Establish two-way communication with the proper controlling agency, in a timely manner, using standard phraseology. (IR.III.A.S4) 5. Maintain the applicable airspeed within ±10 knots; headings within ±10°; altitude within ±100 feet; and tracks a course, radial, or bearing within ¾-scale deflection of the CDI on a procedure. (IR.III.A.S5)
Risk Management	The applicant demonstrates the ability to identify, assess, and mitigate risks associated with: 1. Accepting ATC clearances the PIC does not fully understand. (IR.III.A.R1) 2. ATC issuing an inappropriate clearance. (IR.III.A.R2) 3. Accepting clearances if the aircraft lacks the performance and /or navigation capability to comply with the clearance. (IR.III.A.R3) 4. Accepting short void times. (IR.III.A.R4) 5. Obtaining a clearance while airborne. (IR.III.A.R5) 6. Terrain avoidance on takeoff and managing those risks in a non-radar environment. (IR.III.A.R6) 7. Accepting another aircraft's clearance. (IR.III.A.R7) 8. Using outdated navigation publications and databases. (IR.III.A.R8) 9. Accepting incomplete or incorrect clearance. (IR.III.A.R9)

Task	*B. Holding Procedures*
Reference	14 CFR 91, FAA 8083-15, FAA 8083-2
Objective	To determine the applicant exhibits satisfactory knowledge, skills, and risk management associated with holding procedures.
Knowledge	The applicant demonstrates understanding of: 1. Purpose of holding. (IR.III.B.K1) 2. Reporting criteria associated with holding patterns. (IR.III.B.K2) 3. Recommended entry procedures. (IR.III.B.K3) 4. Definitions of Minimum and Emergency Fuel. (IR.III.B.K4) 5. Wind corrections in holding. (IR.III.B.K5) 6. Using the autopilot (if equipped) for holding. (IR.III.B.K6)
Skills	The applicant demonstrates the ability to: 1. Update fuel reserve calculations based on EFC times. (IR.III.B.S1) 2. Maintain the airspeed within ±10 knots; altitude within ±100 feet; headings within ±10°; and track a selected course, radial or bearing within ¾-scale deflection of the CDI. (IR.III.B.S2) 3. Use appropriate navigation displays, as supplementary devices, to maintain prescribed ground track. (IR.III.B.S3) 4. Use proper wind correction procedures to maintain the desired pattern and to arrive over the fix as close as possible to a specified time. (IR.III.B.S4) 5. Comply with restrictions, if applicable, associated with the holding pattern. (IR.III.B.S5) 6. Set appropriate power settings for fuel conservation. (IR.III.B.S6)
Risk Management	The applicant applies risk management identification, assessment, and mitigation principles to: 1. Inadequate fuel reserves if assigned unexpected further clearance time. (IR.III.B.R1) 2. Not declaring Minimum or Emergency fuel. (IR.III.B.R2) 3. Scenarios which could lead to being assigned holding. (IR.III.B.R3) 4. Possibility of deteriorating weather while holding and/or at the destination. (IR.III.B.R4)

IV. Flight by Reference to Instruments

Task	***A. Instrument Flight***
Reference	FAA 8083-15, FAA 8083-2
Objective	To determine the applicant exhibits satisfactory knowledge, skills, and risk management associated with performing basic instrument flight maneuvers.
Knowledge	The applicant demonstrates understanding of: 1. Concepts of instrument flight references. (IR.IV.A.K1)
Skills	The applicant demonstrates the ability to: 1. Maintain altitude within ±100 feet during level flight, headings within ±10°, airspeed within 2. ±10 knots, and bank angles within ±5° during turns. (IR.IV.A.K2) 3. Use proper instrument crosscheck and interpretation, and apply the appropriate pitch, bank, power, and trim corrections when applicable. (IR.IV.A.K3)
Risk Management	The applicant applies risk management identification, assessment, and mitigation principles to: 1. Situations that can degrade instrument cross-check. (IR.IV.A.R1) 2. Being distracted by passengers. (IR.IV.A.R2) 3. Physiological factors that can degrade instrument cross-check. (IR.IV.A.R3)

Task	***B. Recovery From Unusual Flight Attitudes***
Reference	FAA 8083-15, FAA 8083-2
Objective	To determine the applicant exhibits satisfactory knowledge, skills, and risk management associated with performing unusual flight attitudes.
Knowledge	The applicant demonstrates understanding of: 1. Physiological factors that can lead to, or hinder recovery from, unusual attitudes. (IR.IV.B.K1) 2. Systems and equipment failures that could lead to unusual attitudes. (IR.IV.B.K2) 3. Environmental factors that can lead to unusual attitudes. (IR.IV.B.K3) 4. Recovery process to restore the aircraft to normal flight attitude. (IR.IV.B.K4)
Skills	The applicant demonstrates the ability to: 1. Recognize, confirm, and recover from unusual attitudes (nose-high and nose-low; low or high speed). (IR.IV.B.S1) 2. Apply proper instrument cross-check and interpretation, and apply the appropriate pitch, bank, and power corrections, in the correct sequence, to return the aircraft to a stabilized level flight attitude. (IR.IV.B.S2)
Risk Management	The applicant applies risk management identification, assessment, and mitigation principles to: 1. Situations that could lead to loss of control. (IR.IV.B.R1) 2. Encountering unusual attitudes associated with stress, high workload, task saturation, and distractions. (IR.IV.B.R2) 3. Managing startle response during unexpected events (IR.IV.B.R3) 4. Making control inputs without confirming the aircraft attitude. (IR.IV.B.R4) 5. Performing incorrect recovery procedures. (IR.IV.B.R5)

V. Navigation System

Task	*A. Intercepting and Tracking Navigational Systems*
Reference	FAA 8083-15, AFM, FAA 8083-2
Objective	To determine the applicant exhibits satisfactory knowledge, skills, and risk management associated with intercepting and tracking navigation aids. **NOTE:** Reference to specific navigational equipment will be disregarded if the aircraft is not equipped with those systems.
Knowledge	The applicant demonstrates understanding of: 1. Procedures for intercepting and tracking. (IR.V.A.K1) 2. Course guidance indications. (IR.V.A.K2) 3. Indications of navigation systems failures. (IR.V.A.K3)
Skills	The applicant demonstrates the ability to: 1. Tune and correctly identify the navigation facility. (IR.V.A.S1) 2. Set and correctly orient the course to be intercepted. (IR.V.A.S2) 3. Intercept the specified course at a predetermined angle, inbound to or outbound from a navigational facility. (IR.V.A.S3) 4. Maintain airspeed within ±10 knots, altitude within ±100 feet, and selected headings within 5. ±5°. (IR.V.A.S4) 6. Apply proper correction to maintain a course, allowing no more than ¾-scale deflection of the CDI or within ±10° in case of an RMI. (IR.V.A.S5) 7. Determine the aircraft position relative to the navigational facility or waypoint. (IR.V.A.S6) 8. Intercept an arc, if applicable for the procedure being flown, and maintain that arc within ±1 nautical mile. (IR.V.A.S7) 9. Recognize navigational receiver or facility failure, and when required, report the failure to ATC. (IR.V.A.S8) 10. Use MFD and other graphical navigation displays to monitor position, track wind drift, and other parameters to intercept and maintain the desired flightpath. (IR.V.A.S9) 11. Properly program the autopilot to intercept courses. (IR.V.A.S10)
Risk Management	The applicant applies risk management identification, assessment, and mitigation principles to: 1. Incorrectly intercepting and tracking courses. (IR.V.A.R1) 2. Intercepting and tracking courses using secondary display information in advanced avionics aircraft. (IR.V.A.R2)

VI. Instrument Approach Procedures

Task	*A. Nonprecision Approach*
Reference	14 CFR 91, FAA 8083-15, FAA 8083-2 **NOTE:** The applicant must accomplish at least two nonprecision approaches (one of which must include a procedure turn or, in the case of an En Route RNAV approach, a Terminal Arrival Area procedure). At least one nonprecision approach must be flown without the use of autopilot and without the assistance of radar vectors. (The yaw damper and flight director are not considered parts of the autopilot for purpose of this part). If the equipment allows, at least one nonprecision approach shall be conducted without vertical guidance. The evaluator will select nonprecision approaches that are representative of the type that the applicant is likely to use.
Objective	To determine the applicant exhibits satisfactory knowledge, skills, and risk management associated with performing nonprecision approach procedures.
Knowledge	The applicant demonstrates understanding of: 1. Procedures and limitations associated with nonprecision approach procedures. (IR.VI.A.K1) 2. Differences between Localizer Performance (LP) and Lateral Navigation (LNAV) approach guidance. (IR.VI.A.K2) 3. Annunciations expected during a Global Positioning System (GPS) approach. (IR.VI.A.K3)
Skills	The applicant demonstrates the ability to: 1. Select and comply with the appropriate instrument approach procedure to be performed. (IR.VI.A.S1) 2. Establish two-way communications with ATC, as appropriate, to the phase of flight or approach segment, and uses proper communication phraseology. (IR.VI.A.S2) 3. Select, tune, identify, and confirm the operational status of navigation equipment to be used for the approach procedure. (IR.VI.A.S3) 4. Comply with all clearances issued by ATC or the evaluator. (IR.VI.A.S4) 5. Recognize if any flight instrumentation is inaccurate or inoperative, and take appropriate action. (IR.VI.A.S5) 6. Advise ATC or the evaluator anytime the aircraft is unable to comply with a clearance. (IR.VI.A.S6) 7. Establish the appropriate aircraft configuration and airspeed considering turbulence and wind shear, and complete the aircraft checklist items appropriate to the phase of the flight. (IR.VI.A.S7) 8. Maintain, prior to beginning the final approach segment, altitude within ±100 feet, heading within ±10° and allows less than ¾-scale deflection of the CDI or within ±10° in the case of an RMI, and maintain airspeed within ±10 knots. (IR.VI.A.S8) 9. Apply the necessary adjustments to the published MDA and visibility criteria for the aircraft approach category when required. (IR.VI.A.S9) 10. Establish a stabilized approach profile with a rate of descent and track that will ensure arrival at the MDA prior to reaching the MAP. (IR.VI.A.S10) 11. Maintain, while on the final approach segment, no more than a ¾-scale deflection of the CDI or within 10° in case of an RMI, and maintain airspeed within ±10 knots of that desired. (IR.VI.A.S11) 12. Maintain the MDA, when reached, within +100 feet, −0 feet to the MAP. (IR.VI.A.S12) 13. Execute the missed approach procedure when the required visual references for the intended runway are not distinctly visible and identifiable at the MAP. (IR.VI.A.S13) 14. Execute a normal landing from a straight-in or circling approach when instructed by the evaluator. (IR.VI.A.S14) 15. Use MFD and other graphical navigation displays, if installed, to monitor position, track wind drift and other parameters to maintain desired flightpath. (IR.VI.A.S15) 16. Confirm appropriate annunciations during a GPS approach. (IR.VI.A.S16)
Risk Management	The applicant applies risk management identification, assessment, and mitigation principles to: 1. Not following prescribed procedures. (IR.VI.A.R1) 2. Excessive decent rates. (IR.VI.A.R2) 3. Continuing an approach in worsening conditions. (IR.VI.A.R3) 4. Not flying a stabilized approach. (IR.VI.A.R4)

Task	***B. Precision Approach***
Reference	14 CFR 91, FAA 8083-15, FAA 8083-2
Objective	To determine the applicant exhibits satisfactory knowledge, skills, and risk management associated with performing precision approach procedures. **NOTE:** A precision approach, utilizing aircraft NAVAID equipment for centerline and vertical guidance, must be accomplished in simulated or actual instrument conditions to Decision Altitude.
Knowledge	The applicant demonstrates understanding of: 1. Procedures and limitations associated with precision approach procedures. (IR.VI.B.K1) 2. Annunciations expected during a GPS approach. (IR.VI.B.K2) 3. Decent rates to maintain vertical guidance. (IR.VI.B.K3)
Skills	The applicant demonstrates the ability to: 1. Establish two-way communications with ATC using the proper communications phraseology, as required for the phase of flight or approach segment. (IR.VI.B.S1) 2. Comply, in a timely manner, with all clearances, instructions, and procedures. (IR.VI.B.S2) 3. Advise ATC anytime the applicant is unable to comply with a clearance. (IR.VI.B.S3) 4. Establish the appropriate airplane configuration and airspeed/V-speed considering turbulence, wind shear, microburst conditions, or other meteorological and operating conditions. (IR.VI.B.S4) 5. Complete the aircraft checklist items appropriate to the phase of flight or approach segment, including engine out approach and landing checklists, if appropriate. (IR.VI.B.S5) 6. Prior to beginning the final approach segment, maintain the desired altitude ±100 feet, the desired airspeed within ±10 knots, the desired heading within ±10°; and accurately tracks radials, courses, and bearings. (IR.VI.B.S6) 7. Select tune, identify, and monitors the operational status of ground and airplane navigation equipment used for the approach. (IR.VI.B.S7) 8. Apply the n0ecessary adjustments to the published Decision Altitude (DA)/Decision Height (DH and visibility criteria for the airplane approach category as required. (IR.VI.B.S8) 9. Establish a predetermined rate of descent at the point where the electronic glideslope begins, which approximates that required for the aircraft to follow the glideslope. (IR.VI.B.S9) 10. Maintain a stabilized final approach, from the Final Approach Fix to Decision Altitude (DA)/Decision Height (DH) allowing no more than ¾-scale deflection of either the glideslope or localizer indications and maintains the desired airspeed within ±10 knots. (IR.VI.B.S10) 11. Immediately initiate the missed approach procedures when at the DA/DH, and the required visual references for the runway are not unmistakably visible and identifiable. (IR.VI.B.S11) 12. Transition to a normal landing approach only when the aircraft is in a position from which a descent to a landing on the runway can be made at a normal rate of descent using normal maneuvering. (IR.VI.B.S12) 13. Maintain localizer and glideslope within ¾-scale deflection of the indicators during the visual descent from DA/DH to a point over the runway where glideslope must be abandoned to accomplish a normal landing. (IR.VI.B.S13) 14. Use MFD and other graphical navigation displays, if installed, as a supplementary way to monitor position, track wind drift and other parameters to maintain desired flightpath. (IR.VI.B.S14) 15. Confirms annunciations during a GPS approach. (IR.VI.B.S15)
Risk Management	The applicant applies risk management identification, assessment, and mitigation principles to: 1. Not following prescribed procedures. (IR.VI.B.R1) 2. Descending below DA without proper visual references. (IR.VI.B.R2) 3. Improper aircraft configurations during approach and missed approach. (IR.VI.B.R3) 4. Human factors that might impact continuing an approach in worsening conditions. (IR.VI.B.R4) 5. Not flying a stabilized approach. (IR.VI.B.R5)

Task	***C. Missed Approach***
Reference	14 CFR 91, FAA 8083-15, FAA 8083-2
Objective	To determine the applicant exhibits satisfactory knowledge, skills, and risk management associated with performing missed approach procedures.
Knowledge	The applicant demonstrates understanding of: 1. Procedures and limitations associated with missed approach procedures. (IR.VI.C.K1) 2. Proper MAP procedures associated with GPS/Flight Management System (FMS). (IR.VI.C.K2) 3. Proper autopilot management procedures associated with MAP procedures. (IR.VI.C.K3)
Skills	The applicant demonstrates the ability to: 1. Initiate the missed approach promptly by applying power, establishing a climb attitude, and reducing drag in accordance with the aircraft manufacturer's recommendations. (IR.VI.C.S1) 2. Report to ATC beginning the missed approach procedure. (IR.VI.C.S2) 3. Uncouple and re-couples autopilot at appropriate times during the MAP procedure (if installed). (IR.VI.C.S3) 4. Comply with the published or alternate missed approach procedure. (IR.VI.C.S4) 5. Advise ATC or evaluator anytime the aircraft is unable to comply with a clearance, restriction, or climb gradient. (IR.VI.C.S5) 6. Follow the recommended checklist items appropriate to the go-around procedure. (IR.VI.C.S6) 7. Request, if appropriate, ATC clearance to the alternate airport, clearance limit, or as directed by the evaluator. (IR.VI.C.S7) 8. Maintain the recommended airspeed within ±10 knots; heading, course, or bearing within ±10°; and altitude(s) within ±100 feet during the missed approach procedure. (IR.VI.C.S8) 9. Use MFD and other graphical navigation displays, if installed, to monitor position and track to help navigate the missed approach. (IR.VI.C.S9)
Risk Management	The applicant applies risk management identification, assessment, and mitigation principles to: 1. Not following prescribed procedures. (IR.VI.C.R1) 2. Options of holding, diverting, or electing to fly the approach again. (IR.VI.C.R2) 3. Establishes Missed Approach "plan" prior to final fix. (IR.VI.C.R3) 4. Executing a missed approach procedure before the missed approach point. (IR.VI.C.R4)

Task	***D. Circling Approach***
Reference	14 CFR 91, FAA 8083-15, FAA 8083-2
Objective	To determine the applicant exhibits satisfactory knowledge, skills, and risk management associated with performing circling approach procedures.
Knowledge	The applicant demonstrates understanding of: 1. Procedures and limitations associated with circling approaches. (IR.VI.D.K1) 2. Approach categories and relevant airspeed limitations. (IR.VI.D.K2)
Skills	The applicant demonstrates the ability to: 1. Select and comply with the appropriate circling approach procedure considering turbulence and wind shear and considering the maneuvering capabilities of the aircraft. (IR.VI.D.S1) 2. Confirm the direction of traffic and adheres to all restrictions and instructions issued by ATC and the evaluator. (IR.VI.D.S2) 3. Maintain the appropriate circling altitude until in a position from which a descent to a normal landing can be made. (IR.VI.D.S3) 4. Maneuver the aircraft, after reaching the authorized MDA and maintains that altitude within +100 feet, −0 feet and a flightpath that permits a normal landing on a runway. The runway selected must be such that it requires at least a 90° change of direction, from the final approach course, to align the aircraft for landing. (IR.VI.D.S4)
Risk Management	The applicant applies risk management identification, assessment, and mitigation principles to: 1. Not following prescribed circling approach procedures. (IR.VI.D.R1) 2. Executing a circling approach at night. (IR.VI.D.R2) 3. Losing sight of the runway during a circling approach. (IR.VI.D.R3) 4. Accepting a circling approach in marginal visibility. (IR.VI.D.R4)

Task	*E. Landing from an Instrument Approach*
Reference	14 CFR 91, FAA 8083-15, FAA 8083-2
Objective	To determine the applicant exhibits satisfactory knowledge, skills, and risk management associated with performing the procedures for landing from an instrument approach.
Knowledge	The applicant demonstrates understanding of: 1. Procedures and limitations associated with landing from an instrument approach. (IR.VI.E.K1) 2. Purpose of a stabilized approach. (IR.VI.E.K2) 3. Regulatory requirements for landing from an instrument approach. (IR.VI.E.K3) 4. Approach lighting systems. (IR.VI.E.K4)
Skills	The applicant demonstrates the ability to: 1. Transition at the DA, MDA, or VDP to a visual flight condition, allowing for safe visual maneuvering and a normal landing. (IR.VI.E.S1) 2. Adhere to all ATC (or evaluator) advisories, such as NOTAMs, wind shear, wake turbulence, runway surface, braking conditions, and other operational considerations. (IR.VI.E.S2) 3. Complete appropriate checklist items for the prelanding and landing phase. (IR.VI.E.S3) 4. Maintain positive aircraft control throughout the complete landing maneuver. (IR.VI.E.S4)
Risk Management	The applicant applies risk management identification, assessment, and mitigation principles to: 1. Landing from an unstabilized instrument approach. (IR.VI.E.R1) 2. Flying below glidepath. (IR.VI.E.R2) 3. Runway incursion after landing from an approach. (IR.VI.E.R3) 4. Transitioning to visual references for landing. (IR.VI.E.R4)

VII. Emergency Operations

Task	*A. Loss of Communications*
Reference	14 CFR 91, FAA 8083-15, FAA 8083-2
Objective	To determine the applicant exhibits satisfactory knowledge, skills, and risk management associated performing the procedures associated with loss of communication.
Knowledge	The applicant demonstrates understanding of: 1. Procedures for lost communication at various phases of flight. (IR.VII.A.K1) 2. Criteria for beginning an approach procedure at the destination. (IR.VII.A.K2) 3. When to deviate from an IFR clearance. (IR.VII.A.K3) 4. Techniques for re-establishing communications. (IR.VII.A.K4)
Skills	The applicant demonstrates the ability to: 1. Recognize loss of communication. (IR.VII.A.S1) 2. Accomplish actions to re-establish communication. (IR.VII.A.S2) 3. Continue to destination. (IR.VII.A.S3) 4. Begin an approach at the appropriate time. (IR.VII.A.S4)
Risk Management	The applicant applies risk management identification, assessment, and mitigation principles to: 1. Remaining Visual Flight Rules (VFR) in marginal weather conditions. (IR.VII.A.R1) 2. Not following prescribed loss of communication procedures. (IR.VII.A.R2)

Task	*B. One Engine Inoperative—Instrument Approach (Multiengine Airplane)*
Reference	14 CFR 91, FAA 8083-15, FAA 8083-2
Objective	To determine the applicant exhibits satisfactory knowledge, skills, and risk management associated the procedures for recovering the aircraft with an inoperative engine.
Knowledge	The applicant demonstrates understanding of: 1. The procedures and/or differences used during an instrument approach in a multiengine aircraft with one engine inoperative versus all engines operating. (IR.VII.B.K1)
Skills	The applicant demonstrates the ability to: 1. Recognize engine failures simulated by the evaluator. (IR.VII.B.S1) 2. Set all engine controls, reduce drag, and identify and verify the inoperative engine. (IR.VII.B.S2) 3. Establish the best engine-inoperative airspeed, or airspeed appropriate for the phase of flight, and trim the aircraft. (IR.VII.B.S3) 4. Attempt to determine the reason for the engine failure. (IR.VII.B.S4) 5. Accomplish prescribed checklist procedures for restarting and/or securing the inoperative engine. (IR.VII.B.S5) 6. Establish and maintain the recommended flight attitude and configuration for the best performance during the instrument approach procedures. (IR.VII.B.S6) 7. Monitor all engine control functions and make necessary adjustments. (IR.VII.B.S7) 8. Follow the actual or a simulated ATC clearance for a straight-in or circling instrument approach. (IR.VII.B.S8) 9. Establish a rate of descent that will ensure arrival at the MDA/DA prior to reaching the MAP with the aircraft continuously in a position from which descent to a landing on the intended runway can be made. (IR.VII.B.S9) 10. Maintain, where applicable, the specified altitude within ±100 feet, the airspeed within ±10 knots if within the aircraft's capability, and the heading within ±10°. (IR.VII.B.S10) 11. Set the navigation and communication equipment used during the approach and use the proper communications technique. (IR.VII.B.S11) 12. Avoid loss of aircraft control, or attempted flight contrary to the engine-inoperative operating limitations of the aircraft. (IR.VII.B.S12) 13. Use MFD and other graphical navigation displays, if installed, to monitor position and enhance situational awareness. (IR.VII.B.S13) 14. Comply with the published minima for the approach. (IR.VII.B.S14) 15. Allow, while on final approach segment, no more than ¾-scale deflection of either the localizer or glideslope or GPS indications, or within ±10° or ¾-scale deflection of the nonprecision final approach course. (IR.VII.B.S15)Complete a safe landing. (IR.VII.B.S16)
Risk Management	The applicant applies risk management identification, assessment, and mitigation principles to: 1. Not maintaining adequate airspeed. (IR.VII.B.R1) 2. Managing startle response during unexpected events. (IR.VII.B.R2) 3. The increased probability of loss of aircraft control. (IR.VII.B.R3) 4. Executing a missed approach with an inoperative engine. (IR.VII.B.R4)

Task	***C. Approach with Loss of Primary Flight Instrument Indicators***
Reference	14 CFR 91, FAA 8083-15, FAA 8083-2
Objective	To determine the applicant exhibits satisfactory knowledge, skills, and risk management associated with performing an approach with the loss of primary flight control instruments. **NOTE:** This task should evaluate the most realistic failure mode(s) of the aircraft equipment used for the test.
Knowledge	The applicant demonstrates understanding of: 1. Likely failure modes of vacuum and electric attitude instruments. (IR.VII.C.K1) 2. Recognizing and confirming likely malfunctions, and how to correct or minimize the effect of their loss. (IR.VII.C.K2)
Skills	The applicant demonstrates the ability to: 1. Advise ATC or evaluator anytime the aircraft is unable to comply with a clearance. (IR.VII.C.S1) 2. Completes a nonprecision instrument approach without the use of the primary flight instrument using the objectives of the nonprecision approach. (IR.VII.C.S2)
Risk Management	The applicant applies risk management identification, assessment, and mitigation principles to: 1. Using secondary flight displays. (IR.VII.C.R1) 2. Not using moving map guidance to increase situational awareness. (IR.VII.C.R2)

VIII. Postflight Procedures

Task	***A. Checking Instruments and Equipment***
Reference	14 CFR 91, FAA 8083-15, FAA 8083-2
Objective	To determine the applicant exhibits satisfactory knowledge, skills, and risk management associated with checking flight instruments after flight.
Knowledge	The applicant demonstrates understanding of: 1. The requirements for documenting equipment malfunctions. (IR.VIII.A.K1)
Skills	The applicant demonstrates the ability to: 1. Check all flight equipment for proper operation. (IR.VIII.A.S1) 2. Note all equipment and/or aircraft malfunctions and makes appropriate documentation of improper operation or failure of such equipment. (IR.VIII.A.S2)
Risk Management	The applicant applies risk management identification, assessment, and mitigation principles to: 1. Not performing a proper post-flight inspection. (IR.VIII.A.R1) 2. Not properly documenting aircraft discrepancies. (IR.VIII.A.R2)

APPENDIX 1: THE KNOWLEDGE TEST

The knowledge test is an important part of the airman certification process. Applicants must pass the knowledge test before taking the practical test.

Knowledge Test Description

The knowledge test consists of objective, multiple-choice questions. There is a single best response for each test question. Each test question is independent of other questions. A correct response to one does not depend upon, or influence, the correct response to another.

Test Code	Test Name	Number of Questions	Allotted Time	Passing Score
IRA	Instrument Rating—Airplane	60	2.5	70%
IRH	Instrument Rating—Helicopter	60	2.5	70%
IFP	Instrument Rating—Foreign Pilot	50	3.5	70%

Knowledge Test Eligibility Requirements
For information concerning eligibility for Instrument Rating certification, please refer to:
- Knowledge Test: Prerequisites and Passing Grades: 14 CFR 61.35
- Eligibility: 14 CFR 61.65

Knowledge Test Centers
The FAA authorizes hundreds of knowledge testing center locations. For information on authorized testing centers and to register for the knowledge test, contact one of the providers listed at www.faa.gov.

Test Authorization
In order to take the Instrument Rating knowledge test, you must provide one of the following:
- Graduation certificate issued by a Federal Aviation Administration (FAA) certificated pilot school (14 CFR 61.71), or a
- Written statement or logbook endorsement from an authorized instructor certifying that the applicant completed an applicable ground training or home study course and is prepared for the knowledge test (14 CFR 61.55).

Acceptable forms of retest authorization for Instrument Rating tests:
- The original failed, passed, or expired Airman Knowledge Test Report, provided the applicant still has the test report in his or her possession.

NOTE: If the applicant no longer possesses the original test report, he or she may present an 'expired test/credit' letter issued by AFS-760.

- An applicant retesting after failure is required to submit the applicable test report indicating failure, along with an endorsement from an authorized instructor who gave the applicant the required additional training. The endorsement must certify the applicant is competent to pass the test. The test proctor must retain the original failed test report presented as authorization and attach it to the applicable sign-in/out log.

Knowledge Test Procedures

Before starting the actual test, the testing center will provide an opportunity to practice navigating through the test. This practice or tutorial session may include sample questions to familiarize the applicant with the look and feel of the software. (e.g., selecting an answer, marking a question for later review, monitoring time remaining for the test, and other features of the testing software).

The applicant may use the following aids, reference materials, and test materials, as long as the material does not include actual test questions or answers:

Acceptable Materials	**Unacceptable Materials**	**Notes**
Supplement book provided by proctor	Written materials that are handwritten, printed, or electronic	Testing centers may provide calculators and/or deny the use of personal calculators
All models of aviation-oriented calculators or small electronic calculators that perform only arithmetic functions	Electronic calculators incorporating permanent or continuous type memory circuits without erasure capability	Unit Member (proctor) may prohibit the use of your calculator if he or she is unable to determine the calculator's erasure capability
Calculators with simple programmable memories, which allow addition to, subtraction from, or retrieval of one number from the memory; or simple functions, such as square root and percentages	Magnetic cards, magnetic tapes, modules, computer chips, or any other device upon which pre-written programs or information related to the test can be stored and retrieved	Printouts of data must be surrendered at the completion of the test if the calculator incorporates this design feature.
Scales, straightedges, protractors, plotters, navigation computers, blank log sheets, holding pattern entry aids, and electronic or mechanical calculators that are directly related to the test	Dictionaries	Before, and upon completion of the test, while in the presence of the Unit Member, actuate the ON/OFF switch or RESET button, and perform any other function that ensures erasure of any data stored in memory circuits
Manufacturer's permanently inscribed instructions on the front and back of such aids, e.g., formulas, conversions, regulations, signals, weather data, holding pattern diagrams, frequencies, weight and balance formulas, and air traffic control procedures	Any booklet or manual containing instructions related to use of test aids	Unit Member makes the final determination regarding aids, reference materials, and test materials

Testing Procedures for Applicants Requesting Special Accommodations

An applicant with a learning or reading disability may request approval from AFS-630 through the local Flight Standards District Offices (FSDO) or International Field Offices (IFO) to take an airman knowledge test using one of the three options listed below, in preferential order:

Option 1: Use current testing facilities and procedures whenever possible.

Option 2: Use a self-contained, electronic device which pronounces and displays typed-in words (e.g., the Franklin Speaking Wordmaster®) to facilitate the testing process.

NOTE: The device should consist of an electronic thesaurus that audibly pronounces typed-in words and presents them on a display screen. The device should also have a built-in headphone jack in order to avoid disturbing others during testing.

Option 3: Request the proctor's assistance in reading specific words or terms from the test questions and/or supplement book. To prevent compromising the testing process, the proctor must be an individual with no aviation background or expertise. The proctor may provide reading assistance only (i.e., no explanation of words or terms). When an applicant requests this option, the FSDO or IFO inspector must contact the Airman Testing Standards Branch (AFS-630) for assistance in selecting the test site and assisting the proctor. Before approving any option, the FSDO or IFO inspector must advise the applicant of the regulatory certification requirement to be able to read, write, speak, and understand the English language.

Cheating or Other Unauthorized Conduct

Computer testing centers must follow strict security procedures to avoid test compromise in accordance with FAA Order 8080.6 (as amended), Conduct of Airman Knowledge Tests. Testing centers will terminate a test any time the test proctor suspects an occurrence of cheating.

The FAA will conduct an investigation of the incident. If the investigation determines that cheating or unauthorized conduct occurred, any airman certificate or rating the applicant holds may be revoked. In addition, the applicant may be prohibited from applying for or taking any test for a certificate or rating under 14 CFR part 61 for a period of one year.

Airman Knowledge Test Report

Immediately upon completion of the knowledge test, the applicant receives a printed Airman Knowledge Test Report documenting the score with the testing center's raised, embossed seal. The applicant must retain the original Airman Knowledge Test Report and present it to the evaluator conducting the practical test.

An Airman Knowledge Test Report expires 24-calendar months from the month the applicant completes the knowledge test. If the Airman Knowledge Test Report expires before completion of the practical test, the applicant must retake the knowledge test.

To obtain a duplicate Airman Knowledge Test Report due to loss or destruction of the original, the applicant can send a signed request accompanied by a check or money order for $1.00, payable to the FAA to:

> Federal Aviation Administration Airmen Certification Branch, AFS-760
> P.O. Box 25082
> Oklahoma City, OK 73125

FAA Knowledge Test Question Coding

Each task in the Airman Certification Standard includes an Airman Certification Standards (ACS) code. This ACS code is displayed on the airman test report to indicate what task element was proven deficient on the Knowledge Exam. Instructors can then provide remedial training in the deficient areas and evaluators can re-test this element during the practical exam.

The ACS coding consists of 5 elements. For example: this code is deciphered accordingly: **IR.VIII.A.1.a**

IR.VIII.A.K1.a:

IR = Applicable ACS (instrument rating)
VIII = Area of Operation (postflight procedures)
A = Task (checking instruments and equipment);
K1 = Knowledge task element 1 (the requirements for documenting equipment malfunctions)
a = rote; **b** = understanding; **c** = application; **d**= correlation), representing the level of learning which also informs the manner of the question (rote = define, recall, list, name, match, label)

Every question is correlated to a specific ACS task/element. This coding methodology will be useful to all involved with airman certification—the applicant, the evaluator, and the flight instructor. It indicates what test subjects (tasks) were satisfactorily passed and what tasks need to be reviewed prior to the practical test.

APPENDIX 2: THE PRACTICAL TEST

The evaluator must conduct the practical test in accordance with this Airman Certification Standards (ACS). The evaluator must assess the applicant on all tasks included in each Area of Operation of the ACS unless otherwise noted.

NOTE: The applicant must pass the knowledge test before taking the practical test, and the applicant must pass the oral portion of the practical test before beginning the flight portion.

Conduct of the Practical Test

The evaluator must develop a written Plan of Action to conduct the test, which includes all required Areas of Operation and Tasks. The Plan of Action will include a scenario that evaluates as many of the required Areas of Operation and Tasks as possible. As the scenario unfolds during the test, the examiner will interject problems and malfunctions the applicant must manage.

The evaluator has the discretion and flexibility to change the Plan of Action in order to accommodate unexpected situations as they arise. The evaluator will evaluate any selected Task in its entirety. The evaluator may elect to suspend and then resume the scenario in order to assess certain tasks.

If performing aspects of a given maneuver, such as emergency procedures, would jeopardize safety, the evaluator will ask the applicant to simulate that portion of the maneuver.

Use of Checklists

The evaluator will assess the applicant's use of an approved manufacturer's checklist or equivalent during the practical test.

NOTE: If there is no published manufacturer's checklist, the applicant may use the appropriate FAA handbook or equivalent checklist.

Assessing proper checklist use depends upon the specific Task. In all cases, the evaluator should determine the applicant appropriately divides attention and uses proper visual scanning. In some situations, reading the actual checklist may be impractical or unsafe. In such cases, the evaluator should assess the applicant's performance of published or recommended immediate action "memory" items along with his or her review of the appropriate checklist once conditions permit.

Use of Distractions

Research and accident analysis indicate that pilot distraction during critical phases of flight is a factor in many accidents. The evaluator will cause realistic distractions during the flight portion of the practical test in order to evaluate the applicant's ability to use and maintain proper control technique while dividing attention both inside and/or outside the cockpit.

Positive Exchange of Flight Controls

There must always be a clear understanding of who has control of the aircraft. Prior to flight, the pilots involved should conduct a briefing that includes reviewing the procedures for exchanging flight controls.

The FAA recommends a positive three-step process for exchanging flight controls between pilots:

- When one pilot seeks to have the other pilot take control of the aircraft, he or she will say, "You have the flight controls."
- The second pilot acknowledges immediately by saying, "I have the flight controls."
- The first pilot again says, "You have the flight controls."

Pilots should follow this procedure during any exchange of flight controls, including any occurrence during the practical test. The FAA also recommends that both pilots use a visual check to verify that the exchange has occurred. There must never be any doubt as to who is flying the aircraft.

Stall and Spin Awareness

During flight training and testing, the applicant and the instructor or evaluator must always maintain situational awareness with respect to operations that could lead to an inadvertent stall or spin.

Possible Outcomes of the Practical Test

There are three possible outcomes of the practical test: (1) pass, (2) fail, or (3) discontinuance.

Pass

Satisfactory performance requires the applicant to:

- Perform the Tasks specified in the Areas of Operation for the certificate or rating sought within the approved standards;
- Demonstrate mastery of the aircraft by performing each Task successfully;
- Demonstrate proficiency and competency in accordance with the approved standards;
- Demonstrate sound judgment, exercise aeronautical decision-making, and risk management;
- Demonstrate single-pilot competence if the aircraft is type certificated for single-pilot operations. Satisfactory performance will result in the issuance of a temporary certificate.

NOTE: The tolerances listed in the ACS represent the performance expected in good flying conditions.

Fail

If, in the judgment of the evaluator, the applicant does not meet the standards for any Task, the applicant fails the Task and associated Area of Operation, the test is unsatisfactory, and the examiner issues a Notice of Disapproval. When the examiner issues a Notice of Disapproval, he or she shall list the Area of Operation in which the applicant did not meet the standard. The Notice of Disapproval must also list the Area(s) of Operation not tested, and the number of practical test failures.

The examiner or the applicant may end the test if the applicant fails a Task. The examiner may continue the test only with the consent of the applicant and examiner, and the applicant is entitled to credit for only those Areas of Operation and the associated Tasks performed satisfactorily. Though not required, the examiner has discretion to reevaluate any Task, including those previously passed, during the retest.

Typical areas of unsatisfactory performance and grounds for disqualification include:

- Any action or lack of action by the applicant that requires corrective intervention by the examiner to maintain safe flight.
- Failure to use proper and effective visual scanning techniques and collision avoidance procedures to clear the area before and while performing maneuvers.
- Consistently exceeding tolerances stated in the Objectives.
- Failure to take prompt corrective action when tolerances are exceeded.
- Failure to exercise Risk Management Discontinuance

When it is necessary to discontinue a practical test for reasons other than unsatisfactory performance (e.g., equipment failure, weather, illness), the evaluator returns all the test paperwork to the applicant. The evaluator must prepare, sign, and issue a Letter of Discontinuance that lists those Areas of Operation the applicant successfully completed and the time remaining to complete the test. The evaluator should advise the applicant to present the Letter of Discontinuance to the evaluator when the practical test resumes in order to receive credit for the items successfully completed. The Letter of Discontinuance becomes part of the applicant's certification file.

Prerequisites for the Test

According to 14 CFR 61.65, an applicant for the Instrument Rating Practical Test must:

- Be at least 17 years of age;
- Hold at least a private pilot certificate, or be concurrently testing for a private pilot certificate, appropriate to the category of aircraft instrument rating sought.
- Be able to read, speak, write, and understand the English language as detailed in AC 60-28;
- Have passed the appropriate knowledge test since the beginning of the 24th month before the month in which he or she takes the practical test;
- Have satisfactorily accomplished the required training and obtained the prescribed aeronautical experience;
- Possess at least a current third class medical certification or, when a military pilot of the U.S. Armed Forces, show and present evidence of an up-to-date medical examination by the U.S. Armed Forces authorizing pilot status;
- Have an endorsement from an authorized instructor certifying the applicant has received and logged three hours of training time within two (2) calendar months preceding the month of application in preparation for the practical test, and is prepared for the practical test;
- Receive and log ground training from an authorized instructor or complete a home-study course on the aeronautical knowledge areas of 14 CFR part 61.65 that apply to the rating sought; and
- Have an endorsement certifying that the applicant has demonstrated satisfactory knowledge of the subject areas in which the applicant was deficient, if any, on the airman knowledge test.

Aircraft and Equipment Required for the Practical Test

An applicant is required by 14 CFR 61.45 to provide an airworthy, certificated aircraft for use during the practical test. In addition, the aircraft must have a current navigational database.

Role of Instructor

Instructors are responsible for training the applicant to the acceptable standards in all subject matter areas, procedures, and maneuvers included in all the Tasks, even if the applicant is simply adding a category to his or her instrument rating.

Role of Evaluator

The evaluator who conducts the practical test is responsible for determining the applicant meets the acceptable standards of aeronautical knowledge, skills, and risk management for each Task in the appropriate ACS.

The FAA does not expect the evaluator to test every Knowledge and Risk Management element on the Practical Test, as the Knowledge Test assessed the applicant's mastery of these areas. The evaluator must, however, test at least one item in each of the Knowledge and Risk Management elements for every Task, emphasizing the topics (if any) the applicant missed on the Knowledge Test. The evaluator must test each item in the Skills elements unless otherwise noted in the Task.

Applicants must complete the oral portion of the practical test before the flight portion; however, oral questioning will continue throughout the flight. To the greatest extent practicable, evaluators shall test the applicant's ability to apply and correlate information, and only use rote questions when appropriate for the material being tested.

If the evaluator determines that a Task is incomplete, or the outcome is uncertain, the evaluator may require the applicant to repeat that Task, or portions of that Task. The FAA made this provision in the interest of fairness, but it does not mean that instruction, practice, or the repetition of an unsatisfactory task is permitted during the practical test.

The evaluator will assess the applicant's use of visual scanning and collision avoidance procedures throughout the entire test.

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APPENDIX 3: INSTRUMENT PROFICIENCY CHECK

Instructors and evaluators conducting an Instrument proficiency check must ensure the pilot meets the standards established in the ACS for the following Areas of Operation and Tasks:

Guidance on how to conduct an Instrument Proficiency Check can be found at: http://www.faa.gov

Area of Operation	**Task(s)**
Preflight Procedures	**Instrument Cockpit check**
Air Traffic Control Clearances	**Compliance with Departure, En Route and Arrival Procedures and Clearances** **Holding**
Flight By Reference to Instruments	**Recovery From Unusual Flight Attitudes**
Navigation Systems	**Intercepting and Tracking Navigation Systems**
Instrument Approach Procedures	**Non Precision Approach Precision Approach** **Missed Approach** **Landing From an Approach**

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APPENDIX 4: USE OF A FLIGHT SIMULATION TRAINING DEVICE (FSTD)

Task vs. Flight Simulation Training Device (FSTD) Credit

- Evaluators must verify the specific FSTD is authorized for testing by consulting the Letter of Authorization for that device.
- Instrument approach procedures in the FSTD are limited to one precision and one non-precision approach.
- Evaluators must evaluate tasks in the FSTD according to the appropriate ACS task

Use of Chart

X = May be evaluated in the FSTD
A = May be evaluated if the appropriate systems are installed and operating

NOTE: With the exception of *Landing from an Instrument Approach* in a Level A device, all Tasks below may be evaluated in a Level A, B, C or D FSTD.

TASK **FSTD LEVEL**

Area of Operation	**4**	**5**	**6**	**7**
Preflight Procedures				
Instrument Cockpit Check	A	A	X	X
Air Traffic Control Clearances and Procedures				
Compliance with Departure, En Route, and				
Arrival Procedures and Clearances	A	A	X	X
Holding Procedures	___	___	X	X
Flight by Reference to Instruments				
Basic Instrument Flight Procedures	___	___	X	X
Recovery from Unusual Flight Attitudes	___	___	___	X
Navigation Systems				
Intercepting and Tracking Navigational Systems	___	A	X	X
Instrument Approach Procedures				
Nonprecision Approach	___	___	X	X
Precision Approach	___	___	X	X
Missed Approach	___	___	X	X
Circling Approach	___	___	___	___
Landing From and Instrument Approach	___	___	___	___
Emergency Operations				
Loss of Communications	___	___	X	X
One Engine Inoperative-Instrument Approach				
(Multiengine Airplane)	___	___	___	___
Approach with Loss of Primary Flight Instrument				
Indicators	___	___	X	X
Postflight Procedures				
Checking instruments and Equipment	___	A	X	X

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APPENDIX 5: PRACTICAL TEST CHECKLIST

Applicant's Practical Test Checklist

Appointment with Evaluator

Evaluator's Name: ______________________________

Location: ______________________________

Date/Time: ______________________________

ACCEPTABLE AIRCRAFT

- ☐ Aircraft Documents:
- ☐ Airworthiness Certificate
- ☐ Registration Certificate
- ☐ Operating Limitations
- ☐ Aircraft Maintenance Records:
- ☐ Logbook Record of Airworthiness Inspections and AD Compliance
- ☐ Pilot's Operating Handbook, FAA-Approved Aircraft Flight Manual

PERSONAL EQUIPMENT

- ☐ View-Limiting Device
- ☐ Current Aeronautical Charts (Printed or Electronic)
- ☐ Computer and Plotter
- ☐ Flight Plan Form
- ☐ Flight Logs
- ☐ Current AIM, Airport Facility Directory, and Appropriate Publications

PERSONAL RECORDS

- ☐ Identification—Photo/Signature ID
- ☐ Pilot Certificate
- ☐ Current Medical Certificate
- ☐ Completed FAA Form 8710-1, Airman Certificate and/or Rating Application with Instructor's Signature
- ☐ Original Knowledge Test Report
- ☐ Pilot Logbook with appropriate Instructor Endorsements
- ☐ FAA Form 8060-5, Notice of Disapproval (if applicable)
- ☐ Letter of Discontinuance (if applicable)
- ☐ Approved School Graduation Certificate (if applicable)
- ☐ Evaluator's Fee (if applicable)

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APPENDIX 6: REFERENCES

This ACS is based on the following 14 CFR parts, FAA guidance material, manufacturer's publications, and other documents.

14 CFR part 61	Certification: Pilots, Flight Instructors, and Ground Instructors
14 CFR part 91	General Operating and Flight Rules
AC 60-28	English Language Skill Standards Required by 14 CFR Parts 61, 63 and 65
AIM	Aeronautical Information Manual
FAA-H-8083-2	Risk Management Handbook
FAA-H-8083-15	Instrument Flying Handbook
NOTAMs	Notices to Airmen
POH/AFM	Pilot's Operating Handbook/FAA-Approved Aircraft Flight Manual

NOTE: Users should reference the current edition of the reference documents listed above. The current edition of all FAA publications can be found at www.faa.gov.

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APPENDIX 7: ABBREVIATIONS AND ACRONYMS

The following abbreviations and acronyms are used in this ACS.

14 CFR	Title 14 of the Code of Federal Regulations
AC	Advisory Circular
ACS	Airman Certification Standards
ADM	Aeronautical Decision-Making
AFM	Airplane Flight Manual
AFS	Flight Standards Service
ATC	Air Traffic Control
CDI	Configuration Deviation Indicator
DA	Decision Altitude
EFC	Expect Further Clearance
FAA	Federal Aviation Administration
FMS	Flight Management System
FSDO	Flight Standards District Office
GPS	Global Positioning System
IFO	International Field Office
IFR	Instrument Flight Rules
LNAV	Lateral Navigation
LP	Localizer Performance
MDA	Minimum Descent Altitude
NAS	National Airspace System
NAVAID	Navigation Aid
NTSB	National Transport Safety Board
PIC	Pilot in Command
POH	Pilot's Operating Handbook
PTS	Practical Test Standards
RNAV	Area Navigation
SMS	Safety Management System
VDP	Visual Descent Point
VFR	Visual Flight Rules

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APPENDIX C: FEDERAL REGISTER NOTICE + COMMENTS ON PRIVATE PILOT + INSTRUMENT RATING ACS DOCUMENTS

The ATST WG published the first draft of the Private Pilot – Airplane Airman Certification Standards (ACS) and Instrument Rating ACS documents for comment on April 24, 2013.[12] This appendix includes the original Notice published in the *Federal Register*, as well as a summary of the 302 comments received and reviewed by the ATST WG.

The comment period for the notice published on April 24, 2013 (78 FR 24289) closed May 24, 2013, and was reopened until July 8, 2013.[13]

NOTE: The Summary of Comments appears on the next page as an integrated component of this appendix, and the Notice of availability; request for comments published in the *Federal Register* on April 24, 2013 immediately follows as a stand-alone document.

Summary of Comments in Response to *Federal Register* Notice of Availability (Docket No. FAA-2013-0316)

The ATST WG received 302 comments on the following documents, which were published in Docket No. FAA-2013-0316:

- Background Information: Industry-Led Changes to FAA Airman Testing Standards and Training
- Draft Private Pilot – Airplane Airman Certification Standards
- Draft Change Tracking Matrix for Private Pilot Practical Test Standards
- Draft Instrument Rating Airman Certification Standards
- Draft Change Tracking Matrix for Instrument Rating Practical Test Standards

Several commenters submitted multiple comments, and the ATST WG tracked all comments received. In order to manage disposition of the comments, the ATST WG grouped the comments as follows:

(1) General Comments on the ACS Concept: The ATST WG reviewed and considered the positive and negative comments on the ACS concept. In responding to these comments, the ATST WG developed a Frequently Asked Questions (FAQ) document, which was further refined and published for review and further comment (Docket No. FAA-2013-0649).

[12] 78 FR 24289 (Docket No. FAA-2013-0316).
[13] Notice of Availability; reopening of comment period—Aviation Rulemaking Advisory Committee (ARAC) Airman Testing Standards and Training Working Group (ATSTWG), 78 FR 34423 (June 7, 2013).

(2) Comments addressing Loss of Thrust on Takeoff (LOTOT): The ATST WG considered and agreed with the commenters noting that under Takeoff Tasks, Risk Management elements include items to specifically address: (1) criticality of takeoff distance available; (2) plans for engine-failure after takeoff.

(3) Comments addressing the General Aviation Accident Rate and/or Education on Prevention of Accidents: The ATST WG incorporated many of the concepts in to the introduction to the ACS documents, as well as the FAQs. The ATST WG further noted that “Inadvertent Flight into IMC” was added to Area of Operation VIII (Emergency Operations) in the Private Pilot ACS.

(4) Comments on Draft Private Pilot ACS: The Private Pilot Subgroup reviewed and addressed each specific comment on the draft Private Pilot ACS, and the majority of the specific comments were addressed by revisions to the document.

(5) Comments on Draft Instrument Rating ACS: The Instrument Subgroup reviewed and addressed each specific comment on the draft Instrument ACS, and the majority of the specific comments were addressed by revisions to the document.

(6) Comments on Instructor Guidance Material: The ATST WG noted the general comments on the need for revised/aligned Flight Instructor guidance documents. The members further noted that the Authorized Instructor ACS would be published for comment at a later time.

(7) Comments on Terminology: The ATST WG noted that the term “airman” is used in 14 CFR to encompass the full range of aviation functions that require an FAA certificate or rating. The members further noted not all airman certificates and ratings are for pilots or aviators; some apply to aircraft maintenance technicians, dispatchers, and other specialties. In addition, changes to 14 CFR fall outside the scope of the ATST WG tasking.

(8) Miscellaneous Comments: The ATST WG addressed comments regarding the length of the comment period by re-opening the comment period for 30 days. Miscellaneous and unrelated comments were tracked and forwarded to the appropriate FAA office for consideration.

Strategy for Dispositioning Comments

The ATST WG tracked the 302 comments, including commenter and date of submission. Multiple ATST WG subgroups reviewed and dispositioned the comments by noting whether the comment was incorporated (in the case of specific substantive comments) in a subsequent draft of the applicable ACS document(s) and/or how the comment was addressed. The complete matrix will be submitted to the FAA for further review and consideration with the complete package of documents comprising the ATST WG work product developed as a part of this endeavor.

DOT–OST–2012–204 and DOT–OST–2012–205 and addressed to U.S. Department of Transportation, Docket Operations, (M–30, Room W12–140), 1200 New Jersey Avenue SE., West Building Group Floor, Washington, DC 20590, and should be served upon the parties listed in Attachment A to the order.

FOR FURTHER INFORMATION CONTACT: Catherine J. O'Toole, Air Carrier Fitness Division (X–56, Room W86–469), U.S. Department of Transportation, 1200 New Jersey Avenues SE., Washington, DC 20590, (202) 366–9998.

Dated: April 15, 2013.

Susan L. Kurland,

Assistant Secretary for Aviation and International Affairs.

[FR Doc. 2013–09557 Filed 4–23–13; 8:45 am]

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DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

[Docket No FAA–2013–0316]

Aviation Rulemaking Advisory Committee (ARAC) Airman Testing Standards and Training Working Group (ATSTWG)

AGENCY: Federal Aviation Administration (FAA), DOT.

ACTION: Notice of availability; request for comments

SUMMARY: This notice announces the availability of draft Airman Certification Standards (ACS) documents developed by the ATSTWG for the private pilot certificate and the instrument rating. These documents are available for public review, download, and comment.

DATES: Send comments on or before May 24, 2013.

ADDRESSES: Send comments identified by docket number FAA–2013–0316 using any of the following methods:

- *Federal eRulemaking Portal:* Go to *http://www.regulations.gov* and follow the online instructions for sending your comments electronically.
- *Mail:* Send comments to Docket Operations, M–30; U.S. Department of Transportation (DOT), 1200 New Jersey Avenue SE., Room W12–140, West Building Ground Floor, Washington, DC 20590–0001.
- *Hand Delivery or Courier:* Take comments to Docket Operations in Room W12–140 of the West Building Ground Floor at 1200 New Jersey Avenue SE., Washington, DC, between 9 a.m. and 5 p.m., Monday through Friday, except Federal holidays.
- *Fax:* Fax comments to Docket Operations at (202) 493–2251.

Privacy: The FAA will post all comments it receives, without change, to *http://www.regulations.gov,* including any personal information the commenter provides. Using the search function of the docket Web site, anyone can find and read the electronic form of all comments received into any FAA dockets, including the name of the individual sending the comment (or signing the comment for an association, business, labor union, etc.). DOT's complete Privacy Act Statement can be found in the **Federal Register** published on April 11, 2000 (65 FR 19477–19478), as well as at *http://DocketsInfo.dot.gov.*

Docket: Background documents or comments received may be read at *http://www.regulations.gov* at any time. Follow the online instructions for accessing the docket or go to the Docket Operations in Room W12–140 of the West Building Ground Floor at 1200 New Jersey Avenue SE., Washington, DC, between 9 a.m. and 5 p.m., Monday through Friday, except Federal holidays.

FOR FURTHER INFORMATION CONTACT: Van L. Kerns, Manager, Regulatory Support Division, FAA Flight Standards Service, AFS 600, FAA Mike Monroney Aeronautical Center P.O. Box 25082 Oklahoma City, OK 73125; telephone (405) 954–4431, email van.l.kerns@faa.gov.

SUPPLEMENTARY INFORMATION:

Background

The FAA has established Docket No. FAA–2013–0316 for the purpose of enabling the public to comment on several draft documents developed by the Airman Testing Standards and Training Working Group. The following documents have been placed in that docket for public review and comment:

(1) Background Information; Industry-Led Changes to FAA Airman Testing Standards and Training

(2) Draft PRIVATE PILOT—AIRPLANE Airman Certification Standards;

(3) Draft Change Tracking Matrix referenced to FAA–S–8081–14B, Private Pilot Practical Test Standards for Airplane (Single Engine Land and Single-Engine Sea Areas of Operation); Section 1: Private Pilot

(4) Draft INSTRUMENT RATING—Airman Certification Standards; and

(5) Draft Change Tracking Matrix referenced to FAA–S–8081–4E, Instrument Rating Practical Test Standards for Airplane, Helicopter, and Powered Lift

On August 30, 2012, the ARAC Executive Committee accepted the FAA's assignment of a new task arising from recommendations of the Airman Testing Standards and Training Aviation Rulemaking Committee (ARC). The ARC recommended ways to ensure that the FAA's airman testing and training materials better support reduction of fatal general aviation accidents. The new task instructed the ARAC to integrate aeronautical knowledge and flight proficiency requirements for the private pilot and flight instructor certificates and the instrument rating into a single ACS document for each type of certificate and rating; to develop a detailed proposal to realign FAA training handbooks with the ACS documents; and to propose knowledge test item bank questions consistent with the integrated ACS documents and the principles set forth in the ARC's recommendations.

The FAA announced the ARAC's acceptance of this task through a **Federal Register** Notice published on September 12, 2012 [77 FR 56251]. This Notice described the task elements and solicited participants for the ATSTWG, which subsequently formed and began its work in November 2012.

Consistent with the initial part of this tasking, the ATSTWG has developed draft ACS documents for the private pilot certificate and the instrument rating. These documents align the aeronautical knowledge testing standards with the flight proficiency standards set out in the existing Practical Test Standards (PTS). In addition to supporting the FAA's effort to improve the relevance, reliability, validity, and effectiveness of aeronautical testing and training materials, the draft ACS documents support the FAA's goal of reducing fatal general aviation accidents by incorporating task-specific risk management considerations into each Area of Operation.

The ATSTWG continues the necessary work to develop the authorized instructor ACS document and complete its remaining assignments. These include developing a detailed proposal to realign and, as appropriate, streamline and consolidate existing FAA guidance material (e.g., handbooks) with each integrated ACS document; and to propose methodologies to ensure that knowledge test item bank questions are consistent with both the ACS documents and the test question development principles set forth in the ARC's recommendations.

The ACS documents are designed as the foundation for transitioning to a more integrated and systematic approach to airman certification testing and training. To accomplish this objective and achieve its overall safety goals, the ACS documents support the safety management system (SMS) framework. SMS methodology provides a systematic approach to achieving acceptable levels of safety risk. The ATSTWG is constructing ACS, associated guidance, and test item bank question components of the airman certification system around the four functional components of SMS:

• *Safety Policy* that demonstrates FAA senior management commitment to continually improve safety through enhancements to the airman certification testing and training system; specifically, better integration of the aeronautical knowledge, flight proficiency, and risk management components of the airman certification system;

• *Safety Risk Management* processes that create a structured means of safety risk management decision making to identify, assess, and determine acceptable level of risk associated with regulatory changes, safety recommendations, or other factors requiring modification of airman testing and training materials;

• *Safety Assurance* processes which allow increased confidence on the part of industry and FAA stakeholders in risk controls through a continual review of FAA products and the systematic, prompt and appropriate incorporation of changes arising from new regulations, data analysis, and safety recommendations; and

• *Safety Promotion* framework to support a positive safety culture in the form of training and ongoing engagement with both external stakeholders (e.g., the aviation training industry) and FAA policy divisions.

Given the foundational nature of the ACS documents and their importance in the ongoing evolution of the FAA's airman certification testing and training system, the ATSTWG wishes to make draft ACS documents for the private pilot certificate and the instrument rating available to the public for review and comment. The ATSTWG will use the comments it receives to refine and inform its continuing work on this project. Future drafts developed by the ATSTWG may also be published for this purpose.

Issued in Washington, DC on April 19, 2013.

Brenda D. Courtney,

Alternate Designated Federal Officer, Aviation Rulemaking Advisory Committee.

[FR Doc. 2013–09684 Filed 4–23–13; 8:45 am]

BILLING CODE 4910–13–P

DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

Furlough Implementation

AGENCY: Federal Aviation Administration (FAA), DOT.

ACTION: Notice.

SUMMARY: This action gives notice to the American public and aviation industry of the FAA's Aviation Safety Office's (AVS) furlough implementation. Under the Balanced Budget and Emergency Deficit Control Act of 1985, as amended by the Budget Control Act of 2011 and the American Taxpayer Relief Act of 2012, across-the-board budget cuts require the FAA to implement furloughs. AVS and its Services/Offices will implement the required 11 days of furlough beginning April 21, 2013 and continuing through September 30, 2013. AVS will continue to focus resources on those initiatives that would have the highest safety and economic value for the American public and aviation industry. The furlough days vary, with each office scheduling those days in accordance with mission requirements, workload considerations, and applicable collective bargaining agreements. For specific information, please see the FAA Web site at *http://www.faa.gov/about/office_org/headquarters_offices/avs/operations_sequestration*.

DATES: The furlough will take place beginning April 21 through September 30, 2013.

SUPPLEMENTARY INFORMATION: For specific information, please see the FAA Web site at *http://www.faa.gov/about/office_org/headquarters_offices/avs/operations_sequestration*.

Issued in Washington, DC, on April 22, 2013.

Lirio Liu,

Director, Office of Rulemaking.

[FR Doc. 2013–09775 Filed 4–22–13; 11:15 am]

BILLING CODE 4910–13–P

DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

[Summary Notice No. PE–2013–17]

Petition for Exemption; Summary of Petition Received

AGENCY: Federal Aviation Administration (FAA), DOT.

ACTION: Notice of petition for exemption received.

SUMMARY: This notice contains a summary of a petition seeking relief from specified requirements of 14 CFR. The purpose of this notice is to improve the public's awareness of, and participation in, this aspect of FAA's regulatory activities. Neither publication of this notice nor the inclusion or omission of information in the summary is intended to affect the legal status of the petition or its final disposition.

DATES: Comments on this petition must identify the petition docket number and must be received on or before May 14, 2013.

ADDRESSES: You may send comments identified by Docket Number FAA–2013–0156 using any of the following methods:

• *Government-wide rulemaking Web site:* Go to *http://www.regulations.gov* and follow the instructions for sending your comments electronically.

• *Mail:* Send comments to the Docket Management Facility; U.S. Department of Transportation, 1200 New Jersey Avenue SE., West Building Ground Floor, Room W12–140, Washington, DC 20590.

• *Fax:* Fax comments to the Docket Management Facility at 202–493–2251.

• *Hand Delivery:* Bring comments to the Docket Management Facility in Room W12–140 of the West Building Ground Floor at 1200 New Jersey Avenue SE., Washington, DC, between 9 a.m. and 5 p.m., Monday through Friday, except Federal holidays.

Privacy: We will post all comments we receive, without change, to *http://www.regulations.gov*, including any personal information you provide. Using the search function of our docket Web site, anyone can find and read the comments received into any of our dockets, including the name of the individual sending the comment (or signing the comment for an association, business, labor union, etc.). You may review DOT's complete Privacy Act Statement in the **Federal Register** published on April 11, 2000 (65 FR 19477–78).

Docket: To read background documents or comments received, go to *http://www.regulations.gov* at any time or to the Docket Management Facility in Room W12–140 of the West Building Ground Floor at 1200 New Jersey Avenue SE., Washington, DC, between 9 a.m. and 5 p.m., Monday through Friday, except Federal holidays.

FOR FURTHER INFORMATION CONTACT: Mr. Mark B. James, Aerospace Engineer, Standards Office (ACE–111), Small Airplane Directorate, Aircraft Certification Service, FAA; telephone number (816) 329–4137, fax number (816) 329–4090, email at *mark.james@faa.gov.* Andrea Copeland, ARM–208, Office of Rulemaking, FAA,

APPENDIX D: DRAFT AUTHORIZED INSTRUCTOR ACS + TRACKING MATRIX

Appendix D includes the draft Authorized Instructor Airman Certification Standards (ACS), as well as the Tracking Matrix documenting the transition from FAA-S-8081-6D, Flight Instructor Practical Test Standards (PTS) for Airplane, to the Authorized Instructor ACS. The draft Authorized Instructor ACS incorporates the relevant comments received when the ATST WG published the first draft of the Authorized Instructor ACS for comment (Docket No. FAA-2013-0649).

The Authorized Instructor ACS is not a stand-alone document. Rather, it is to be used in conjunction with the pilot certificate level or rating ACS for which the instructor-applicant seeks authorization to provide instruction. Therefore, in addition to mastery of the knowledge and skills defined in the Authorized Instructor ACS, the instructor-applicant must demonstrate instructional competence with the Tasks in the ACS for the appropriate certificate level or rating, to include analyzing and correcting common learner errors.

The Flight Instructor Practical Test Standards Tracking Matrix illustrates only the transition from FAA-S-8081-6D, Flight Instructor Practical Test Standards for Airplane, to the Authorized Instructor ACS; however the final Authorized Instructor ACS will replace the following PTS documents (and tasks):

- FAA-S-8081-9D, Flight Instructor Instrument Practical Test Standards for Airplane and Helicopter;
- FAA-S-8081-7B, Flight Instructor Practical Test Standards for Rotorcraft (Helicopter and Gyroplane);
- FAA-S-8081-8B, Flight Instructor Instrument Practical Test Standards for Glider; and
- Sport Pilot Instructor tasks incorporated in:
    - FAA-S-8081-29, Sport Pilot Practical Test Standards for Airplane, Gyroplane, Glider, and Flight Instructor
    - FAA-S-8081-30, Sport Pilot Practical Test Standards for Airship, Balloon, and Flight Instructor
    - FAA-S-8081-31, Sport Pilot Practical Test Standards for Weight Shift Control, Powered Parachute, and Flight Instructor

NOTE: The Flight Instructor Practical Test Standards Tracking Matrix appears first as an integrated component of this appendix, and the draft Authorized Instructor ACS immediately follows as a stand-alone document.

Flight Instructor Practical Test Standards Tracking Matrix

FAA–S-8081-6D (FLIGHT INSTRUCTOR PTS – AIRPLANE) Section 1: Flight Instructor – Airplane Single-Engine	ACS	ACS AREA OF OPERATION	ACS TASK
I. Fundamentals of Instructing			
A. Human Behavior and Effective Communication	AI	I. Fundamentals of Instructing	B-Human Behavior and Effective Communication
B. The Learning Process	AI	I. Fundamentals of Instructing	A-Learning Process
C. The Teaching Process	AI	I. Fundamentals of Instructing	C-Teaching Process
D. Assessment and Critique	AI	I. Fundamentals of Instructing	E- Assessment
E. Instructor Responsibilities and Professionalism	AI	I. Fundamentals of Instructing	F-Flight Instructor Characteristics and Responsibilities
F. Techniques of Flight Instruction	AI	I. Fundamentals of Instructing	D-Teaching Methods
G. Risk Management	AI	Introduction	RM incorporated into all ACS proficiency tasks for which the instructor-applicant will demonstrate instructional knowledge
II. Technical Subject Areas			
A. Aeromedical Factors	COM	I. Preflight Preparation	H-Human Factors
B. Runway Incursion Avoidance	COM	II. Preflight Procedures	D-Taxiing
C. Visual Scanning and Collision Avoidance	COM	I. Preflight Preparation	H-Human Factors
–	COM	III. Airport Operations	B-Traffic Patterns
–	COM	IV. Takeoffs, Landings, and Go-Arounds	B-Normal Approach and Landing D-Soft-Field Approach and Landing
–	COM	V. Performance Maneuvers	B-Chandelles C-Lazy Eights
–	COM	V. Performance Maneuvers	A-Eights on Pylons
–	COM	VIII. Emergency Operations	B-Emergency Descent and Landing (Simulated)
D. Principles of Flight	AI	II. Technical Subject Areas	A-Principles of Flight
E. Airplane Flight Controls	PVT	I. Preflight Preparation	G-Operation of Systems

FAA–S-8081-6D (FLIGHT INSTRUCTOR PTS – AIRPLANE) Section 1: Flight Instructor – Airplane Single-Engine	ACS	ACS AREA OF OPERATION	ACS TASK
F. Airplane Weight and Balance	COM	I. Preflight Preparation	F-Performance and Limitations
G. Navigation and Flight Planning	COM	I. Preflight Preparation	D-Cross-Country Flight Planning
H. Night Operations	PVT	X. Night Operation	A- Night Preparation
I. High Altitude Operations	COM	X. High Altitude Operations	A-Supplemental Oxygen B- Pressurization
J. 14 CFR and Publications	AI	II. Technical Subject Areas	B-14 CFR and Publications
K. National Airspace System	COM	I. Preflight Preparation	E-National Airspace System
L. Navigation Systems and Radar Services	COM	VI. :Navigation	B-Navigation Systems and Radar Services
M. Logbook Entries and Certificate Endorsements	AI	II. Technical Subject Areas	C-Logbook Entries and Certificate Endorsements
N. Water and Seaplane Characteristics (ASES)	COM	I. Preflight Preparation	I-Water and Seaplane Characteristics, Seaplane Bases, Maritime Rules, and Aids to Marine Navigation (ASES, AMES)
O. Seaplane Bases, Rules, and Aids to Marine Navigation (ASES)	COM	I. Preflight Preparation	I-Water and Seaplane Characteristics, Seaplane Bases, Maritime Rules, and Aids to Marine Navigation (ASES, AMES)
III. Preflight Preparation			
A. Certificates and Documents	COM	I. Preflight Preparation	A-Pilot Qualifications
	AI	I. Preflight Preparation	A-Certificates and Documents: Add training requirements and privileges and limitations and logbook entries for pilot certificates up through commercial.
B. Weather Information	COM	I. Preflight Preparation	C-Weather Information
C. Operation of Systems	PVT	I. Preflight Preparation	G-Operation of Systems
D. Performance and Limitations	COM	I. Preflight Preparation	F-Performance and Limitations
E. Airworthiness Requirements	COM	I. Preflight Preparation	B-Airworthiness Requirements
IV. Preflight Lesson on a Maneuver to be Performed in Flight			
A. Maneuver Lesson	AI	IV. Preflight Lesson on a Maneuver to be Performed in Flight	A-Maneuver Lesson

FAA–S-8081-6D (FLIGHT INSTRUCTOR PTS – AIRPLANE) Section 1: Flight Instructor – Airplane Single-Engine	ACS	ACS AREA OF OPERATION	ACS TASK
V. Preflight Procedures			
A. Preflight Inspection (ASEL and ASES)	COM	II. Preflight Procedures	A-Preflight Assessment
B. Cockpit Management (ASEL and ASES)	COM	II. Preflight Procedures	B-Cockpit Management
C. Engine Starting (ASEL and ASES)	COM	II. Preflight Procedures	C-Engine Starting
D. Taxiing—Landplane (ASEL)	COM	II. Preflight Procedures	D-Taxiing
E. Taxiing—Seaplane (ASES)	COM	II. Preflight Procedures	E-Taxiing and Sailing (ASES, AMES)
F. Sailing (ASES)	COM	II. Preflight Procedures	E-Taxiing and Sailing (ASES, AMES)
G. Before Takeoff Check (ASEL and ASES)	COM	II Preflight Procedures	F-Before Takeoff Check
VI. Airport and Seaplane Base Operations			
A. Radio Communications and ATC Light Signals (ASEL and ASES)	COM	III. Airport Operations	A-Radio Communications and ATC Light Signals
B. Traffic Patterns (ASEL and ASES)	COM	III. Airport Operations	B-Traffic Patterns
C. Airport/Seaplane Base, Runway and Taxiway Signs, Markings, and Lighting (ASEL and ASES)	COM	II. Preflight Procedures	D-Taxiing (ASEL, AMEL) E-Taxiing and Sailing (ASES, ASEL)
VII. Takeoffs, Landings, and Go-Arounds			
A. Normal and Crosswind Takeoff and Climb (ASEL and ASES)	COM	IV. Takeoffs, Landings, and Go-Arounds	A-Normal Takeoff and Climb
B. Short-Field (Confined Area ASES) Takeoff and Maximum Performance Climb (ASEL and ASES)	COM	IV. Takeoffs, Landings, and Go-Arounds	E-Short-Field Takeoff and Maximum Performance Climb
C. Soft-Field Takeoff and Climb (ASEL)	COM	IV. Takeoffs, Landings, and Go-Arounds	C-Soft-Field Takeoff and Climb
D. Glassy-Water Takeoff and Climb (ASES)	COM	IV. Takeoffs, Landings, and Go-Arounds	I-Glassy Water Takeoff and Climb (ASES, AMES)
E. Rough-Water Takeoff and Climb (ASES)	COM	IV. Takeoffs, Landings, and Go-Arounds	K- Rough Water Takeoff and Climb (ASES, AMES)
F. Normal and Crosswind Approach and Landing (ASEL and ASES)	COM	IV. Takeoffs, Landings, and Go-Arounds	B-Normal Approach and Landing
G. Slip to a Landing (ASEL and ASES)	PVT	IV. Takeoffs, Landings, and Go-Arounds	G-Forward Slip to a Landing
H. Go-Around/Rejected Landing (ASEL and ASES)	COM	IV. Takeoffs, Landings, and Go-Arounds	M-Go-Around/Rejected Landing

FAA–S-8081-6D (FLIGHT INSTRUCTOR PTS – AIRPLANE) Section 1: Flight Instructor – Airplane Single-Engine	ACS	ACS AREA OF OPERATION	ACS TASK
I. Short-Field (Confined Area ASES) Approach and Landing (ASEL and ASES)	COM	IV. Takeoffs, Landings, and Go-Arounds	F-Short Field Approach and Landing
J. Soft-Field Approach and Landing (ASEL)	COM	IV. Takeoffs, Landings, and Go-Arounds	D-Soft-Field Approach and Landing
K. Power-Off 180° Accuracy Approach and Landing (ASEL)	COM	IX. Emergency Operations	B-Emergency Descent and Landing (Simulated)
L. Glassy-Water Approach and Landing (ASES)	COM	IV. Takeoffs, Landings, and Go-Arounds	J- Glassy Water Approach and Landing (ASES, AMES)
M. Rough-Water Approach and Landing (ASES)	COM	IV. Takeoffs, Landings, and Go-Arounds	L- Rough Water Approach and Landing (ASES, AMES)
VIII. Fundamentals of Flight			
A. Straight-and-Level Flight (ASEL and ASES)	AI	V. Fundamentals of Flight	A-Straight-and-Level Flight
B. Level Turns (ASEL and ASES)	AI	V. Fundamentals of Flight	B-Level Turns
C. Straight Climbs and Climbing Turns (ASEL and ASES)	AI	V. Fundamentals of Flight	C-Straight Climbs and Climbing Turns
D. Straight Descents and Descending Turns (ASEL and ASES)	AI	V. Fundamentals of Flight	D-Straight Descents and Descending Turns
IX. Performance Maneuvers			
A. Steep Turns (ASEL and ASES)	COM	V. Performance Maneuvers	A-Steep Turns
B. Steep Spirals (ASEL and ASES)	COM	IX. Emergency Operations	B-Emergency Descent and Landing (Simulated)
C. Chandelles (ASEL and ASES)	COM	V. Performance Maneuvers	B-Chandelles
D. Lazy Eights (ASEL and ASES)	COM	V. Performance Maneuvers	C-Lazy Eights
X. Ground Reference Maneuvers			
A. Rectangular Course (ASEL and ASES)	PVT	V. Performance Maneuvers	B-Ground Reference Maneuvers
B. S-Turns Across a Road (ASEL and ASES)	PVT	V. Performance Maneuvers	S-Turns, Rectangular Course, and Turns Around a Point all combined into Ground Reference Maneuvers
C. Turns Around a Point (ASEL and ASES)	PVT	V. Performance Maneuvers	S-Turns, Rectangular Course, and Turns Around a Point all combined into Ground Reference Maneuvers
D. Eights on Pylons (ASEL and ASES)	COM	V. Performance Maneuvers	D-Eights on Pylons

FAA–S-8081-6D (FLIGHT INSTRUCTOR PTS – AIRPLANE) Section 1: Flight Instructor – Airplane Single-Engine	ACS	ACS AREA OF OPERATION	ACS TASK
XI. Slow Flight, Stalls, and Spins			
A. Maneuvering During Slow Flight (ASEL and ASES)	AI	VI. Slow Flight, Stalls, and Spins	A-Maneuvering During Slow Flight
B. Power-On Stalls (Proficiency) (ASEL and ASES)	AI	VI. Slow Flight, Stalls, and Spins	B-Power-On Stalls (Proficiency)
C. Power-Off Stalls (Proficiency) (ASEL and ASES)	AI	VI. Slow Flight, Stalls, and Spins	C-Power-Off Stalls (Proficiency)
D. Cross-controlled Stalls (Demonstration) (ASEL and ASES)	AI	VI. Slow Flight, Stalls, and Spins	D-Cross-controlled Stalls (Demonstration)
E. Elevator Trim Stalls (Demonstration) (ASEL and ASES)	AI	VI. Slow Flight, Stalls, and Spins	E-Elevator Trim Stalls (Demonstration)
F. Secondary Stalls (Demonstration) (ASEL and ASES)	AI	VI. Slow Flight, Stalls, and Spins	F-Secondary Stalls (Demonstration)
G. Spins (ASEL)	AI	VI. Slow Flight, Stalls, and Spins	G. Spins
H. Accelerated Maneuver Stalls (Demonstration) (ASEL and ASES)	AI	VI. Slow Flight, Stalls, and Spins	H. Accelerated Maneuver Stalls (Demonstration)
XII. Basic Instrument Maneuvers			
A. Straight-and-Level Flight (ASEL and ASES)	PVT	VIII. Emergency Operations	A-Inadvertent IMC
B. Constant Airspeed Climbs (ASEL and ASES)	PVT	VIII. Emergency Operations	All BIM tasks combined into Inadvertent IMC.
C. Constant Airspeed Descents (ASEL and ASES)	PVT	VIII. Emergency Operations	All BIM tasks combined into Inadvertent IMC.
D. Turns to Headings (ASEL and ASES)	PVT	VIII. Emergency Operations	All BIM tasks combined into Inadvertent IMC.
E. Recovery from Unusual Flight Attitudes (ASEL and ASES)	PVT	VIII. Emergency Operations	All BIM tasks combined into Inadvertent IMC.
XIII. Emergency Procedures			
A. Emergency Approach and Landing (Simulated) (ASEL and ASES)	COM	VIII. Emergency Operations	A-Power Failure at Altitude (Simulated)
B. Systems and Equipment Malfunctions (ASEL and ASES)	COM	VIII. Emergency Operations	B-Emergency Descent and Landing (Simulated)
C. Emergency Equipment and Survival Gear (ASEL and ASES)	COM	VIII. Emergency Operations	D-Emergency Equipment and Survival Gear
D. Emergency Descent (ASEL and ASES)	COM	VIII. Emergency Operations	B-Emergency Descent and Landing (Simulated)

FAA–S-8081-6D (FLIGHT INSTRUCTOR PTS – AIRPLANE) Section 1: Flight Instructor – Airplane Single-Engine	ACS	ACS AREA OF OPERATION	ACS TASK
XIV. Postflight Procedures			
A. Postflight Procedures (ASEL and ASES)	COM	XI. Postflight Procedures	A-Parking, and Securing
B. Anchoring (ASES)	COM	XI. Postflight Procedures	B- Seaplane Post-Landing Procedures (ASES, AMES)
C. Docking and Mooring (ASES)	COM	XI. Postflight Procedures	B- Seaplane Post-Landing Procedures (ASES, AMES)
D. Beaching (ASES)	COM	XI. Postflight Procedures	B- Seaplane Post-Landing Procedures (ASES, AMES)
E. Ramping (ASES)	COM	XI. Postflight Procedures	B- Seaplane Post-Landing Procedures (ASES, AMES)

FAA–S-8081-6D (FLIGHT INSTRUCTOR PTS – AIRPLANE) Section 2: Flight Instructor – Airplane Multi-Engine	ACS	ACS AREA OF OPERATION	ACS TASK
I. Fundamentals of Instructing			
A. Human Behavior and Effective Communication	AI	I. Fundamentals of Instructing	B-Human Behavior and Effective Communication
B. The Learning Process	AI	I. Fundamentals of Instructing	A-Learning Process
C. The Teaching Process	AI	I. Fundamentals of Instructing	C-Teaching Process
D. Assessment and Critique	AI	I. Fundamentals of Instructing	E- Assessment
E. Instructor Responsibilities and Professionalism	AI	I. Fundamentals of Instructing	F-Flight Instructor Characteristics and Responsibilities
F. Techniques of Flight Instruction	AI	I. Fundamentals of Instructing	D-Teaching Methods
G. Risk Management	AI	Introduction	RM incorporated into all ACS proficiency tasks for which the instructor-applicant will demonstrate instructional knowledge
II. Technical Subject Areas			
A. Aeromedical Factors	COM	I. Preflight Preparation	H-Human Factors
B. Runway Incursion Avoidance	COM	II. Preflight Procedures	D-Taxiing
C. Visual Scanning and Collision Avoidance	COM	I. Preflight Preparation	H-Human Factors
–	COM	III. Airport Operations	B-Traffic Patterns
–	COM	IV. Takeoffs, Landings, and Go-Arounds	B-Normal Approach and Landing D-Soft-Field Approach and Landing
–	COM	V. Performance Maneuvers	B-Chandelles C-Lazy Eights
–	COM	V. Performance Maneuvers	A-Eights on Pylons
–	COM	VIII. Emergency Operations	B-Emergency Descent and Landing (Simulated)
D. Principles of Flight	AI	II. Technical Subject Areas	A-Principles of Flight
E. Airplane Flight Controls	PVT	I. Preflight Preparation	G-Operation of Systems
F. Airplane Weight and Balance	COM	I. Preflight Preparation	F-Performance and Limitations

FAA–S-8081-6D (FLIGHT INSTRUCTOR PTS – AIRPLANE) Section 2: Flight Instructor – Airplane Multi-Engine	ACS	ACS AREA OF OPERATION	ACS TASK
G. Navigation and Flight Planning	COM	I. Preflight Preparation	D-Cross-Country Flight Planning
H. Night Operations	PVT	X. Night Operation	A- Night Preparation
I. High Altitude Operations	COM	X. High Altitude Operations	A-Supplemental Oxygen B- Pressurization
J. 14 CFR and Publications	AI	II. Technical Subject Areas	B-14 CFR and Publications
K. National Airspace System	COM	I. Preflight Preparation	E-National Airspace System
L. Navigation Systems and Radar Services	COM	VI. :Navigation	B-Navigation Systems and Radar Services
M. Logbook Entries and Certificate Endorsements	AI	II. Technical Subject Areas	C-Logbook Entries and Certificate Endorsements
N. Water and Seaplane Characteristics (AMES)	COM	I. Preflight Preparation	I-Water and Seaplane Characteristics, Seaplane Bases, Maritime Rules, and Aids to Marine Navigation (ASES, AMES)
O. Seaplane Bases, Rules, and Aids to Marine Navigation (AMES)	COM	I. Preflight Preparation	I-Water and Seaplane Characteristics, Seaplane Bases, Maritime Rules, and Aids to Marine Navigation (ASES, AMES)
III. Preflight Preparation			
A. Certificates and Documents	COM	I. Preflight Preparation	A-Pilot Qualifications
	AI	I. Preflight Preparation	A-Certificates and Documents: Add training requirements and privileges and limitations and logbook entries for pilot certificates up through commercial.
B. Weather Information	COM	I. Preflight Preparation	C-Weather Information
C. Operation of Systems	PVT	I. Preflight Preparation	G-Operation of Systems
D. Performance and Limitations	COM	I. Preflight Preparation	F-Performance and Limitations
E. Airworthiness Requirements	COM	I. Preflight Preparation	B-Airworthiness Requirements
IV. Preflight Lesson on a Maneuver to be Performed in Flight			
A. Maneuver Lesson	AI	IV. Preflight Lesson on a Maneuver to be Performed in Flight	A-Maneuver Lesson
V. Preflight Procedures			
A. Preflight Inspection (AMEL and AMES)	COM	II. Preflight Procedures	A-Preflight Assessment

FAA–S-8081-6D (FLIGHT INSTRUCTOR PTS – AIRPLANE) Section 2: Flight Instructor – Airplane Multi-Engine	ACS	ACS AREA OF OPERATION	ACS TASK
B. Cockpit Management (AMEL and AMES)	COM	II. Preflight Procedures	B-Cockpit Management
C. Engine Starting (AMEL and AMES)	COM	II. Preflight Procedures	C-Engine Starting
D. Taxiing—Landplane (AMEL)	COM	II. Preflight Procedures	D-Taxiing
E. Taxiing—Seaplane (AMES)	COM	II. Preflight Procedures	E-Taxiing and Sailing (ASES, AMES)
F. Sailing (AMES)	COM	II. Preflight Procedures	E-Taxiing and Sailing (ASES, AMES)
G. Before Takeoff Check (AMEL and AMES)	COM	II Preflight Procedures	F-Before Takeoff Check
VI. Airport and Seaplane Base Operations			
A. Radio Communications and ATC Light Signals (AMEL and AMES)	COM	III. Airport Operations	A-Radio Communications and ATC Light Signals
B. Traffic Patterns (AMEL and AMES)	COM	III. Airport Operations	B-Traffic Patterns
C. Airport/Seaplane Base, Runway and Taxiway Signs, Markings, and Lighting (AMEL and AMES)	COM	II. Preflight Procedures	D-Taxiing (ASEL, AMEL) E-Taxiing and Sailing (ASES, ASEL)
VII. Takeoffs, Landings, and Go-Arounds			
A. Normal and Crosswind Takeoff and Climb (AMEL and AMES)	COM	IV. Takeoffs, Landings, and Go-Arounds	A-Normal Takeoff and Climb
B. Short-Field (Confined Area AMES) Takeoff and Maximum Performance Climb (AMEL and AMES)	COM	IV. Takeoffs, Landings, and Go-Arounds	E-Short-Field Takeoff and Maximum Performance Climb
C. Glassy-Water Takeoff and Climb (AMES)	COM	IV. Takeoffs, Landings, and Go-Arounds	I-Glassy Water Takeoff and Climb (ASES, AMES)
D. Rough-Water Takeoff and Climb (AMES)	COM	IV. Takeoffs, Landings, and Go-Arounds	K- Rough Water Takeoff and Climb (ASES, AMES)
E. Normal and Crosswind Approach and Landing (AMEL and AMES)	COM	IV. Takeoffs, Landings, and Go-Arounds	B-Normal Approach and Landing
F. Go-Around/Rejected Landing (AMEL and AMES)	COM	IV. Takeoffs, Landings, and Go-Arounds	M-Go-Around/Rejected Landing
G. Short-Field (Confined Area AMES) Approach and Landing (AMEL and AMES)	COM	IV. Takeoffs, Landings, and Go-Arounds	F-Short Field Approach and Landing
H. Glassy-Water Approach and Landing (AMES)	COM	IV. Takeoffs, Landings, and Go-Arounds	J- Glassy Water Approach and Landing (ASES, AMES)
I. Rough-Water Approach and Landing (AMES)	COM	IV. Takeoffs, Landings, and Go-Arounds	L- Rough Water Approach and Landing (ASES, AMES)
VIII. Fundamentals of Flight			
A. Straight-and-Level Flight (AMEL and ASES)	AI	V. Fundamentals of Flight	A-Straight-and-Level Flight

FAA–S-8081-6D (FLIGHT INSTRUCTOR PTS – AIRPLANE) Section 2: Flight Instructor – Airplane Multi-Engine	ACS	ACS AREA OF OPERATION	ACS TASK
B. Level Turns (AMEL and ASES)	AI	V. Fundamentals of Flight	B-Level Turns
C. Straight Climbs and Climbing Turns (AMEL and AMES)	AI	V. Fundamentals of Flight	C-Straight Climbs and Climbing Turns
D. Straight Descents and Descending Turns (AMEL and AMES)	AI	V. Fundamentals of Flight	D-Straight Descents and Descending Turns
IX. Performance Maneuvers			
A. Steep Turns (AMEL and AMES)	COM	V. Performance Maneuvers	A-Steep Turns
X. Ground Reference Maneuvers			
A. Rectangular Course (AMEL and AMES)	PVT	V. Performance Maneuvers	B-Ground Reference Maneuvers
B. S-Turns Across a Road (AMEL and AMES)	PVT	V. Performance Maneuvers	S-Turns, Rectangular Course, and Turns Around a Point all combined into Ground Reference Maneuvers
C. Turns Around a Point (AMEL and AMES)	PVT	V. Performance Maneuvers	S-Turns, Rectangular Course, and Turns Around a Point all combined into Ground Reference Maneuvers
XI. Slow Flight, Stalls, and Spins			
A. Maneuvering During Slow Flight (AMEL and AMES)	AI	VI. Slow Flight, Stalls, and Spins	A-Maneuvering During Slow Flight
B. Power-On Stalls (AMEL and AMES)	AI	VI. Slow Flight, Stalls, and Spins	B-Power-On Stalls (Proficiency)
C. Power-Off Stalls (AMEL and AMES)	AI	VI. Slow Flight, Stalls, and Spins	C-Power-Off Stalls (Proficiency)
D. Accelerated Maneuver Stalls (Demonstration) (AMEL and AMES)	AI	VI. Slow Flight, Stalls, and Spins	H. Accelerated Maneuver Stalls (Demonstration)
XII. Basic Instrument Maneuvers			
A. Straight-and-Level Flight (AMEL and AMES)	PVT	VIII. Emergency Operations	A-Inadvertent IMC
B. Constant Airspeed Climbs (AMEL and AMES)	PVT	VIII. Emergency Operations	All BIM tasks combined into Inadvertent IMC.
C. Constant Airspeed Descents (AMEL and AMES)	PVT	VIII. Emergency Operations	All BIM tasks combined into Inadvertent IMC.
D. Turns to Headings (AMEL and AMES)	PVT	VIII. Emergency Operations	All BIM tasks combined into Inadvertent IMC.
E. Recovery from Unusual Flight Attitudes (AMEL and AMES)	PVT	VIII. Emergency Operations	All BIM tasks combined into Inadvertent IMC.
XIII. Emergency Procedures			

FAA–S-8081-6D (FLIGHT INSTRUCTOR PTS – AIRPLANE) Section 2: Flight Instructor – Airplane Multi-Engine	ACS	ACS AREA OF OPERATION	ACS TASK
A. Systems and Equipment Malfunctions (AMEL and AMES)	COM	VIII. Emergency Operations	C-Emergency Descent and Landing (Simulated)
B. Engine Failure during Takeoff Before Vmc (AMEL and AMES)	COM	VIII. Emergency Operations	E-Engine Failure During Takeoff Before Vmc (Simulated) (AMEL, AMES)
C. Engine Failure After Lift-Off (AMEL and AMES)	COM	VIII. Emergency Operations	F-Engine Failure After Lift-Off (Simulated) (AMEL, AMES)
D. Approach and Landing with an Inoperative Engine (AMEL and AMES)	COM	VIII. Emergency Operations	G- Approach and Landing with an Inoperative Engine (AMEL and AMES)
E. Emergency Descent (AMEL and AMES)	COM	VIII. Emergency Operations	B-Emergency Descent and Landing (Simulated)
F. Emergency Equipment and Survival Gear (AMEL and AMES)	COM	VIII. Emergency Operations	E-Emergency Equipment and Survival Gear
XIV. Multiengine Operations			
A. Operation of Systems (AMEL and AMES)	COM	I. Preflight Preparation	G-Operation of Systems
B. Performance and Limitations (AMEL and AMES)	COM	I. Preflight Preparation	F-Performance and Limitations
C. Flight Principles – Engine Inoperative (AMEL and AMES)	COM	I. Preflight Preparation	J-Principles of Flight – Engine Inoperative (AMEL, AMES)
D. Maneuvering with One Engine Inoperative (AMEL and AMES)	COM	IX. Multiengine Operations	A-Maneuvering with One Engine Inoperative (AMEL, AMES)
E. Demonstrating the Effects of Various Airspeeds and Configurations during Engine Inoperative Performance (AMEL and AMES)	COM	IX. Multiengine Operations	D-Instrument Approach and Landing with an Inoperative Engine (Simulated) by Reference to Instruments (AMEL, AMES)
XV. Postflight Procedures			
A. Postflight Procedures (AMEL and AMES)	COM	XI. Postflight Procedures	A-Parking, and Securing
B. Anchoring (ASES)	COM	XI. Postflight Procedures	B- Seaplane Post-Landing Procedures (ASES, AMES)
C. Docking and Mooring (ASES)	COM	XI. Postflight Procedures	B- Seaplane Post-Landing Procedures (ASES, AMES)
D. Beaching (ASES)	COM	XI. Postflight Procedures	B- Seaplane Post-Landing Procedures (ASES, AMES)
E. Ramping (ASES)	COM	XI. Postflight Procedures	B- Seaplane Post-Landing Procedures (ASES, AMES)

Legend:

Authorized Instructor ACS	Not Covered - Added to AI	Private (PVT) ACS	Commercial (COM) ACS

FAA-S-8081-XX

U.S. Department
of Transportation

**Federal Aviation
Administration**

AUTHORIZED INSTRUCTOR

Airman Certification Standards

Date TBD

**FLIGHT STANDARDS SERVICE
Washington, DC 20591**

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AVAILABILITY

This ACS is available for download from www.faa.gov. Please send comments regarding this document to AFS630comments@faa.gov.

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FOREWORD

The Federal Aviation Administration (FAA) has published the Authorized Instructor Airman Certification Standards (ACS) document to communicate the aeronautical knowledge, flight proficiency, and risk management standards for authorized instructor certification. This ACS incorporates and supersedes the previous Practical Test Standards (PTS).

The FAA views the ACS as the foundation of its transition to a more integrated and systematic approach to airman certification. The ACS is part of the safety management system (SMS) framework that the FAA uses to mitigate risks associated with airman certification training and testing to an acceptable level. Specifically, the ACS, associated guidance, and test item bank question components of the airman certification system are constructed around the four functional components of an SMS:

- Safety Policy that defines and describes aeronautical knowledge, flight proficiency, and risk management as integrated components of the airman certification system;
- Safety Risk Management processes through which internal and external stakeholders identify and evaluate regulatory changes, safety recommendations, or other factors that require modification of airman testing and training materials;
- Safety Assurance processes to ensure the prompt and appropriate incorporation of changes arising from new regulations and safety recommendations; and
- Safety Promotion in the form of ongoing engagement with both external stakeholders (e.g., the aviation training industry) and FAA policy divisions.

In this connection, the FAA gratefully acknowledges and deeply appreciates the many hours that aviation training experts throughout the industry have contributed to the development of this ACS, along with the associated guidance and a more systematic approach to knowledge test question development. This kind of collaboration, a hallmark of a robust safety culture, strengthens and enhances aviation safety at every level of the airman certification system.

John S. Duncan
Acting Director, Flight Standards Service

INTRODUCTION

Airman Certification Standards Concept

The aviation instructor plays a critical role in safety of the National Airspace System (NAS). Accordingly, the goal of the certification process for instructors is to ensure the instructor-applicant is ready to teach the knowledge and skills consistent with the privileges of the certificate or rating to be exercised and prepare the learner to safely manage the risks of flight as pilot-in-command. In fulfilling its responsibilities for the airman certification process, the Federal Aviation Administration (FAA) Flight Standards Service (AFS) plans, develops, and maintains materials related to airman certification training and testing.

Historically, these materials have included several components. The FAA knowledge test measures mastery of the aeronautical knowledge areas listed in Title 14 of the Code of Federal Regulations (14 CFR) part 61. The Practical Test Standards (PTS) defined the acceptable parameters of flight proficiency in the Areas of Operation listed in 14 CFR part 61. FAA handbooks (FAA-H-8083-XX series), computer testing supplements (FAA-CT-8080-XX series), and other materials provide guidance to applicants, instructors, and evaluators on aeronautical knowledge, flight proficiency, and risk management.

The FAA recognizes that safe operations in today's complex NAS require a more systematic integration of aeronautical knowledge, flight proficiency standards, and risk management. The FAA further recognizes the need to more clearly calibrate knowledge, skills, and risk management according to the level of the certificate or rating. To that end, the FAA drew upon the expertise of organizations and individuals across the aviation community to develop the Airman Certification Standards (ACS). The ACS incorporates and supersedes the PTS.

NOTE: As used in this ACS, an evaluator is any person authorized to conduct airman testing (e.g., an FAA aviation safety inspector, designated pilot examiner, or other individual authorized to conduct a practical test.

Using the ACS

The ACS consists of ***Areas of Operation*** arranged in a logical sequence that begins with Fundamentals of Instructing and Technical Subject Areas, followed by Preflight Preparation, Preflight Lesson on a Maneuver to be Performed in Flight, and Fundamentals of Flight. The final Area of Operation in the Authorized Instructor ACS is Slow Flight, Stalls, and Spins. Each Area of Operation includes ***Tasks*** appropriate to that Area of Operation.

Each Task begins with an ***Objective*** stating what the applicant should know and/or do. The ACS then lists the aeronautical knowledge, skills, and risk management elements relevant to the specific Task, along with the conditions and standards for acceptable performance. The ACS uses ***Notes*** to emphasize special considerations. The ACS uses the terms "will" and "must" to convey directive (mandatory) information. The terms "should" and "may" denote items that are recommended but not required.

Each Task in the ACS is coded according to a scheme that includes up to five elements. For example:

AI.I.E.K12a:

AI	=	Applicable ACS (authorized instructor)
I	=	Area of Operation (fundamentals of instructing)
E	=	Task (assessment)
K12	=	Knowledge Task Element 12 (consequences of ineffective critiques)

NOTE: A fifth element may be used to indicate the level of learning: a = rote; b = understanding; c = application; d = correlation.

Knowledge test questions are mapped to the ACS codes, which replace the previous system of “Learning Statement Codes.” Because the airman knowledge test report will list an ACS code that correlates to a specific Task Element for a given Area of Operation and Task, remedial instruction and re-testing will be specific, targeted, and based on specified learning criteria. Similarly, a Notice of Disapproval for the practical test will use the ACS codes to identify the deficient skill(s).

The applicant must pass the knowledge test before taking the practical test. The practical test is conducted in accordance with the ACS that is current as of the date of the test. The applicant must pass the oral portion of the practical test before beginning the flight portion, because the oral portion of the practical test allows the evaluator to determine whether the applicant is sufficiently prepared to advance to the flight portion of the practical test. The FAA encourages applicants and instructors to use the ACS to measure progress during training, and as a reference to ensure the applicant is adequately prepared for the knowledge and practical tests.

The purpose of the Authorized Instructor ACS is to define the acceptable performance standards for instructional knowledge and skill, including the Fundamentals of Instructing (FOI) concepts listed in 14 CFR part 61. It is important for the instructor-applicant to understand that the FOI portion of the Authorized Instructor ACS stresses practical application of effective instructional concepts and techniques. For example, the Authorized Instructor ACS uses the term ***plan of action*** to describe the expectation that for any given Task, a competent instructor can develop and execute a flexible instructional plan of action to teach the knowledge, skill, and risk management requirements for that Task. Where appropriate to the Task, the instructional plan of action should incorporate realistic scenarios that require the learner to correctly apply and/or correlate the target knowledge, skill, and risk management elements to specific circumstances.

The Authorized Instructor ACS includes sections that define the acceptable standards for knowledge, skills, and risk management in the aeronautical proficiency tasks unique to a particular instructor certificate or rating.

Instructor-Applicants, instructors, and evaluators should understand, however, that the Authorized Instructor ACS is not a stand-alone document. Rather, it is to be used in conjunction with the pilot certificate level or rating ACS for which the instructor-applicant seeks authorization to provide instruction. Therefore, in addition to mastery of the knowledge and skills defined in the Authorized Instructor ACS, the instructor-applicant must demonstrate instructional competence with the Tasks in the ACS for the appropriate certificate level or rating, to include analyzing and correcting common learner errors.

The FAA will revise the ACS as circumstances require.

Knowledge Tests for Instructor Certificates and Ratings

Code	Title	Questions	Time
FOI	**Fundamentals of Instructing**	50	1.5
MCI	**Military Competency Instructor**	125	3.0
	Ground Instructor		
BGI	Basic Ground Instructor	80	2.5
AGI	Advanced Ground Instructor	100	2.5
IGI	Instrument Ground Instructor	50	2.5
	Airplane		
FIA	Flight Instructor – Airplane	100	2.5
AFA	Flight Instructor – Airplane-Added Rating	25	1.0
FII	Flight Instructor – Instrument Airplane	50	2.5
AIF	Flight instructor – Instrument Airplane – Added Rating	25	1.0
	Helicopter		
FRH	Flight Instructor – Rotorcraft Helicopter	100	2.5
HFA	Flight Instructor – Helicopter-Added Rating	25	1.0
FIH	Flight Instructor – Instrument Helicopter	50	2.5
HIF	Flight Instructor – Instrument Helicopter – Added Rating	25	1.0
	Gyroplane		
FRG	Flight Instructor – Gyroplane	100	2.5
GFA	Flight Instructor – Gyroplane – Added Rating	25	1.0
	Glider		
FIG	Flight Instructor – Glider	100	2.5
AFG	Flight Instructor – Glider – Added Rating	25	1.0
	Sport Pilot		
SIA	Flight Instructor – Sport Airplane	70	2.5
SIB	Flight Instructor – Sport Balloon	70	2.5
SIG	Flight Instructor – Sport Glider	70	2.5
SIL	Flight Instructor – Sport Lighter-Than-Air (Airship)	70	2.5
SIP	Flight Instructor – Sport Powered Parachute	70	2.5
SIW	Flight Instructor – Sport Weight-Shift-Control	70	2.5
SIY	Flight Instructor – Sport Gyroplane	70	2.5

Instructor Ratings Held

Instructor Rating Sought	None	BGI	AGI	IGI	ASE	AME	IA	RH	IH	RG	G
BGI	FOI* BGI	–	BGI	BGI	BGI	BGI	BGI	BGI	BGI	BGI	BGI
AGI	FOI* AGI	AGI	–	AGI	AGI	AGI	AGI	AGI	AGI	AGI	AGI
IGI	FOI* IGI	IGI	IGI	–	IGI	IGI	IGI	IGI	IGI	IGI	IGI
ASE	FOI* FIA	FIA	FIA	FIA	–	–	FIA	AFA	FIA	AFA	AFA
AME	FOI* FIA	FIA	FIA	FIA	–	–	FIA	AFA	FIA	AFA	AFA
IA	FOI* FII	FII	FII	FII	FII	FII	–	FII	AIF	FII	AIF
RH	FOI* FRH	FIH	FIH	FIH	HFA	HFA	FIH	–	FIH	HFA	HFA
IH	FOI* FIH	FIH	FIH	FIH	FIH	FIH	HIF	FIH	–	FIH	FIH
RG	FOI* FRG	FRG	FRG	FRG	GFA	GFA	FRG	GFA	FRG	–	GFA
G	FOI* FIG	FIG	FIG	FIG	AFG	AFG	FIG	AFG	AFG	FIG	–
HELD	**None**	**BGI**	**AGI**	**IGI**	**SIA**	**SIB**	**SIG**	**SIL**	**SIP**	**SIW**	**SIY**
SIA	FOI SIA	SIA	SIA	SIA	–	**	**	**	**	**	**
SIB	FOI SIB	SIB	SIB	SIB	**	–	**	**	**	**	**
SIG	FOI SIG	SIG	SIG	SIG	**	**	–	**	**	**	**
SIL	FOI SIL	SIL	SIL	SIL	**	**	**	–	**	**	**
SIP	FOI SIP	SIP	SIP	SIP	**	**	**	**	–	**	**
SIW	FOI SIW	SIW	SIW	SIW	**	**	**	**	**	–	**
SIY	FOI SIY	SIY	SIY	SIY	**	**	**	**	**	**	–

* The instructor-applicant does not have to take the FOI test if he or she meets the requirements of 14 CFR 61.183, or 14 CFR 61.73.

** Flight Instructors with Sport Pilot Rating seeking additional category/class privileges comply with the requirements of 14 CFR 61.419(a).

NOTE: The Military Competency Instructor (MCI) Knowledge Test incorporates the FOI, CFI, and CFII knowledge areas in a single test. As long as the instructor-applicant meets the requirements of 14 CFR 61.73 and passes the MCI knowledge test, the evaluator may issue the appropriate instructor ratings.

Legend:

AFA	Flight Instructor – Airplane-Added Rating
AFG	Flight Instructor – Glider – Added Rating
AGI	Advanced Ground Instructor
AIF	Flight instructor – Instrument Airplane – Added Rating
AME	Airplane Multiengine
ASE	Airplane Single Engine
BGI	Basic Ground Instructor
FIA	Flight Instructor – Airplane
FIG	Flight Instructor – Glider
FIH	Flight Instructor – Instrument Helicopter
FII	Flight Instructor – Instrument Airplane
FRG	Flight Instructor – Gyroplane
G	Glider
GFA	Flight Instructor – Gyroplane – Added Rating
HFA	Flight Instructor – Helicopter-Added Rating
HIF	Flight Instructor – Instrument Helicopter – Added Rating
IA	Instrument Airplane
IGI	Instrument Ground Instructor
IH	Instrument Helicopter
RG	Rotorcraft Gyroplane
RH	Rotorcraft Helicopter
SIA	Flight Instructor – Sport Airplane
SIB	Flight Instructor – Sport Balloon
SIG	Flight Instructor – Sport Glider
SIL	Flight Instructor – Sport Lighter-Than-Air (Airship)
SIP	Flight Instructor – Sport Powered Parachute
SIW	Flight Instructor – Sport Weight-Shift-Control
SIY	Flight Instructor – Sport Gyroplane

Aircraft and Equipment Required for the Practical Test

The aircraft the instructor-applicant uses for the practical test must:

- Be the appropriate Category and Class for the rating sought
- Be of U.S. Foreign, or military registry
- Have fully functioning dual controls, except as provided in 14 CFR 61.45
- Be capable of performing all appropriate Tasks for the instructor rating sought
- For airplanes:
    - A complex airplane must be used to demonstrate the takeoff, landing, and emergency procedures.
    - A complex landplane is one having retractable landing gear, flaps, and a controllable pitch propeller.
    - A complex seaplane is one having flaps, floats, and controllable pitch propeller.
    - Airplanes with a full authority digital engine control (FADEC) system are considered to have a controllable pitch propeller.
    - If an instructor-applicant holds an Airplane Multiengine Instructor Rating, they are not required to use a complex airplane for an added Airplane Single Engine instructor class rating.

Instructor Renewal or Reinstatement

An instructor may renew an unexpired, or reinstate an expired, flight instructor certificate by passing the practical test for any of the valid or expired flight instructor ratings held by the instructor-applicant.

On the practical test, the evaluator will assess the instructor-applicant on at least two Tasks in each of the Areas of Operation of the appropriate ACS.

The instructor-applicant who seeks renewal or reinstatement does not have to take a knowledge test. However, he or she will be evaluated on the practical application of the FOI and the risk management elements in the appropriate ACS. The instructor-applicant is not required to test in a complex airplane if using an airplane to renew or reinstate the flight instructor certificate.

Renewing or reinstating any of the flight instructor ratings on a valid or expired flight instructor certificate will renew or reinstate all flight instructor ratings on that certificate.

SECTION 1: GROUND INSTRUCTOR

Completion Standards

A. Basic Ground Instructor

(1) Pass the Fundamentals of Instructing Knowledge Test (if required).

(2) Pass a knowledge test of the tasks contained in the Sport Pilot, Recreational Pilot, and Private Pilot ACS.

B. Advanced Ground Instructor

(1) Pass the Fundamentals of Instructing Knowledge Test (if required)

(2) Pass a knowledge test of the tasks contained in the Sport Pilot, Recreational Pilot, Private Pilot and Commercial Pilot ACS.

C. Instrument Ground Instructor

(1) Pass the Fundamentals of Instructing Knowledge Test (if required).

(2) Pass a knowledge test of the tasks contained in the Instrument Rating ACS.

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SECTION 2: CFI AIRPLANE

Completion Standards

A. Knowledge Test

(1) Pass the appropriate Knowledge Test.

B. Practical Test

(2) To determine the instructor-applicant can:

(a) Demonstrate instructional competence in the tasks;
(b) Facilitate the learning of subject material;
(c) Explain and demonstrate the maneuvers;
(d) Exemplify risk management skills;
(e) Promote professionalism; and
(f) Analyze and correct common learner errors.

NOTE: Except for the six Areas of Operation included in this ACS (listed below), the Authorized Instructor ACS uses the appropriate Commercial Pilot ACS (except for the Slow Flight and Stalls Area of Operation) and the appropriate Private Pilot ACS for the Inadvertent Instrument Meteorological Conditions (IMC) Task in the Emergency Operations Area of Operation.

I. Fundamentals of Instructing
II. Technical Subject Areas ACS System Reference
III. Preflight Preparation
IV. Preflight Lesson on a Maneuver to be Performed in Flight
V. Fundamentals of Flight
VI. Slow Flight, Stalls, and Spins

I. Fundamentals of Instructing

Task	***A. Learning Process***
Reference	FAA-H-8083-9
Objective	To determine that the applicant exhibits instructional competence in the elements of the learning process and that the applicant can apply that knowledge when performing the duties of a certificated flight instructor.
Knowledge	The applicant demonstrates understanding of: 1. Definitions of learning and practical examples that demonstrate when learning has taken place. (AI.I.A.K1) 2. Various learning theories and their individual applications in flight instruction. (AI.I.A.K2) 3. Higher order thinking skills and their importance to pilots. (AI.I.A.K3) 4. Scenario-based training as it relates to learning higher order thinking skills. (AI.I.A.K4) 5. How learners acquire skill knowledge and how to encourage the acquisition process. (AI.I.A.K5) 6. Types of practice and the practical uses of each during flight training. (AI.I.A.K6) 7. Helping learners develop applied skills during flight training to: a. Incorporate multitasking. (AI.I.A.K7a) b. Retain focus during distractions and interruptions. (AI.I.A.K7b) c. Avoid fixation and inattention. (AI.I.A.K7c) 8. How to recognize and identify learner errors during flight training. (AI.I.A.K8) 9. Learner motivation in the learning process and instructor responsibilities regarding motivating learners to foster learning. (AI.I.A.K9) 10. Learner memory, associated learning challenges, and promoting retention of information. (AI.I.A.K10) 11. Transfer of learning in ground, simulation, and flight instruction activities. (AI.I.A.K11) 12. Consequences of: a. Faulty instruction. (AI.I.A.K12a) b. Unmotivated learners. (AI.I.A.K12b) c. Instruction not delivered on learner's level of understanding. (AI.I.A.K12c) d. Failing to recognize and correct learner errors. (AI.I.A.K12d)
Skills	The applicant demonstrates instructional ability to: 1. Provide instruction to the evaluator in a manner that demonstrates an operational understanding of the learning process. (AI.I.A.S1) 2. Present material in such a way as to encourage the development of higher order thinking skills. (AI.I.A.S2) 3. Adapt lesson delivery and/or content to account for differences in learning styles and abilities. (AI.I.A.S3) 4. Recognize and identify types and causes of learner errors during training. (AI.I.A.S4) 5. Explain the process of moving a learner through the levels of learning during a course of training. (AI.I.A.S5) 6. Use positive motivation during instructional activities. (AI.I.A.S6) 7. Explain positive and negative transfers of learning. (AI.I.A.S7) 8. Explain the qualities of effective training scenarios. (AI.I.A.S8)

Task	***B. Human Behavior and Effective Communication***
Reference	FAA-H-8083-9
Objective	To determine that the applicant exhibits instructional competence in the elements of human behavior and effective communication and how these impact effective teaching and learning.
Knowledge	The applicant demonstrates understanding of: 1. The influence of personality types and their effect on the instructor-learner relationship. (AI.I.B.K1) 2. Human needs and their influence on motivation. (AI.I.B.K2) 3. Defense mechanisms and how they negatively affect learning. (AI.I.B.K3) 4. How to counter learner defense mechanisms. (AI.I.B.K4) 5. Human motivation and what affects it. (AI.I.B.K5) 6. Normal and abnormal emotional reactions that may be displayed by the learner. (AI.I.B.K6) 7. The basic elements of communication. (AI.I.B.K7) 8. The barriers of effective communication and how to avoid them. (AI.I.B.K8) 9. Effective instructional communication techniques and the consequences of poor instructional communication techniques.(AI.I.B.K9)
Skills	The applicant demonstrates instructional ability to: 1. Give specific examples of how human needs could influence a learner's motivation. (AI.I.B.S1) 2. Give specific examples of how to counter defense mechanisms that a learner may use. (AI.I.B.S2) 3. Explain what an instructor can do to positively affect learner motivation. (AI.I.B.S3) 4. Explain what actions an instructor can do that will negatively affect learner motivation. (AI.I.B.S4) 5. Explain the normal emotional reactions that are a part of human behavior. (AI.I.B.S5) 6. Explain how to handle abnormal learner reactions. (AI.I.B.S6) 7. Explains the basic elements of communication. (AI.I.B.S7) 8. Give specific examples of barriers to effective communication, the consequences of them and how to avoid them. (AI.I.B.S8) 9. Demonstrates effective instructional communication techniques during all activities. (AI.I.B.S9)

Task	***C. Teaching Process***
Reference	FAA-H-8083-9
Objective	To determine that the applicant exhibits instructional competence in the elements of the teaching process.
Knowledge	The applicant demonstrates understanding of: 1. Essential teaching skills as they apply to personal strengths and weaknesses. (AI.I.C.K1) 2. Preparation of a lesson for a ground or flight instructional period. (AI.I.C.K2) 3. Various presentation methods and the ability to implement the appropriate method given the topic, learner, and available teaching aids. (AI.I.C.K3) 4. Assessment techniques that ensure the learner can properly apply the material or procedure that was presented. (AI.I.C.K4) 5. How to review and evaluate learner performance. (AI.I.C.K5) 6. How to guide a learner through self-critique and assessment. (AI.I.C.K6) 7. Scenario-based delivery methods. (AI.I.C.K7) 8. The consequences of failing to: a. Be aware of human behavior. (AI.I.C.K8a) b. Comprehend the learning process. (AI.I.C.K8b) c. Use methods of communication most effective and efficient for the learner. (AI.I.C.K8c) d. Be flexible in the teaching process as it pertains to learner personality and learning differences. (AI.I.C.K8d) e. Assess and teach the “why” behind the “what” of learner performance. (AI.I.C.K8e)
Skills	The applicant demonstrates instructional ability to: 1. Use a well-rounded approach to teaching delivery methods by utilizing personal strengths while improving weaknesses. (AI.I.C.S1) 2. Organize a lesson flow to engage the learner and make them active participants in the learning process. (AI.I.C.S2) 3. Choose a delivery method that is best suited for the learner based on an understanding of known learning tendencies. (AI.I.C.S3) 4. Recognize if the learner has truly learned the presented material by a change in behavior or philosophy. (AI.I.C.S4) 5. Not only assess basic topic knowledge and skill, but also the underlying causal factors and related elements, and then address them in a way the learner understands.(AI.I.C.S5) 6. Construct a realistic scenario that is multi-faceted and integrates numerous subject areas to evaluate a learner’s understanding of all content. (AI.I.C.S6)

Task	***D. Teaching Methods***
Reference	FAA-H-8083-9
Objective	To determine that the applicant exhibits instructional competence in the elements of the various methods of teaching information and skills and their appropriate application to instructional situations.
Knowledge	The applicant demonstrates understanding of: 1. The different training delivery methods for ground and flight instruction by describing appropriate use of lecture, discussion, problem-based learning, electronic-based learning, cooperative or group learning, and demonstration-performance. (AI.I.D.K1) 2. Why it may be appropriate to incorporate more than one method in an instructional session. (AI.I.D.K2) 3. How the organization of teaching materials may affect learner learning. (AI.I.D.K3) 4. The use of proper and correct source materials and the positive/negative value of developing supplementary material when preparing lessons. (AI.I.D.K4) 5. The use of instructional aids and training technologies appropriate to each method. (AI.I.D.K5)
Skills	The applicant demonstrates instructional ability to: 1. Prepare a plan of action to incorporate appropriate teaching methods and supporting materials for an assigned ACS task applicable to the instructor-applicant's certificate level, for the following situations: a. Aeronautical knowledge ground lesson applicable for a classroom. (AI.I.D.S1a) b. Maneuver ground lesson for an individual pilot in training. (AI.I.D.S1b) c. Maneuver introduction for a flight lesson. (AI.I.D.S1c) 2. Utilize materials developed in lesson preparation to demonstrate and teach information and skills to the evaluator. (AI.I.D.S2)

Task	***E. Assessment***
Reference	FAA-H-8083-9
Objective	To determine the applicant exhibits satisfactory knowledge, and skills associated with instructional assessment.
Knowledge	The applicant demonstrates understanding of the elements of assessment by describing and explaining: 1. The purpose and characteristics of an effective critique. (AI.I.E.K1) 2. Different methods of conducting a critique. (AI.I.E.K2) 3. “Ground rules” for conducting a critique. (AI.I.E.K3) 4. Traditional assessment vs. authentic assessment. (AI.I.E.K4) 5. Characteristics of effective oral questions. (AI.I.E.K5) 6. Oral questions to be avoided. (AI.I.E.K6) 7. How to respond to learner questions. (AI.I.E.K7) 8. Characteristics of effective written tests. (AI.I.E.K8) 9. How to develop effective written tests. (AI.I.E.K9) 10. Characteristics and uses of performance tests. (AI.I.E.K10) 11. Principles of collaborative assessment (or learner-centered grading (LCG)). (AI.I.E.K11) 12. The consequences of: a. Ineffective critiques. (AI.I.E.K12a) b. Improper timing of critiques. (AI.I.E.K12b) c. Improper venue for conducting critiques. (AI.I.E.K12c) d. Use of improper types of questioning/tests. (AI.I.E.K12d) e. Improper answers to learner questions. (AI.I.E.K12e)
Skills	The applicant demonstrates the ability to: 1. Conduct an effective learner-centered critique. (AI.I.E.S1) 2. Apply different techniques for critiquing. (AI.I.E.S2) 3. Apply “ground rules” for conducting a critique. (AI.I.E.S3) 4. Conduct effective oral questioning. (AI.I.E.S4) 5. Respond to learner questioning. (AI.I.E.S5) 6. Create an effective written test. (AI.I.E.S6) 7. Select the appropriate method of assessment. (AI.I.E.S7) 8. Differentiate between different testing techniques to obtain a given result. (AI.I.E.S8) 9. Apply techniques of collaborative assessment. (AI.I.E.S9)

Task	***F. Flight Instructor Characteristics and Responsibilities***
Reference	FAA-H-8083-9
Objective	To determine that the applicant fully comprehends the flight instructor's responsibilities and exhibits the professional characteristics associated with effective instruction.
Knowledge	The applicant demonstrates understanding of the instructor's responsibilities by describing and explaining how to: 1. Provide effective instruction and help learners gain knowledge and skill. (AI.I.F.K1) 2. Emphasize the positive. (AI.I.F.K2) 3. Be prepared for each instructional activity and make learners' best interests their top priority. (AI.I.F.K3) 4. Prepare pilots in training to exceed the published minimum standards of performance. (AI.I.F.K4) 5. Incorporate the highest standards of safe operations and risk management in all instructional and student pilot solo activity. (AI.I.F.K5) 6. Evaluate the learner's piloting ability. (AI.I.F.K6) 7. Supervise student pilot solo activity. (AI.I.F.K7) 8. Prepare pilots they are training to become responsible members of the aviation community and to exercise effective risk management when using their privileges as pilot in command. (AI.I.F.K8) 9. Minimize learner frustrations. (AI.I.F.K9) 10. Recommend applicants for knowledge and practical tests. (AI.I.F.K10) 11. Conduct specialized training, evaluate proficiency, and grant privileges through endorsements as authorized by regulations. (AI.I.F.K11) 12. Maintain and advance personal professional knowledge and skills. (AI.I.F.K12) 13. Identify and appropriately deal with seriously abnormal learners. (AI.I.F.K13) 14. Develop an adaptable plan of action with appropriate scenario(s). (AI.I.F.K14) 15. Exhibit the characteristics of a professional flight instructor. (AI.I.F.K15)
Skills	The applicant demonstrates instructional ability to: 1. Recognize the differences between individual learners and adapt instruction that helps each to learn. (AI.I.F.S1) 2. Clearly define objectives, standards and assessment methods. (AI.I.F.S2) 3. Evaluate performance against standards. (AI.I.F.S3) 4. Effectively and constructively critique learners' performance. (AI.I.F.S4) 5. Instill risk management habits that progressive grow and transfer to the pilot in training. (AI.I.F.S5) 6. Instill a sense personal responsibility for the aviation community, their passengers and those whom they overfly. (AI.I.F.S6) 7. Exhibit the highest standards of safe operations and risk management in all instructional activities. (AI.I.F.S7) 8. Teach a lesson using the plan of action. (AI.I.F.S8)

II. Technical Subject Areas

Task	*A. Principles of Flight*
Reference	FAA-H-8083-3, FAA-H-8083-25
Objective	To determine the applicant exhibits instructional competence in and has the ability to effectively teach the elements of aerodynamics appropriate for the level of instructor certificate sought.
Knowledge	The applicant demonstrates understanding by describing and explaining: 1. Airfoil design characteristics. (AI.II.A.K1) 2. Airplane stability and controllability. (AI.II.A.K2) 3. Turning tendency (torque effect). (AI.II.A.K3) 4. Forces acting on an airplane. (AI.II.A.K4) 5. Load factors in airplane design. (AI.II.A.K5) 6. Wingtip vortices and precautions to be taken. (AI.II.A.K6) 7. The risk to pilots not understanding the basic aerodynamic principles of flight. (AI.II.A.K7)
Skills	The applicant demonstrates the ability to: 1. Effectively deliver pilot-oriented instruction to a simulated pilot in training (evaluator) on one of the following topics: a. Airfoil design characteristics. (AI.II.A.S1a) b. Airplane stability and controllability. (AI.II.A.S1b) c. Turning tendency (torque effect). (AI.II.A.S1c) d. Forces acting on an airplane. (AI.II.A.S1d) e. Load factor. (AI.II.A.S1e) f. Wingtip vortices: source and impact. (AI.II.A.S1f)

Task	***B. 14 CFR and Publications***
Reference	14 CFR parts 1, 61, 91; AC 00-2, AIM, FAA-H-8083-25, NTSB part 830, POH/AFM.
Objective	To determine the applicant exhibits instructional competence in and has the ability to effectively teach the appropriate elements of the Federal Aviation Regulations and essential publications.
Knowledge	The applicant demonstrates understanding by describing and explaining the purpose, how to access, how to determine currency, and general content category of: 1. 14 CFR parts 1, 61, and 91. (AI.II.B.K1) 2. NTSB part 830. (AI.II.B.K2) 3. Advisory Circulars. (AI.II.B.K3) 4. Airman Certification Standards. (AI.II.B.K4) 5. Pilot's Operating Handbooks or FAA-approved airplane flight manuals. (AI.II.B.K5) 6. Flight Information publications. (AI.II.B.K6)
Skills	The applicant demonstrates the ability to: 1. Deliver instruction to a simulated pilot in training (evaluator) on what a pilot needs to know about item a. and at least one other of the following: a. 14 CFR parts 1, 61, and 91. (AI.II.B.S1a) b. NTSB part 830. (AI.II.B.S1b) c. Advisory Circulars. (AI.II.B.S1c) d. Airman Certification Standards. (AI.II.B.S1d) e. Pilot's Operating Handbooks or FAA-approved airplane flight manuals. (AI.II.B.S1e) f. Flight information publications, i.e. AIM and AF/D. (AI.II.B.S1f)

Task	***C. Logbook Entries and Certificate Endorsements***
Reference	14 CFR parts 61; AC 61-65.
Objective	To determine the applicant exhibits instructional competence in the elements and has the ability to effectively teach the appropriate aspects of logbook entries and certificates endorsements.
Knowledge	The applicant demonstrates understanding the elements of logbook entries and certificate endorsements by describing: 1. Required logbook entries for instruction given. (AI.II.C.K1) 2. Required student pilot certificate endorsements, including appropriate logbook entries. (AI.II.C.K2) 3. Preparation of a recommendation for a pilot practical test, including appropriate logbook entry and electronic forms for: a. Initial pilot certification. (AI.II.C.K3a) b. Additional pilot certification. (AI.II.C.K3b) c. Additional aircraft qualification. (AI.II.C.K3c) 4. Required endorsement of a pilot logbook for the satisfactory completion of the required FAA flight review. (AI.II.C.K4) 5. Required flight instructor records. (AI.II.C.K5)
Skills	The applicant demonstrates the ability to: 1. Prepare simulated logbook entries and/or certificate endorsements required for at least two of the following scenarios: a. Student pilot first solo. (AI.II.C.S1a) b. First lesson with student pilot introducing straight and level, level turns, descents and climbs. (AI.II.C.S1b) c. Recommendation for knowledge test. (AI.II.C.S1c) d. Recommendation for practical test. (AI.II.C.S1d) e. Satisfactory flight review. (AI.II.C.S1e)

III. Preflight Preparation

Task	***A. Certificates and Documents***
Reference	14 CFR parts 23, 43, 61, 67, 91; FAA-H-8083-3, FAA-H-8083-25, Commercial Pilot – Airplane ACS, Private Pilot – Airplane ACS; POH/AFM.
Objective	To determine the applicant exhibits instructional competence in the elements and has the ability to effectively teach a pilot-in-training the appropriate elements of certificates and documents.
Knowledge	The applicant demonstrates understanding of the elements of pilot and aircraft certificates and documents by describing: 1. The training requirements for the issuance of a recreational, private, and commercial pilot certificate. (AI.III.A.K1) 2. The privileges and limitations of pilot certificates and ratings at recreational, private, and commercial levels. (AI.III.A.K2) 3. Class and duration of medical certificates. (AI.III.A.K3) 4. Recent pilot flight experience requirements. (AI.III.A.K4) 5. Required entries in pilot logbook or flight record. (AI.III.A.K5)
Skills	The applicant demonstrates instructional ability to develop scenarios for teaching the required knowledge of certificates and documents involving the following: 1. Meeting minimum training requirements for a recreational, private, or commercial pilot certificate application. (AI.III.A.S1) 2. Acting as pilot-in-command without passengers. (AI.III.A.S2) 3. Acting as pilot-in-command with passengers. (AI.III.A.S3)

IV. Preflight Lesson on a Maneuver to be Performed in Flight

Task	***A. Maneuver Lesson***
Reference	FAA-H-8083-3, FAA-H-8083-9, FAA-H-8083-23, FAA-H-8083-25, Commercial Pilot – Airplane ACS, Private Pilot – Airplane ACS; POH/AFM.
Objective	To determine the applicant exhibits instructional competence in the elements and has the ability to effectively teach a pilot-in-training the appropriate elements of a maneuver task from this ACS selected by the evaluator.
Knowledge	The applicant demonstrates understanding of the elements of the selected maneuver task from this ACS by: 1. Stating the purpose of the maneuver. (AI.IV.A.K1) 2. Giving an accurate, comprehensive oral description including the elements of the maneuver and the common learner errors associated with it. (AI.IV.A.K2) 3. Describing the desired outcome(s). (AI.IV.A.K3) 4. Describing possible risks when performing this maneuver and recommended mitigation strategies. (AI.IV.A.K4)
Skills	The applicant demonstrates instructional ability to orally present, using instructional aids when appropriate, the elements of the selected maneuver task by: 1. Explaining why the maneuver is important to master. (AI.IV.A.S1) 2. Breaking down the maneuver into the basic, understandable elements. (AI.IV.A.S2) 3. Explaining how the pilot-in-training will know when the maneuver is performed correctly. (AI.IV.A.S3) 4. Describing possible flawed outcomes and how to analyze the errors and avoid them in future practice. (AI.IV.A.S4)

V. Fundamentals of Flight

Task	***A. Straight-and-Level Flight***
Reference	FAA-H-8083-3, FAA-H-8083-23, Private Pilot – Airplane ACS.
Objective	To determine the applicant exhibits instructional competence in the elements, skills and risk management associated with straight-and-level flight.
Knowledge	The applicant demonstrates understanding of straight-and-level flight by describing: 1. Purpose of the maneuver. (AI.V.A.K1) 2. Basic elements of the maneuver. (AI.V.A.K2) 3. Desired outcome. (AI.V.A.K3) 4. Flight control and trim use. (AI.V.A.K4) 5. The pilot's visual reference when performing the maneuver. (AI.V.A.K5) 6. Common errors performing the maneuver. (AI.V.A.K6)
Skills	The applicant demonstrates instructional ability to: 1. Demonstrate and simultaneously explain straight and level flight. (AI.V.A.S1) 2. Analyze and correct simulated common errors related to straight and level flight. (AI.V.A.S2)
Risk Management	The applicant applies risk identification, assessment, and mitigation principles when performing straight and level flight in regard to: 1. Distractions impacting navigation and avoiding unintended airspace incursions and proximity to terrain. (AI.V.A.R1) 2. Collision avoidance. (AI.V.A.R2)

Task	***B. Level Turns***
Reference	FAA-H-8083-3, Private Pilot – Airplane ACS.
Objective	To determine the applicant exhibits instructional competence in the elements, skills and risk management associated with level turns.
Knowledge	The applicant demonstrates understanding of level turns by describing: 1. Purpose of the maneuver. (AI.V.B.K1) 2. Basic elements of the maneuver. (AI.V.B.K2) 3. Desired outcome. (AI.V.B.K3) 4. Flight control and trim use. (AI.V.B.K4) 5. The pilot's visual reference when performing the maneuver. (AI.V.B.K5) 6. Common errors performing the maneuver. (AI.V.B.K6)
Skills	The applicant demonstrates instructional ability to: 1. Demonstrate and simultaneously explain level turns. (AI.V.B.S1) 2. Analyze and correct simulated common errors related to level turns. (AI.V.B.S2)
Risk Management	The applicant applies risk identification, assessment, and mitigation principles when performing level turns in regard to: 1. Distractions impacting navigation and avoiding unintended airspace incursions and proximity to terrain. (AI.V.B.R1) 2. Collision avoidance. (AI.V.B.R2)

Task	***C. Straight Climbs and Climbing Turns***
Reference	FAA-H-8083-3, Private Pilot – Airplane ACS.
Objective	To determine the applicant exhibits instructional competence in the elements, skills and risk management associated with straight climbs and climbing turns.
Knowledge	The applicant demonstrates understanding straight climbs and climbing turns by describing: 1. Purpose of the maneuver. (AI.V.C.K1) 2. Basic elements of the maneuver. (AI.V.C.K2) 3. Desired outcome. (AI.V.C.K3) 4. Flight control and trim use. (AI.V.C.K4) 5. The pilot's visual reference when performing the maneuver. (AI.V.C.K5) 6. Common errors performing the maneuver. (AI.V.C.K6)
Skills	The applicant demonstrates instructional ability to: 1. Demonstrate and simultaneously explain straight climbs and climbing turns. (AI.V.C.S1) 2. Analyze and correct simulated common errors related to straight climbs and climbing turns. (AI.V.C.S2)
Risk Management	The applicant applies risk identification, assessment, and mitigation principles when performing straight climbs and climbing turns in regard to: 1. Distractions impacting navigation and avoiding unintended airspace incursions and proximity to terrain. (AI.V.C.R1) 2. Collision avoidance. (AI.V.C.R2)

Task	***D. Straight Descents and Descending Turns***
Reference	FAA-H-8083-3, Private Pilot – Airplane ACS.
Objective	To determine the applicant exhibits instructional competence in the elements, skills and risk management associated with straight descents and descending turns.
Knowledge	The applicant demonstrates understanding straight descents and descending turns by describing: 1. Purpose of the maneuver. (AI.V.D.K1) 2. Basic elements of the maneuver. (AI.V.D.K2) 3. Desired outcome. (AI.V.D.K3) 4. Flight control and trim use. (AI.V.D.K4) 5. The pilot's visual reference when performing the maneuver. (AI.V.D.K5) 6. Common errors performing the maneuver. (AI.V.D.K6)
Skills	The applicant demonstrates instructional ability to: 1. Demonstrate and simultaneously explain straight descents and descending turns. (AI.V.D.S1) 2. Analyze and correct simulated common errors related to straight descents and descending turns. (AI.V.D.S2)
Risk Management	The applicant applies risk identification, assessment, and mitigation principles when performing straight descents and descending turns in regard to: 1. Distractions impacting navigation and avoiding unintended airspace incursions and proximity to terrain. (AI.V.D.R1) 2. Collision avoidance. (AI.V.D.R2)

VI. Slow Flight, Stalls, and Spins

Task	***A. Maneuvering During Slow Flight***
Reference	FAA-H-8083-3, Commercial Pilot – Airplane ACS, Private Pilot – Airplane ACS; POH/AM.
Objective	To determine the applicant exhibits instructional competence in the elements, skills and risk management associated with maneuvering during slow flight.
Knowledge	The applicant demonstrates understanding by describing: 1. The slow flight maneuver relative to a critical real-life situation, i.e. go-arounds, short field approach and landing, etc. (AI.VI.A.K1) 2. Relationship between AOA, airspeed, load factor, aircraft configuration, aircraft weight, and aircraft attitude. (AI.VI.A.K2) 3. Relationship of configuration, weight, center of gravity, maneuvering loads, angle of bank, and power to flight characteristics and controllability. (AI.VI.A.K3) 4. Recognizing and responding appropriately to all indications of high angle of attack to include aircraft performance indications, airframe buffet, and stall warning systems. (AI.VI.A.K4) 5. The difference between AOA and aircraft attitude during all flight conditions and how it relates to aircraft performance. (AI.VI.A.K5) 6. How environmental elements affect aircraft performance. (AI.VI.A.K6) 7. Performance of the maneuver with selected landing gear and flap configurations in straight-and-level flight and level turns. (AI.VI.A.K7) 8. Importance of the 1,500 foot AGL minimum altitude. (AI.VI.A.K8) 9. Specified airspeed for the maneuver. (AI.VI.A.K9) 10. Coordination of flight controls. (AI.VI.A.K10) 11. Trim technique. (AI.VI.A.K11) 12. Reestablishment of cruise flight. (AI.VI.A.K12) 13. Common errors related to maneuvering during slow flight. (AI.VI.A.K13)
Skills	The applicant demonstrates instructional ability to: 1. Select an entry altitude that will allow the task to be completed no lower than 1,500 feet AGL. (AI.VI.A.S1) 2. Establish and maintain an airspeed at which any further increase in angle of attack, increase in load factor, or reduction in power, would result in an immediate stall. (AI.VI.A.S2) 3. Accomplish coordinated straight-and-level flight, turns, climbs, and descents with landing gear and flap configurations specified by the evaluator. (AI.VI.A.S3) 4. Divide attention between airplane control, and orientation while pointing-out the control feel and other cockpit sensations. (AI.VI.A.S4) 5. Maintain the specified altitude, ±50 feet; specified heading, ±10°; airspeed, +5/-0 knots; and specified angle of bank, ±5°. (AI.VI.A.S5) 6. Analyze and correct simulated common errors. (AI.VI.A.S6)
Risk Management	The applicant applies risk identification, assessment, and mitigation principles to: 1. Relationship between angle of attack, airspeed, load factor, aircraft configuration, aircraft weight, and aircraft attitude. (AI.VI.A.R1) 2. Recognizing and responding appropriately to all indications of high angle of attack, to include aircraft performance indications, airframe buffet, and stall warning systems. (AI.VI.A.R2) 3. Understanding how environmental elements affect aircraft performance. (AI.VI.A.R3) 4. Collision avoidance procedures. (AI.VI.A.R4)

Task	***B. Power-On Stalls (Proficiency)***
Reference	FAA-H-8083-9
Objective	To determine the applicant exhibits instructional competence in the elements, skills and risk management associated with power-on stalls. **NOTE:** In some high performance airplanes, the power setting may have to be reduced below the practical test standards guideline power setting to prevent excessively high pitch attitudes (greater than 30° nose up).
Knowledge	The applicant demonstrates understanding by describing: 1. Aerodynamics of power-on stalls. (AI.VI.B.K1) 2. Relationship of various factors such as landing gear and flap configuration, weight, center of gravity, load factor, and bank angle to stall speed. (AI.VI.B.K2) 3. Flight situations where unintentional power-on stalls may occur. (AI.VI.B.K3) 4. Entry technique and minimum entry altitude. (AI.VI.B.K4) 5. Performance of power-on stalls in climbing flight (straight or turning). (AI.VI.B.K5) 6. Coordination of flight controls. (AI.VI.B.K6) 7. Recognition of the first indications of power-on stalls. (AI.VI.B.K7) 8. Recovery technique and minimum recovery altitude. (AI.VI.B.K8) 9. Common errors related to power-on stalls. (AI.VI.B.K9)
Skills	The applicant demonstrates instructional ability to: 1. Demonstrate and simultaneously explain power-on stalls, in climbing flight (straight or turning), with selected landing gear and flap configurations, from an instructional standpoint. (AI.VI.B.S1) 2. Analyze and correct simulated common errors related to power-on stalls, in climbing flight (straight or turning), with selected landing gear and flap configurations. (AI.VI.B.S2)
Risk Management	The applicant applies risk identification, assessment, and mitigation principles to: 1. Dynamic aerodynamic relationship between angle of attack, airspeed, load factor, aircraft configuration, aircraft weight, and aircraft attitude. (AI.VI.B.R1) 2. Recognizing and responding appropriately to all indications of high angle of attack, to include aircraft performance indications, airframe buffet, and stall warning systems. (AI.VI.B.R2) 3. Understanding how environmental elements affect aircraft performance. (AI.VI.B.R3) 4. Understanding the required actions for aircraft maximum performance and the consequences of failing to do so. (AI.VI.B.R4) 5. Collision avoidance procedures. (AI.VI.B.R5)

Task	***C. Power-Off Stalls (Proficiency)***
Reference	FAA-H-8083-3
Objective	To determine the applicant exhibits instructional competence in the elements, skills and risk management associated with Power-Off Stalls.
Knowledge	The applicant demonstrates understanding by describing: 1. Aerodynamics of power-off stalls. (AI.VI.C.K1) 2. Relationship of various factors such as landing gear and flap configuration, weight, center of gravity, load factor, and bank angle to stall speed. (AI.VI.C.K2) 3. Flight situations where unintentional power-off stalls may occur. (AI.VI.C.K3) 4. Entry technique and minimum entry altitude. (AI.VI.C.K4) 5. Performance of power-off stalls in descending flight (straight or turning). (AI.VI.C.K5) 6. Coordination of flight controls. (AI.VI.C.K6) 7. Recognition of the first indications of power-off stalls. (AI.VI.C.K7) 8. Recovery technique and minimum recovery altitude. (AI.VI.C.K8) 9. Common errors related to power-off stalls. (AI.VI.C.K9)
Skills	The applicant demonstrates instructional ability to: 1. Demonstrate and simultaneously explain power-off stalls, in descending flight (straight or turning), with selected landing gear and flap configurations, from an instructional standpoint. (AI.VI.C.S1) 2. Analyze and correct simulated common errors related to power-off stalls, in descending flight (straight or turning), with selected landing gear and flap configurations. (AI.VI.C.S2)
Risk Management	The applicant applies risk identification, assessment, and mitigation principles to: 1. Dynamic aerodynamic relationship between angle of attack, airspeed, load factor, aircraft configuration, aircraft weight, and aircraft attitude. (AI.VI.C.R1) 2. Recognizing and responding appropriately to all indications of high angle of attack, to include aircraft performance indications, airframe buffet, and stall warning systems. (AI.VI.C.R2) 3. Understanding how environmental elements affect aircraft performance. (AI.VI.C.R3) 4. Understanding the required actions for aircraft maximum performance and the consequences of failing to do so. (AI.VI.C.R4) 5. Collision avoidance procedures. (AI.VI.C.R5)

Task	***D. Cross-Controlled Stalls***
Reference	FAA-H-8083-9
Objective	To determine the applicant exhibits instructional competence in the elements, skills and risk management associated with cross-controlled stalls.
Knowledge	The applicant demonstrates understanding by describing: 1. Aerodynamics of cross-controlled stalls. (AI.VI.D.K1) 2. Effects of crossed controls in gliding or reduced airspeed descending turns. (AI.VI.D.K2) 3. Flight situations where unintentional cross-controlled stalls may occur. (AI.VI.D.K3) 4. Entry technique and minimum entry altitude. (AI.VI.D.K4) 5. Recognition of cross-controlled stalls. (AI.VI.D.K5) 6. Recovery technique and minimum recovery altitude. (AI.VI.D.K6) 7. Common errors related to cross-controlled stalls. (AI.VI.D.K7)
Skills	The applicant demonstrates instructional ability to: 1. Demonstrate and simultaneously explain a cross-controlled stall in a specified configuration. (AI.VI.D.S1) 2. Analyze and correct simulated common errors related to a cross-controlled stall in a specified configuration. (AI.VI.D.S2)
Risk Management	The applicant applies risk identification, assessment, and mitigation principles to: 1. Dynamic aerodynamic relationship between angle of attack, airspeed, load factor, aircraft configuration, aircraft weight, aircraft attitude, and uncoordinated control inputs. (AI.VI.D.R1) 2. Recognizing and responding appropriately to all indications of high angle of attack, to include aircraft performance indications, airframe buffet, and stall warning systems. (AI.VI.D.R2) 3. Understanding how environmental elements affect aircraft performance. (AI.VI.D.R3) 4. Understanding the required actions for aircraft maximum performance and the consequences of failing to do so. (AI.VI.D.R4)

Task	*E. Elevator Trim Stalls (Demonstration)*
Reference	FAA-H-8083-9
Objective	To determine the applicant exhibits instructional competence in the elements, skills and risk management associated with Elevator Trim Stalls.
Knowledge	The applicant demonstrates understanding by describing: 1. Aerodynamics of elevator trim stalls. (AI.VI.E.K1) 2. Hazards of inadequate control pressures to compensate for thrust, torque, and up-elevator trim during go-around and other related maneuvers. (AI.VI.E.K2) 3. Entry procedure and minimum entry altitude. (AI.VI.E.K3) 4. Recognition of elevator trims stalls. (AI.VI.E.K4) 5. Importance of recovering from an elevator trim stall immediately upon recognition. (AI.VI.E.K5) 6. Common errors related to elevator trim stalls. (AI.VI.E.K6)
Skills	The applicant demonstrates instructional ability to: 1. Demonstrate and simultaneously explain elevator trim stalls, in selected landing gear and flap configurations. (AI.VI.E.S1) 2. Analyze and correct simulated common errors related to elevator trim stalls in selected landing gear and flap configurations. (AI.VI.E.S2)
Risk Management	The applicant applies risk identification, assessment, and mitigation principles to: 1. Dynamic aerodynamic relationship between angle of attack, airspeed, load factor, aircraft configuration, aircraft weight, and aircraft attitude. (AI.VI.E.R1) 2. Recognizing and responding appropriately to all indications of high angle of attack to include aircraft performance indications, airframe buffet, and stall warning systems. (AI.VI.E.R2) 3. Understanding how environmental elements affect aircraft performance. (AI.VI.E.R3) 4. Understanding the required actions for aircraft maximum performance and the consequences of failing to do so. (AI.VI.E.R4)

Task	***F. Secondary Stalls (Demonstration)***
Reference	FAA-H-8083-9
Objective	To determine the applicant exhibits instructional competence in the elements, skills and risk management associated with Secondary Stalls.
Knowledge	The applicant demonstrates understanding by describing: 1. Aerodynamics of secondary stalls. (AI.VI.F.K1) 2. Flight situations where secondary stalls may occur. (AI.VI.F.K2) 3. Hazards of secondary stalls during normal stall or spin recovery. (AI.VI.F.K3) 4. Entry procedure and minimum entry altitude. (AI.VI.F.K4) 5. Recognition of a secondary stall. (AI.VI.F.K5) 6. Recovery procedure and minimum recovery altitude. (AI.VI.F.K6)
Skills	The applicant demonstrates instructional ability to: 1. Demonstrate and simultaneously explain secondary stalls, in selected landing gear and flap configurations. (AI.VI.F.S1) 2. Analyze and correct simulated common errors related to secondary stalls in selected landing gear and flap configurations. (AI.VI.F.S2)
Risk Management	The applicant applies risk identification, assessment, and mitigation principles to: 1. Dynamic aerodynamic relationship between angle of attack, airspeed, load factor, aircraft configuration, aircraft weight, and aircraft attitude. (AI.VI.F.R1) 2. Recognizing and responding appropriately to all indications of high angle of attack, to include aircraft performance indications, airframe buffet, and stall warning systems. (AI.VI.F.R2) 3. Understanding how environmental elements affect aircraft performance. (AI.VI.F.R3) 4. Understanding the required actions for aircraft maximum performance and the consequences of failing to do so. (AI.VI.F.R4)

Task	***G. Spins***
Reference	FAA-H-8083-3
Objective	To determine the applicant exhibits instructional competence in the elements, skills and risk management associated with spins. **NOTE:** At the discretion of the examiner, a logbook record attesting applicant instructional competency in spin entries, spins, and spin recoveries may be accepted in lieu of this Task. The flight instructor who conducted the spin instruction must certify the logbook record.
Knowledge	The applicant demonstrates understanding by describing: 1. Anxiety factors associated with spin instruction. (AI.VI.G.K1) 2. Aerodynamics of spins. (AI.VI.G.K2) 3. Airplanes approved for the spin maneuver based on airworthiness category and type certificate. (AI.VI.G.K3) 4. Relationship of various factors such as configuration, weight, center of gravity, and control coordination to spins. (AI.VI.G.K4) 5. Flight situations where unintentional spins may occur. (AI.VI.G.K5) 6. How to recognize and recover from imminent, unintentional spins. (AI.VI.G.K6) 7. Entry procedure and minimum entry altitude for intentional spins. (AI.VI.G.K7) 8. Control procedure to maintain a stabilized spin. (AI.VI.G.K8) 9. Orientation during a spin. (AI.VI.G.K9) 10. Which instrument(s) are reliable for determining the direction of spin to affect recovery and which are not. (AI.VI.G.K10) 11. Recovery procedure and minimum recovery altitude for intentional spins. (AI.VI.G.K11) 12. Effects of inappropriate recovery control inputs. (AI.VI.G.K12) 13. Common errors related to performing spins. (AI.VI.G.K13)
Skills	The applicant demonstrates instructional ability to: 1. Demonstrate and simultaneously explain a spin. (AI.VI.G.S1) 2. Analyze and correct simulated common errors related to spins. (AI.VI.G.S2)
Risk Management	The applicant applies risk identification, assessment, and mitigation principles to: 1. Dynamic aerodynamic relationship between angle of attack, airspeed, load factor, aircraft configuration, aircraft weight, and aircraft attitude. (AI.VI.G.R1) 2. Recognizing and responding appropriately to all indications of high angle of attack, to include aircraft performance indications, airframe buffet, and stall warning systems. (AI.VI.G.R2) 3. Understanding how environmental elements affect aircraft performance. (AI.VI.G.R3) 4. Understanding the required actions for aircraft maximum performance and the consequences of failing to do so. (AI.VI.G.R4) 5. Uncoordinated flight. (AI.VI.G.R5) 6. Understanding the hazards associated with the improper application of flight control inputs during the spin recovery. (AI.VI.G.R6)

Task	***H. Accelerated Maneuver Stalls (Demonstration)***
Reference	FAA-H-8083-3, Private Pilot – Airplane ACS; POH/AM.
Objective	To determine the applicant exhibits instructional competence in the elements, skills, and risk management associated with demonstrating accelerated maneuver stalls.
Knowledge	The applicant demonstrates understanding by describing: 1. Aerodynamics of accelerated maneuver stalls in various aircraft configurations and attitudes. (AI.VI.H.K1) 2. The maneuver in relation to realistic flight scenarios. (AI.VI.H.K2) 3. Circumstances that can lead to an inadvertent spin. (AI.VI.H.K3) 4. Approach to stall and full stall indications. (AI.VI.H.K4) 5. Aircraft inputs required to maintain heading or bank angle. (AI.VI.H.K5) 6. Efficient stall recovery procedure. (AI.VI.H.K6) 7. Importance of establishing the correct aircraft configuration during the recovery process and the consequences of failing to do so, as applicable. (AI.VI.H.K7) 8. Hazards of accelerated stalls during stall or spin recovery (AI.VI.H.K8) 9. Entry procedure and minimum entry altitude. (AI.VI.H.K9) 10. Recognition of the accelerated stall. (AI.VI.H.K10) 11. Recovery procedure and minimum recovery altitude. (AI.VI.H.K11)
Skills	The applicant demonstrates instructional ability to: 1. Demonstrate and simultaneously explain accelerated maneuver stall. (AI.VI.H.S1) 2. Analyze and correct simulated common errors related to accelerated stalls. (AI.VI.H.S2)
Risk Management	The applicant applies risk identification, assessment, and mitigation principles to: 1. Dynamic aerodynamic relationship between angle of attack, airspeed, load factor, aircraft configuration, aircraft weight, and aircraft attitude. (AI.VI.H.R1) 2. Recognizing and responding appropriately to all indications of high angle of attack, to include aircraft performance indications, airframe buffet, and stall warning systems. (AI.VI.H.R2) 3. Understanding how environmental elements affect aircraft performance. (AI.VI.H.R3) 4. Understanding the required actions for aircraft maximum performance and the consequences of failing to do so. (AI.VI.H.R4) 5. Scenarios during which an accelerated stall can occur. (AI.VI.H.R5)

SECTION 3: CFI INSTRUMENT AIRPLANE AND HELICOPTER

Completion Standards

A. Knowledge Test
   (1) Pass the appropriate Knowledge Test.

B. Practical Test
   (1) To determine the instructor-applicant can:
      (a) Demonstrate instructional competence in the tasks;
      (b) Facilitate the learning of subject material;
      (c) Explain and demonstrate the maneuvers;
      (d) Exemplify risk management skills;
      (e) Promote professionalism; and
      (f) Analyze and correct common student errors found in the Instrument Rating ACS.

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SECTION 4: CFI ROTORCRAFT HELICOPTER

Completion Standards

A. Knowledge Test

  (1) Pass the appropriate Knowledge Test.

B. Practical Test

  (1) To determine the instructor-applicant can:

    (a) Demonstrate instructional competence in the tasks;

    (b) Facilitate the learning of subject material;

    (c) Explain and demonstrate the maneuvers;

    (d) Exemplify risk management skills;

    (e) Promote professionalism; and

    (f) Analyze and correct common student errors found in the Commercial Pilot – Rotorcraft (Helicopter and Gyroplane).

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SECTION 5: CFI GLIDER

Completion Standards

A. Knowledge Test

(1) Pass the appropriate Knowledge Test.

B. Practical Test

(1) To determine the instructor-applicant can:

(a) Demonstrate instructional competence in the tasks;

(b) Facilitate the learning of subject material;

(c) Explain and demonstrate the maneuvers;

(d) Exemplify risk management skills;

(e) Promote professionalism; and

(f) Analyze and correct common student errors found in the Commercial Pilot – Glider ACS, and the Areas of Operation in this ACS:

I. Fundamentals of Instructing
II. Technical Subject Areas (ACS System Reference)
III. Preflight Preparation
IV. Preflight Lesson on a Maneuver to be Performed in Flight
V. Fundamentals of Flight
VI. Slow Flight, Stalls, and Spins

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SECTION 6: CFI SPORT PILOT

Completion Standards

A. Knowledge Test

   (1) Pass the appropriate Knowledge Test.

B. Practical Test

   (1) To determine the instructor-applicant can:

      (a) Demonstrate instructional competence in the tasks;

      (b) Facilitate the learning of subject material;

      (c) Explain and demonstrate the maneuvers;

      (d) Exemplify risk management skills;

      (e) Promote professionalism; and

      (f) Analyze and correct common student errors found in the Sport Pilot ACS (appropriate exceptions/additions for category & class), and the following Areas of Operation in this ACS:

         I. Fundamentals of Instructing
         II. Technical Subject Areas (ACS System Reference)
         IV. Preflight Lesson on a Maneuver to be Performed in Flight

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APPENDIX 1: REFERENCES

This ACS is based on the following 14 CFR parts, FAA guidance material, manufacturer's publications, and other documents.

14 CFR part 1	Definition and Abbreviations
14 CFR part 23	Airworthiness Standards: Normal, Utility, Acrobatic, and Commuter Category Airplanes
14 CFR part 39	Airworthiness Directives
14 CFR part 43	Maintenance, Preventive Maintenance, Rebuilding, and Alteration
14 CFR part 61	Certification: Pilots, Flight Instructors, and Ground Instructors
14 CFR part 67	Medical Standards and Certification
14 CFR part 91	General Operating and Flight Rules
49 CFR (NTSB) part 830	Notification and Reporting of Aircraft Accidents or Incidents and Overdue Aircraft, and Preservation of Aircraft Wreckage, Mail, Cargo, and Records
AC 00-2	Storage and Distribution of Aeronautical Supplies
AC 61-65	Certification: Pilots and Flight and Ground Instructors
AIM	Aeronautical Information Manual
POH/AFM	Pilot's Operating Handbook/FAA-Approved Aircraft Flight Manual
FAA-H-8083-3	Airplane Flying Handbook
FAA-H-8083-9	Aviation Instructor's Handbook
FAA-H-8083-23	Seaplane, Skiplane, and Float/Ski Equipped Helicopter Operations Handbook
FAA-H-8083-25	Pilot's Handbook of Aeronautical Knowledge
TBD	Commercial Pilot – Airplane Airman Certification Standards
TBD	Private Pilot – Airplane Airman Certification Standards

NOTE: Users should reference the current edition of the reference documents listed above. The current edition of all FAA publications can be found at www.faa.gov.

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APPENDIX 2: ABBREVIATIONS AND ACRONYMS

The following abbreviations and acronyms are used in this ACS.

14 CFR	Title 14 of the Code of Federal Regulations
AC	Advisory Circular
ACS	Airman Certification Standards
AFA	Flight Instructor – Airplane-Added Rating
AFG	Flight Instructor – Glider – Added Rating
AFM	Airplane Flight Manual
AFS	Flight Standards Service
AGI	Advanced Ground Instructor
AGL	Above Ground Level
AIF	Flight instructor – Instrument Airplane – Added Rating
AME	Airplane Multiengine
AOA	Airport Operations Area
ASE	Airplane Single Engine
BGI	Basic Ground Instructor
FAA	Federal Aviation Administration
FADEC	Full Authority Digital Engine Control
FIA	Flight Instructor – Airplane
FIG	Flight Instructor – Glider
FIH	Flight Instructor – Instrument Helicopter
FII	Flight Instructor – Instrument Airplane
FOI	Fundamentals of Instructing
FRG	Flight Instructor – Gyroplane
FRH	Flight Instructor – Rotorcraft Helicopter
G	Glider
GFA	Flight Instructor – Gyroplane – Added Rating
HFA	Flight Instructor – Helicopter– Added Rating
HIF	Flight Instructor – Instrument Helicopter – Added Rating
IA	Instrument Airplane
IGI	Instrument Ground Instructor
IH	Instrument Helicopter
IMC	Instrument Meteorological Conditions
LCG	Learner-Centered Grading
MCI	Military Competency Instructor
NAS	National Airspace System
NTSB	National Transportation Safety Board
POH	Pilot’s Operating Handbook
PTS	Practical Test Standards
RG	Rotorcraft Gyroplane
RH	Rotorcraft Helicopter
SIA	Flight Instructor – Sport Airplane
SIB	Flight Instructor – Sport Balloon
SIG	Flight Instructor – Sport Glider
SIL	Flight Instructor – Sport Lighter-Than-Air (Airship)
SIP	Flight Instructor – Sport Powered Parachute
SIW	Flight Instructor – Sport Weight-Shift-Control
SIY	Flight Instructor – Sport Gyroplane
SMS	Safety Management System

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APPENDIX E: FEDERAL REGISTER NOTICE + COMMENTS ON AUTHORIZED INSTRUCTOR, PRIVATE PILOT + INSTRUMENT RATING ACS DOCUMENTS

The ATST WG published the first draft of the Authorized Instructor Airman Certification Standards (ACS), as well as the second draft of the Private Pilot – Airplane ACS and Instrument Rating ACS for comment on July 24, 2013.[14] This appendix includes the Notice of Request for Comment published in the *Federal Register*, as well as a summary of the 34 comments received and reviewed by the ATST WG.

NOTE: The Summary of Comments appears first as an integrated component of this appendix, and the Notice of availability; request for comments published in the *Federal Register* on July 24, 2013 immediately follows as a stand-alone document.

Summary of Comments in Response to *Federal Register* Notice of Availability (Docket No. FAA-2013-0649)

The ATST WG received 34 comments on the following documents, which were published in Docket No. FAA-2013-0649:

- Airman Certification Standards – Frequently Asked Questions
- Draft Private Pilot – Airplane Airman Certification Standards
- Draft Instrument Rating Airman Certification Standards
- Draft Authorized Instructor Airman Certification Standards

The ATST WG tracked all comments received. The comments were addressed in the following groups:

(1) General Comments on the ACS Concept: The ATST WG reviewed and considered the general comments on the ACS concept. In responding to these comments, the ATST WG refined Frequently Asked Questions (FAQ) document and addressed questions on implementation of the ACS concept in the ATST WG Report to the ARAC.

(2) Comments on Draft Private Pilot ACS: The Private Pilot Subgroup reviewed and addressed each specific comment on the draft Private Pilot ACS, and the majority of the specific comments resulted in revisions to the document. The Private Pilot Subgroup further noted that helicopter references will be included in Private-Helicopter ACS and changing the stall demonstration requirements falls outside the ATST WG tasking.

[14] 78 FR 44619 (Docket No. FAA-2013-0649).

(3) Comments on Draft Instrument Rating ACS: The Instrument Subgroup reviewed the comments applicable to the draft Instrument ACS, but did not make any significant revisions to the document. The Instrument Subgroup also noted that helicopter references will be included in Private-Helicopter ACS and changing the stall demonstration requirements falls outside the ATST WG tasking.

(4) Comments on Draft Authorized Instructor ACS: The Instructor Subgroup reviewed the comments applicable to the draft Authorized Instructor ACS, and the majority of the specific comments resulted in revisions to the document. The Instructor Subgroup also noted that changes to the equipment (aircraft) requirements for the practical test, as well as changes to the spin endorsement process, fall outside the scope of the ATST WG tasking.

(5) Comments on Terminology: The ATST WG noted that the term “airman” is used in 14 CFR to encompass the full range of aviation functions that require an FAA certificate or rating. The members further noted not all airman certificates and ratings are for pilots or aviators; some apply to aircraft maintenance technicians, dispatchers, and other specialties. In addition, changes to 14 CFR fall outside the scope of the ATST WG tasking.

Strategy for Dispositioning Comments

The ATST WG tracked the 34 comments, including commenter and date of submission. Multiple ATST WG subgroups reviewed and dispositioned the comments by noting whether the comment was incorporated (in the case of specific substantive comments) in a subsequent draft of the applicable ACS document(s) and/or how the comment was addressed. The complete matrix will be submitted to the FAA for further review and consideration with the complete package of documents comprising the ATST WG work product developed as a part of this endeavor.

Authority 234, dated October 1, 1999, which remains in effect.

This delegation of authority shall be published in the **Federal Register**.

Dated: July 15, 2013.

John F. Kerry,

Secretary of State.

[FR Doc. 2013–17802 Filed 7–23–13; 8:45 am]

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DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

[Docket No: FAA–2013–0649]

Aviation Rulemaking Advisory Committee (ARAC) Airman Testing Standards and Training Working Group (ATSTWG)

AGENCY: Federal Aviation Administration (FAA), DOT.

ACTION: Notice of Request for Comment

SUMMARY: This notice announces the availability of additional draft Airman Certification Standards (ACS) documents developed by the ATSTWG for the authorized instructor certificate, the private pilot certificate and the instrument rating. These documents are available for public review, download, and comment.

DATES: Send comments on or before August 23, 2013.

ADDRESSES: Send comments identified by docket number FAA–2013–0649 using any of the following methods:

- *Federal eRulemaking Portal:* Go to *http://www.regulations.gov* and follow the online instructions for sending your comments electronically.
- *Mail:* Send comments to Docket Operations, M–30; U.S. Department of Transportation (DOT), 1200 New Jersey Avenue SE., Room W12–140, West Building Ground Floor, Washington, DC 20590–0001.
- *Hand Delivery or Courier:* Take comments to Docket Operations in Room W12–140 of the West Building Ground Floor at 1200 New Jersey Avenue SE., Washington, DC, between 9 a.m. and 5 p.m., Monday through Friday, except Federal holidays.
- *Fax:* Fax comments to Docket Operations at (202) 493–2251.

Privacy: The FAA will post all comments it receives, without change, to *http://www.regulations.gov,* including any personal information the commenter provides. Using the search function of the docket Web site, anyone can find and read the electronic form of all comments received into any FAA dockets, including the name of the individual sending the comment (or signing the comment for an association, business, labor union, etc.). DOT's complete Privacy Act Statement can be found in the **Federal Register** published on April 11, 2000 (65 FR 19477–19478), as well as at *http://DocketsInfo.dot.gov.*

Docket: Background documents or comments received may be read at *http://www.regulations.gov* at any time. Follow the online instructions for accessing the docket or Docket Operations in Room W12–140 of the West Building Ground Floor at 1200 New Jersey Avenue SE., Washington, DC, between 9 a.m. and 5 p.m., Monday through Friday, except Federal holidays.

FOR FURTHER INFORMATION CONTACT: Van L. Kerns, Manager, Regulatory Support Division, FAA Flight Standards Service, AFS 600, FAA Mike Monroney Aeronautical Center, P.O. Box 25082, Oklahoma City, OK 73125; telephone (405) 954–4431, email *van.l.kerns@faa.gov.*

SUPPLEMENTARY INFORMATION:

Background

On August 30, 2012, the ARAC Executive Committee accepted the FAA's assignment of a new task arising from recommendations of the Airman Testing Standards and Training Aviation Rulemaking Committee (ARC). The ARC recommended ways to ensure that the FAA's airman testing and training materials better support reduction of fatal general aviation accidents. The new task instructed the ARAC to integrate aeronautical knowledge and flight proficiency requirements for the private pilot and flight instructor certificates and the instrument rating into a single ACS document for each type of certificate and rating; to develop a detailed proposal to realign FAA training handbooks with the ACS documents; and to propose knowledge test item bank questions consistent with the integrated ACS documents and the principles set forth in the ARC's recommendations.

The FAA announced the ARAC's acceptance of this task through a **Federal Register** Notice published on September 12, 2012 [77 FR 56251]. This Notice described the task elements and solicited participants for the ATSTWG, which subsequently formed and began its work in November 2012.

Consistent with the first part of this tasking, the ATSTWG developed draft ACS documents that align the aeronautical knowledge testing standards with the flight proficiency standards set out in the existing Practical Test Standards (PTS). In addition to supporting the FAA's effort to improve the relevance, reliability, validity, and effectiveness of aeronautical testing and training materials, the draft ACS documents support the FAA's goal of reducing fatal general aviation accidents by incorporating task-specific risk management considerations into each Area of Operation.

The ATSTWG completed its initial work on the ACS for the private pilot certificate and the instrument rating in April, 2013. At the request of the ATSTWG, the FAA made these documents available for public comment through docket number FAA–2013–0316. The comment period for the notice published on April 24, 2013 (78 FR 24289) closed May 24, 2013. Also at the request of the ATSTWG, the FAA reopened the comment period until July 8, 2013.

During these periods, the ATSTWG received more than 300 comments and questions on the draft ACS for the private pilot certificate and the instrument rating. The ATSTWG has used these comments to inform and refine its continuing work on this project, and has consequently asked the FAA to make the revised versions of these documents available for on additional period of public review and comment before it completes its work in September, 2013.

In addition, the ATSTWG has completed its initial draft of the authorized instructor ACS document. The purpose of the authorized instructor ACS is to define the acceptable performance standards for instructional knowledge and skill, including the Fundamentals of Instructing (FOI) concepts listed in 14 CFR part 61. Consistent with its desire for comments to help refine its work, the ATSTWG has asked the FAA to make this document available for public comment as well.

In making this document available, the ATSTWG wishes to note that while the draft authorized instructor ACS follows the overall conceptual framework developed for the private pilot ACS and the instrument rating ACS, its construction reflects fundamental differences between the family of pilot certificates/ratings and the instructor certificate. The core of the authorized instructor ACS addresses practical application of the instructional concepts and techniques presented in the traditional FOI. The authorized instructor ACS uses appendices to define the acceptable standards for knowledge, skill, and risk management in the aeronautical proficiency tasks unique to a particular instructor certificate or rating.

The ATSTWG also wishes to emphasize that the authorized instructor ACS is not intended to be a stand-alone document. Rather, it is intended to be used in conjunction with the pilot certificate level or rating ACS for which the instructor-applicant seeks authorization to provide instruction. Therefore, in addition to mastery of the knowledge and skills defined in the authorized instructor ACS, the instructor-applicant must demonstrate instructional competence for Tasks in the ACS for the appropriate certificate level or rating, to include analyzing and correcting common learner errors.

The ATSTWG continues work to complete its remaining assignments. These include developing a detailed proposal to realign and, as appropriate, streamline and consolidate existing FAA guidance material (e.g., handbooks) with each integrated ACS document; and to propose methodologies to ensure that knowledge test item bank questions are consistent with both the ACS documents and the test question development principles set forth in the ARC's recommendations.

The ACS documents are designed as the foundation for transitioning to a more integrated and systematic approach to airman certification testing and training. To accomplish this objective and achieve its overall safety goals, the ACS documents support the safety management system (SMS) framework. SMS methodology provides a systematic approach to achieving acceptable levels of safety risk. The ATSTWG is constructing ACS, associated guidance, and test item bank question components of the airman certification system around the four functional components of SMS:

• *Safety Policy* that demonstrates FAA senior management commitment to continually improve safety through enhancements to the airman certification testing and training system; specifically, better integration of the aeronautical knowledge, flight proficiency, and risk management components of the airman certification system;

• *Safety Risk Management* processes that create a structured means of safety risk management decision making to identify, assess, and determine acceptable level of risk associated with regulatory changes, safety recommendations, or other factors requiring modification of airman testing and training materials;

• *Safety Assurance* processes which allow increased confidence on the part of industry and FAA stakeholders in risk controls through a continual review of FAA products and the systematic, prompt and appropriate incorporation of changes arising from new regulations, data analysis, and safety recommendations; and

• *Safety Promotion* framework to support a positive safety culture in the form of training and ongoing engagement with both external stakeholders (e.g., the aviation training industry) and FAA policy divisions.

Time permitting, and given the foundational nature of the ACS documents and their importance in the ongoing evolution of the FAA's airman certification testing and training system, the ATSTWG wishes to make subsequent revised draft ACS documents for the private pilot certificate and the instrument rating, and of its current initial draft of the authorized instructor ACS, available to the public for one additional period of review and comment before it completes its work in September 2013. The ATSTWG would use the comments it receives to complete its work on this project and to develop its final report and recommendations.

Issued in Washington, DC on July 19, 2013.

Lirio Liu,

Designated Federal Officer, Aviation Rulemaking Advisory Committee.

[FR Doc. 2013–17782 Filed 7–23–13; 8:45 am]

BILLING CODE 4910–13–P

DEPARTMENT OF TRANSPORTATION

National Highway Traffic Safety Administration

[Docket No. NHTSA–2013–0045]

Reports, Forms and Record Keeping Requirements; Agency Information Collection Activity Under OMB Review

AGENCY: National Highway Traffic Safety Administration, DOT.

ACTION: Notice.

SUMMARY: In compliance with the Paperwork Reduction Act of 1995 (44 U.S.C. 3501 et seq.), this notice announces that the Information Collection Request (ICR) abstracted below will be forwarded to the Office of Management and Budget (OMB) for review and comment. The ICR describes the nature of the information collection and its expected burden. The **Federal Register** Notice with a 60-day comment period was published on April 18, 2013 (78 FR 23330). No comments were received.

Comments: Comments should be directed to the Office of Information and Regulatory Affairs, Office of Management and Budget, 725 17th Street NW., Washington, DC 20503, Attention NHTSA Desk Officer.

Type of Request: Extension of a currently approved collection.

Form Number: This collection of information uses no standard forms.

DATES: Comments must be submitted on or before August 23, 2013.

FOR FURTHER INFORMATION CONTACT: John Piazza, National Highway Traffic Safety Administration, Office of the Chief Counsel (NCC–111), (202) 366–9511, 1200 New Jersey Avenue SE., Washington, DC 20590.

SUPPLEMENTARY INFORMATION:

National Highway Traffic Safety Administration

Title: Criminal Penalty Safe Harbor Provision.

OMB Control Number: 2127–0609.

Frequency: We believe that there will be very few criminal prosecutions under 49 U.S.C. 30170, given the lack of prosecutions under the statute to date. Accordingly, it is not likely to be a substantial motivating force for a submission of a corrected report in response to an agency request for information. See Summary of the Collection of Information below. Based on our experience to date, we estimate that no more than one (1) person per year would be subject to this collection of information, and we do not anticipate receiving more than one report a year from any particular person.

Affected Public: This collection of information would apply to any person who seeks a ''safe harbor'' from potential criminal liability under 49 U.S.C. 30170. Thus, the collection of information could apply to the manufacturers, any officers or employees thereof, and other persons who respond or have a duty to respond to an information provision requirement pursuant to 49 U.S.C. 30166 or a regulation, requirement, request or order issued thereunder.

Abstract: NHTSA has published a final rule related to ''reasonable time'' and sufficient manner of ''correction,'' as they apply to the safe harbor from criminal penalties, as required by Section 5 of the Transportation Recall Enhancement, Accountability, and Documentation (TREAD) Act (Pub. L. 106–414), which was enacted on November 1, 2000. 65 FR 38380 (July 24, 2001).

Estimated Annual Burden: Using the above estimate of one (1) affected person a year, with an estimated two (2) hours of preparation to collect and provide the information, at an assumed rate of $26.70 an hour, the annual, estimated cost of collecting and preparing the

APPENDIX F: DRAFT COMMERCIAL PILOT ACS + TRACKING MATRIX

Appendix F includes the draft Commercial Pilot – Airplane Airman Certification Standards (ACS), as well as the Tracking Matrix documenting the transition from FAA-S-8081-12C, Commercial Pilot Practical Test Standards (PTS) for Airplane Single- and Multi-Engine Land and Sea to the Commercial Pilot – Airplane ACS.

NOTE: The Commercial Pilot Practical Test Standards Tracking Matrix appears first as an integrated component of this appendix, and the draft Commercial Pilot – Airplane ACS immediately follows as a stand-alone document.

FAA-S-8081-4E, Commercial Rating Practical Test Standards for Airplane, Helicopter, and Powered Lift
Section 1: Commercial Pilot – Airplane Single-Engine Land and Single-Engine Sea Areas of Operation
Change Tracking Matrix

PTS Task Reference	Name of PTS Task	ACS Task Reference	Name of ACS Task	Notes
I.A.	Certificates and Documents	I.A.	Pilot Qualifications	Removed (ASEL and ASES) from name of task—Combined PTS Sections 1 and 2 (Single-Engine and Multi-Engine) so all 4 classes (ASEL, ASES, AMEL, AMES) are represented in the single ACS Section 1. Airman Certificate Questions/Regulatory Currency/Medical Certificate Questions should be separated from determining whether the aircraft is airworthy. Changed name of task to *Pilot Qualifications*. Modified references to be specific to airman certificates.

PTS Task Reference	Name of PTS Task	ACS Task Reference	Name of ACS Task	Notes
I.B.	Airworthiness Requirements (ASEL and ASES)	I.B.	Airworthiness Requirements	Removed (ASEL and ASES) from name of task. Added tasks from Certificates and Documents (now Pilot Qualifications) as they apply to aircraft airworthiness. Added reference applicable to aircraft certificates and documents (14 CFR Part 43). Accounted for differences with light sport aircraft (how certified, how maintained).
I.C.	Weather Information (ASEL and ASES)	I.C.	Weather Information	Removed (ASEL and ASES) from name of task. Removed obsolete reference (AC 61-84). Need basic meteorology knowledge for risk assessment.
I.D.	Cross-Country Flight Planning (ASEL and ASES)	I.D.	Cross-Country Flight Planning	Removed (ASEL and ASES) from name of task. Remove obsolete reference (AC61-84). Task elements from current guidance relevant to planning and calculating flight plan have been moved to *Pilotage and Dead Reckoning* task.

PTS Task Reference	Name of PTS Task	ACS Task Reference	Name of ACS Task	Notes
I.E.	National Airspace System (ASEL and ASES)	I.E.	National Airspace System	Removed (ASEL and ASES) from name of task.
I.F.	Performance and Limitations (ASEL and ASES)	I.F.	Performance and Limitations	Removed (ASEL and ASES) from name of task. Removed AC 61-84 (obsolete) from Reference.
I.G.	Operation of Systems (ASEL and ASES)	I.G.	Operation of Systems	Removed (ASEL and ASES) from name of task. Removed ASES reference (FAA-H-8083-23).
I.H.	Water and Seaplane Characteristics (ASES)	I.I.	Water and Seaplane Characteristics, Seaplane Bases, Maritime Rules, And Aids to Marine Navigation (ASES, AMES)	Combined PTS I.H. and I.I. into a single Task
I.I.	Seaplane Bases, Maritime Rules, and Aids to Marine Navigation (ASES)	I.I.	Water and Seaplane Characteristics, Seaplane Bases, Maritime Rules, And Aids to Marine Navigation (ASES, AMES)	Combined PTS I.H. and I.I. into a single Task; combined Sections 1 and 2 (single-engine and multi-engine)
I.J	Aeromedical Factors (ASEL and ASES)	I.H.	Human Factors	Removed (ASEL and ASES) from name of task. Added human factors and changed name of task to *Human Factors* .
II.A.	Preflight Inspection (ASEL and ASES)	II.A.	Preflight Assessment	Removed (ASEL and ASES) from name of task. Change name of task to *Preflight Assessment* to capture risk management aspect of preflight planning.

PTS Task Reference	Name of PTS Task	ACS Task Reference	Name of ACS Task	Notes
II.B.	Cockpit Management (ASEL and ASES)	II.B.	Cockpit Management	Removed (ASEL and ASES) from name of task. Added AC 91-21.1, Use of Portable Electronic Devices, to References.
II.C.	Engine Starting (ASEL and ASES)	II.C.	Engine Starting	Removed (ASEL and ASES) from name of task.
II.D.	Taxiing (ASEL)	II.D.	Taxiing	Removed (ASEL) from name of task & absorbed Runway Markings, Signs and Lighting (Task III.C.) and Runway Incursion Avoidance (Task II.F.). Added A/FD, FAA-H-8083-25, AC 91-73, AC 150-5340-18 to References.
II.E.	Taxiing and Sailing (ASES)	II.E.	Taxiing and Sailing (ASES, AMES)	Combined PTS Sections 1 and 2.
II.F.	Runway Incursion Avoidance (ASEL and ASES)	-	COMBINED/ABSORBED	Absorbed in *Taxiing* task.
II.G.	Before Takeoff Check (ASEL and ASES)	II.E.	Before Takeoff Check	Removed (ASEL and ASES) from name of task. Removed ASES reference (FAA-H-8083-23).
III.A.	Radio Communications and ATC Light Signals (ASEL and ASES)	III.A.	Radio Communications and ATC Light Signals	Removed (ASEL and ASES) from name of task & removed ASES reference (FAA-H-8083-23). Added SRM and CRM to RM elements.
III.B.	Traffic Patterns (ASEL and ASES)	III.B.	Traffic Patterns	Removed (ASEL and ASES) from name of task per standard throughout ACSs.
III.C.	Airport/Seaplane Base, Runway, and Taxiway Signs, Markings, and Lighting (ASEL and ASES)	-	COMBINED/ABSORBED	Absorbed in *Taxiing* ACS task.

PTS Task Reference	Name of PTS Task	ACS Task Reference	Name of ACS Task	Notes
IV.A.	Normal and Crosswind Takeoff and Climb (ASEL and ASES)	IV.A.	Normal Takeoff and Climb	Changed name of task to Normal Takeoff and Climb because there are three kinds of approaches and landings (normal, short-field, soft-field) & removed ASES reference (FAA-H-8083-23).
IV.B.	Normal and Crosswind Approach and Landing (ASEL and ASES)	IV.B.	Normal Approach and Landing	Changed name of task to Normal Approach and Landing because there are three kinds of approaches and landings (normal, short-field, soft-field) & removed ASES reference (FAA-H-8083-23).
IV.C.	Soft-Field Takeoff and Climb (ASEL)	IV.C.	Soft-Field Takeoff and Climb (ASEL)	Removed (ASEL) from name of task.
IV.D.	Soft-Field Approach and Landing (ASEL)	IV.D.	Soft-Field Approach and Landing (ASEL)	Removed (ASEL) from name of task.
IV.E.	Short-Field Takeoff (Confined Area—ASES) and Maximum Performance Climb (ASEL and ASES)	IV.E.	Short-Field Takeoff and Maximum Performance Climb (ASEL, AMEL)	Removed (ASEL and ASES) from name of task. Removed ASES reference (FAA-H-8083-23).
IV.F.	Short-Field Approach (Confined Area—ASES) and Landing (ASEL and ASES)	IV.F.	Short-Field Approach and Landing (ASEL, AMEL)	Removed (ASEL and ASES) from name of task. Removed ASES reference (FAA-H-8083-23).
		IV.G.	Confined Area Takeoff and Maximum Performance Climb (ASES, AMES)	Split sea task out of Short-Field Takeoff Land task
		IV.H.	Confined Area Approach and Landing (ASES, AMES)	Split sea task out of Short-Field Approach Land task
IV.G.	Glassy Water Takeoff and Climb (ASES)	IV.I.	Glassy Water Takeoff and Climb (ASES, AMES)	Added AMES to name of task
IV.H.	Glassy Water Approach and Landing (ASES)	IV.J.	Glassy Water Approach and Landing (ASES, AMES)	Added AMES to name of task

PTS Task Reference	Name of PTS Task	ACS Task Reference	Name of ACS Task	Notes
IV.I.	Rough Water Takeoff and Climb (ASES)	IV.K.	Rough Water Takeoff and Climb (ASES, AMES)	Added AMES to name of task
IV.J.	Rough Water Approach and Landing (ASES)	IV.L.	Rough Water Approach and Landing (ASES, AMES)	Added AMES to name of task
IV.K.	Power-Off 180° Accuracy Approach and Landing (ASEL and ASES)	-	COMBINED/ABSORBED	Absorbed into new Emergency Descent and Landing (Simulated) task in Emergency Operations Area of Operations, which combines Power-Off 180° Accuracy Approach and Landing task (IV.K.) and Steep Spiral task (V.B.). Applicant should conduct steep spiral to intended landing point and then perform power-off 180 approach to landing. This maneuver is designed to allow for banked descent without engine power. Practically, this maneuver should terminate with a landing.
IV.L.	Go-Around/Rejected Landing (ASEL and ASES)	IV.M.	Go-Around/Rejected Landing	Removed (ASEL and ASES) from name of task & removed ASES reference (FAA-H-8083-23).
V.A.	Steep Turns (ASEL and ASES)	V.A.	Steep Turns	Removed (ASEL and ASES) from name of task.

PTS Task Reference	Name of PTS Task	ACS Task Reference	Name of ACS Task	Notes
V.B.	Steep Spiral (ASEL and ASES)	-	COMBINED/ABSORBED	Absorbed into new Emergency Descent and Landing (Simulated) task in Emergency Operations Area of Operations, which combines Power-Off 180° Accuracy Approach and Landing task (IV.K.) and Steep Spiral task (V.B.). Applicant should conduct steep spiral to intended landing point and then perform power-off 180 approach to landing. This maneuver is designed to allow for banked descent without engine power. Practically, this maneuver should terminate with a landing.
V.C.	Chandelles (ASEL and ASES)	V.B.	Chandelles	Removed (ASEL and ASES) from name of task. Removed (ASEL and ASES) from name of task. Emphasize the practicality of this maneuver rather than the mere performance of it. Applicants must understand when a chandelle is a valuable and worthwhile maneuver to be used in flight, as well as operational parameters that will lead to either the success or failure of the maneuver.
V.D.	Lazy Eights (ASEL and ASES)	V.C.	Lazy Eights	Removed (ASEL and ASES) from name of task.
VI.A.	Eights on Pylons (ASEL and ASES)	V.D.	Eights on Pylons	Removed (ASEL and ASES) from name of task.
VII.A.	Pilotage and Dead Reckoning (ASEL and ASES)	VI.A.	Pilotage and Dead Reckoning	Removed (ASEL and ASES) from name of task. Absorbs flight planning elements from Cross-Country Flight Planning task.

PTS Task Reference	Name of PTS Task	ACS Task Reference	Name of ACS Task	Notes
VII.B.	Navigation Systems and Radar Services (ASEL and ASES)	VI.B.	Navigation Systems and Radar Services	Removed (ASEL and ASES) from name of task & eliminated ADF/NDB testing at the Commercial Pilot level.
VII.C.	Diversion (ASEL and ASES)	VI.C.	Diversion	Removed (ASEL and ASES) from name of task & suggested removing VHF Direction Finder from all knowledge exams.
VII.D.	Lost Procedures (ASEL and ASES)	VI.D.	Lost Procedures	Removed (ASEL and ASES) from name of task & removed references to DF steer.
VIII.A.	Maneuvering During Slow Flight (ASEL and ASES)	VII.A.	Maneuvering During Slow Flight	Removed (ASEL and ASES) from name of task.
VIII.B.	Power-Off Stalls (ASEL and ASES)	VII.B.	Power-Off Stalls	Removed (ASEL and ASES) from name of task.
VIII.C.	Power-On Stalls (ASEL and ASES)	VII.C.	Power-On Stalls	Removed (ASEL and ASES) from name of task.
VIII.D.	Accelerated Stalls (ASEL and ASES)	VII.D.	Accelerated Stalls	Removed (ASEL and ASES) from name of task.
VIII.E.	Spin Awareness (ASEL and ASES)	VII.E.	Spin Awareness	Removed (ASEL and ASES) from name of task.
IX.A.	Emergency Descent (ASEL and ASES)	-	COMBINED/ABSORBED	Absorbed into *Systems and Equipment Malfunctions* task.
IX.B.	Emergency Approach and Landing (Simulated) (ASEL and ASES)	VIII.A.	Power Failure at Altitude (Simulated)	Changed name of task to Power Failure at Altitude (Simulated). Removed (ASEL and ASES) from name of task.

PTS Task Reference	Name of PTS Task	ACS Task Reference	Name of ACS Task	Notes
		VIII.B.	Emergency Descent and Landing (Simulated)	Combined Power-Off 180° Accuracy Approach and Landing task (IV.K.) and Steep Spiral task (V.B.) into new Emergency Descent and Landing (Simulated) task in Emergency Operations Area of Operation. Applicant should conduct steep spiral to intended landing point and then perform power-off 180 approach to landing. This maneuver is designed to allow for banked descent without engine power. Practically, this maneuver should terminate with a landing.
IX.C.	System and equipment Malfunctions (ASEL and ASES)	VIII.C.	System and equipment Malfunctions	Removed (ASEL and ASES) from name of task & absorbed Emergency Descent task.
IX.D.	Emergency Equipment and Survival Gear (ASEL and ASES)	VIII.D.	Emergency Equipment and Survival Gear	Removed (ASEL and ASES) from name of task.
X.A.	Supplemental Oxygen (ASEL and ASES)	X.A.	Supplemental Oxygen	Break down the task into Knowledge, Skills, and Risk Management. Removed (ASEL and ASES) from name of task.
X.B.	Pressurization (ASEL and ASES)	X.B.	Pressurization	Removed (ASEL and ASES) from name of task.
XI.A.	After Landing, Parking, and Securing (ASEL and ASES)	XI.A.	Parking, and Securing	Removed (ASEL and ASES) from name of task. Removed ASES reference (FAA-H-8083-23).
XI.B.	Anchoring (ASEL and ASES)	XI.B.	Seaplane Post-Landing Procedures	Combined PTS XII.B., C. D. into a single task

PTS Task Reference	Name of PTS Task	ACS Task Reference	Name of ACS Task	Notes
XI.C.	Docking and Mooring (ASES)	–	COMBINED/ABSORBED	
XI.E.	Ramping/Beaching (ASES)	–	COMBINED/ABSORBED	

FAA-S-8081-4E, Commercial Rating Practical Test Standards for Airplane, Helicopter, and Powered Lift
Section 2: Commercial Pilot – Airplane Multi-Engine Land and Multi-Engine Sea Areas of Operation
Change Tracking Matrix

PTS Task Reference	Name of PTS Task	ACS Task Reference	Name of ACS Task	Notes
I.A.	Certificates and Documents (AMEL and AMES)	I.A.	Pilot Qualifications	Removed (ASEL and ASES) from name of task—Combined PTS Sections 1 and 2 (Single-Engine and Multi-Engine) so all 4 classes (ASEL, ASES, AMEL, AMES) are represented in the single ACS Section 1. Airman Certificate Questions/Regulatory Currency/Medical Certificate Questions should be separated from determining whether the aircraft is airworthy. Changed name of task to *Pilot Qualifications* . Modified references to be specific to airman certificates.

PTS Task Reference	Name of PTS Task	ACS Task Reference	Name of ACS Task	Notes
I.B.	Airworthiness Requirements (AMEL and AMES)	I.B.	Airworthiness Requirements	Removed (ASEL and ASES) from name of task. Added tasks from Certificates and Documents (now Pilot Qualifications) as they apply to aircraft airworthiness. Added reference applicable to aircraft certificates and documents (14 CFR Part 43). Accounted for differences with light sport aircraft (how certified, how maintained).
I.C.	Weather Information (AMEL and AMES)	I.C.	Weather Information	Removed (ASEL and ASES) from name of task. Removed obsolete reference (AC 61-84). Need basic meteorology knowledge for risk assessment.
I.D.	Cross-Country Flight Planning (AMEL and AMES)	I.D.	Cross-Country Flight Planning	Removed (ASEL and ASES) from name of task. Remove obsolete reference (AC61-84). Task elements from current guidance relevant to planning and calculating flight plan have been moved to *Pilotage and Dead Reckoning* task.
I.E.	National Airspace System (AMEL and AMES)	I.E.	National Airspace System	Removed (ASEL and ASES) from name of task.

PTS Task Reference	Name of PTS Task	ACS Task Reference	Name of ACS Task	Notes
I.F.	Performance and Limitations (AMEL and AMES)	I.F.	Performance and Limitations	Removed (ASEL and ASES) from name of task. Removed AC 61-84 (obsolete) from Reference.
I.G.	Operation of Systems (AMEL and AMES)	I.G.	Operation of Systems	Removed (ASEL and ASES) from name of task. Removed ASES reference (FAA-H-8083-23).
I.H.	Principles of Flight - Engine Inoperative (AMEL and AMES)	I.J.	Principles of Flight - Engine Inoperative (AMEL, AMES)	
I.I.	Water and Seaplane Characteristics (AMES)	I.I.	Water and Seaplane Characteristics, Seaplane Bases, Maritime Rules, And Aids to Marine Navigation (ASES, AMES)	Combined PTS I.H. and I.I. into a single Task
I.J.	Seaplane Bases, Maritime Rules, and Aids to Marine Navigation (AMES)	I.I.	Water and Seaplane Characteristics, Seaplane Bases, Maritime Rules, And Aids to Marine Navigation (ASES, AMES)	Combined PTS I.H. and I.I. into a single Task; combined Sections 1 and 2 (single-engine and multi-engine)
I.K.	Aeromedical Factors (AMEL and AMES)	I.H.	Human Factors	Removed (ASEL and ASES) from name of task. Added human factors and changed name of task to *Human Factors*.
II.A.	Preflight Inspection (AMEL and AMES)	II.A.	Preflight Assessment	Removed (ASEL and ASES) from name of task. Change name of task to *Preflight Assessment* to capture risk management aspect of preflight planning.
II.B.	Cockpit Management (AMEL and AMES)	II.B.	Cockpit Management	Removed (ASEL and ASES) from name of task. Added AC 91-21.1, Use of Portable Electronic Devices, to References.

PTS Task Reference	Name of PTS Task	ACS Task Reference	Name of ACS Task	Notes
II.C.	Engine Starting (AMEL and AMES)	II.C.	Engine Starting	Removed (ASEL and ASES) from name of task.
II.D.	Taxiing (AMEL)	II.D.	Taxiing	Removed (ASEL) from name of task & absorbed Runway Markings, Signs and Lighting (Task III.C.) and Runway Incursion Avoidance (Task II.F.). Added A/FD, FAA-H-8083-25, AC 91-73, AC 150-5340-18 to References.
II.E.	Taxiing and Sailing (AMES)	II.E.	Taxiing and Sailing (ASES, AMES)	Combined PTS Sections 1 and 2
II.F.	Runway Incursion Avoidance (AMEL and AMES)	-	COMBINED/ABSORBED	Absorbed in *Taxiing* task.
II.G.	Before Takeoff Check (AMEL and AMES)	II.E.	Before Takeoff Check	Removed (ASEL and ASES) from name of task. Removed ASES reference (FAA-H-8083-23).
III.A.	Radio Communications and ATC Light Signals (AMEL and AMES)	III.A.	Radio Communications and ATC Light Signals	Removed (ASEL and ASES) from name of task & removed ASES reference (FAA-H-8083-23). Added SRM and CRM to RM elements.
III.B.	Traffic Patterns (AMEL and AMES)	III.B.	Traffic Patterns	Removed (ASEL and ASES) from name of task per standard throughout ACSs.
III.C.	Airport/Seaplane Base, Runway, and Taxiway Signs, Markings, and Lighting (AMEL and AMES)	-	COMBINED/ABSORBED	Absorbed in *Taxiing* ACS task.
IV.A.	Normal and Crosswind Takeoff and Climb (AMEL and AMES)	IV.A.	Normal Takeoff and Climb	Changed name of task to Normal Takeoff and Climb because there are three kinds of approaches and landings (normal, short-field, soft-field) & removed ASES reference (FAA-H-8083-23).

PTS Task Reference	Name of PTS Task	ACS Task Reference	Name of ACS Task	Notes
IV.B.	Normal and Crosswind Approach and Landing (AMEL and AMES)	IV.B.	Normal Approach and Landing	Changed name of task to Normal Approach and Landing because there are three kinds of approaches and landings (normal, short-field, soft-field) & removed ASES reference (FAA-H-8083-23).
IV.C.	Short-Field Takeoff (Confined Area—AMES) and Maximum Performance Climb (AMEL and AMES)	IV.E.	Short-Field Takeoff and Maximum Performance Climb (ASEL, AMEL)	Removed (ASEL and ASES) from name of task. Removed ASES reference (FAA-H-8083-23).
IV.D.	Short-Field Approach (Confined Area—AMES) and Landing (AMEL and AMES)	IV.F.	Short-Field Approach and Landing (ASEL, AMEL)	Removed (ASEL and ASES) from name of task. Removed ASES reference (FAA-H-8083-23).
		IV.G.	Confined Area Takeoff and Maximum Performance Climb (ASES, AMES)	Split sea task out of Short-Field Takeoff Land task
		IV.H.	Confined Area Approach and Landing (ASES, AMES)	Split sea task out of Short-Field Approach Land task
IV.E.	Glassy Water Takeoff and Climb (AMES)	IV.I.	Glassy Water Takeoff and Climb (ASES, AMES)	Added AMES to name of task
IV.F.	Glassy Water Approach and Landing (AMES)	IV.J.	Glassy Water Approach and Landing (ASES, AMES)	Added AMES to name of task
IV.G.	Rough Water Takeoff and Climb (AMES)	IV.K.	Rough Water Takeoff and Climb (ASES, AMES)	Added AMES to name of task
IV.H.	Rough Water Approach and Landing (AMES)	IV.L.	Rough Water Approach and Landing (ASES, AMES)	Added AMES to name of task
IV.I.	Go-Around/Rejected Landing (AMEL and AMES)	IV.M.	Go-Around/Rejected Landing	Removed (ASEL and ASES) from name of task & removed ASES reference (FAA-H-8083-23).
V.A.	Steep Turns (AMEL and AMES)	V.A.	Steep Turns	Removed (ASEL and ASES) from name of task.

PTS Task Reference	Name of PTS Task	ACS Task Reference	Name of ACS Task	Notes
VI.A.	Pilotage and Dead Reckoning (AMEL and AMES)	VI.A.	Pilotage and Dead Reckoning	Removed (ASEL and ASES) from name of task. Absorbs flight planning elements from Cross-Country Flight Planning task.
VI.B.	Navigation Systems and Radar Services (AMEL and AMES)	VI.B.	Navigation Systems and Radar Services	Removed (ASEL and ASES) from name of task & eliminated ADF/NDB testing at the Commercial Pilot level.
VI.C.	Diversion (AMEL and AMES)	VI.C.	Diversion	Removed (ASEL and ASES) from name of task & suggested removing VHF Direction Finder from all knowledge exams.
VI.D.	Lost Procedures (AMEL and AMES)	VI.D.	Lost Procedures	Removed (ASEL and ASES) from name of task & removed references to DF steer.
VII.A.	Maneuvering During Slow Flight (AMEL and AMES)	VII.A.	Maneuvering During Slow Flight	Removed (ASEL and ASES) from name of task.
VII.B.	Power-Off Stalls (AMEL and AMES)	VII.B.	Power-Off Stalls	Removed (ASEL and ASES) from name of task.
VII.C.	Power-On Stalls (AMEL and AMES)	VII.C.	Power-On Stalls	Removed (ASEL and ASES) from name of task.
VII.D.	Accelerated Stalls (AMEL and AMES)	VII.D.	Accelerated Stalls	Removed (ASEL and ASES) from name of task.
VII.E.	Spin Awareness (AMEL and AMES)	VII.E.	Spin Awareness	Removed (ASEL and ASES) from name of task.
VIII.A.	Emergency Descent (AMEL and AMES)	-	COMBINED/ABSORBED	Absorbed into *Systems and Equipment Malfunctions* task.
VIII.B.	Engine Failure During Takeoff Before V_{MC} (Simulated) (AMEL and AMES)	VIII.E.	Engine Failure During Takeoff Before V_{MC} (Simulated) (AMEL, AMES)	
VIII.C.	Engine Failure After Lift-Off (Simulated) (AMEL and AMES)	VIII.F.	Engine Failure After Lift-Off (Simulated) (AMEL, AMES)	
VIII.D.	Approach and Landing with an Inoperative Engine (Simulated) (AMEL and AMES)	VIII.G.	Approach and Landing with an Inoperative Engine (Simulated) (AMEL, AMES)	
VIII.E.	Systems and Equipment Malfunctions (AMEL and AMES)	VIII.C.	Systems and Equipment Malfunctions	

PTS Task Reference	Name of PTS Task	ACS Task Reference	Name of ACS Task	Notes
VIII.F.	Emergency Equipment and Survival Gear (AMEL and AMES)	VIII.D.	Emergency Equipment and Survival Gear	
IX.A.	Supplemental Oxygen (AMEL and AMES)	X.A.	Supplemental Oxygen	
IX.B.	Pressurization (AMEL and AMES)	X.B.	Pressurization	
X.A.	Maneuvering with One Engine Inoperative (AMEL and AMES)	IX.A.	Maneuvering with One Engine Inoperative (AMEL and AMES)	
X.B.	V_{MC} Demonstration (AMEL and AMES)	IX.B.	V_{MC} Demonstration (AMEL and AMES)	
X.C.	Engine Failure During Flight (by Reference to Instruments) (AMEL and AMES)	IX.C.	Engine Failure During Flight (by Reference to Instruments) (AMEL and AMES)	
X.D.	Instrument Approach One Engine Inoperative (by Reference to Instruments) (AMEL and AMES)	IX.D.	Instrument Approach One Engine Inoperative (by Reference to Instruments) (AMEL and AMES)	
XI.A.	After Landing, Parking, and Securing (AMEL and AMES)	XI.A.	Parking, and Securing	Removed (ASEL and ASES) from name of task. Removed ASES reference (FAA-H-8083-23).
XI.B.	Anchoring (AMES)	XI.B.	Seaplane Post-Landing Procedures	Combined PTS XII.B., C. D. into a single task
XI.C.	Docking and Mooring (AMES)	–	COMBINED/ABSORBED	
XI.D.	Ramping/Beaching (AMES)	–	COMBINED/ABSORBED	

FAA-S-8081-XX

U.S. Department
of Transportation

Federal Aviation Administration

COMMERCIAL PILOT – AIRPLANE

Airman Certification Standards

Date TBD

FLIGHT STANDARDS SERVICE
Washington, DC 20591

ACKNOWLEDGMENTS

The U.S. Department of Transportation, Federal Aviation Administration (FAA), Airman Testing Standards Branch, AFS-630, P.O. Box 25082, Oklahoma City, OK 73125 developed this Airman Certification Standards (ACS) document with the assistance of the aviation community. The FAA gratefully acknowledges the valuable support from the many individuals and organizations who contributed their time and expertise to assist in this endeavor.

AVAILABILITY

This ACS is available for download from www.faa.gov. Please send comments regarding this document to AFS630comments@faa.gov.

FOREWORD

The Federal Aviation Administration (FAA) has published the Commercial Pilot—Airplane Airman Certification Standards (ACS) document to communicate the aeronautical knowledge, flight proficiency, and risk management standards for commercial pilot certification in the airplane category, single-engine land and sea; and multiengine land and sea classes. This ACS incorporates and supersedes the previous Practical Test Standards (PTS).

The FAA views the ACS as the foundation of its transition to a more integrated and systematic approach to airman certification. The ACS is part of the safety management system (SMS) framework that the FAA uses to mitigate risks associated with airman certification training and testing to an acceptable level. Specifically, the ACS, associated guidance, and test item bank question components of the airman certification system are constructed around the four functional components of an SMS:

- Safety Policy that defines and describes aeronautical knowledge, flight proficiency, and risk management as integrated components of the airman certification system;
- Safety Risk Management processes through which internal and external stakeholders identify and evaluate regulatory changes, safety recommendations, or other factors that require modification of airman testing and training materials;
- Safety Assurance processes to ensure the prompt and appropriate incorporation of changes arising from new regulations and safety recommendations; and
- Safety Promotion in the form of ongoing engagement with both external stakeholders (e.g., the aviation training industry) and FAA policy divisions.

In this connection, the FAA gratefully acknowledges and deeply appreciates the many hours that aviation training experts throughout the industry have contributed to the development of this ACS, along with the associated guidance and a more systematic approach to knowledge test question development. This kind of collaboration, a hallmark of a robust safety culture, strengthens and enhances aviation safety at every level of the airman certification system.

John S. Duncan
Acting Director, Flight Standards Service

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INTRODUCTION

Airman Certification Standards Concept

The goal of the airman certification process is to ensure the applicant possesses the knowledge and skill as well as the ability to manage the risks of flight in order to act as pilot in command consistent with the privileges of the certificate or rating being exercised. In fulfilling its responsibilities for the airman certification process, the Federal Aviation Administration (FAA) Flight Standards Service (AFS) plans, develops, and maintains materials related to airman certification training and testing.

Historically, these materials have included several components. The FAA knowledge test measures mastery of the aeronautical knowledge areas listed in Title 14 of the Code of Federal Regulations (14 CFR) part 61. The Practical Test Standards (PTS) define the acceptable parameters of flight proficiency in the Areas of Operation listed in14 CFR part 61. FAA H-series handbooks, test supplements, and other materials provide guidance to applicants, instructors, and evaluators on aeronautical knowledge, flight proficiency, and risk management.

The FAA recognizes that safe operations in today's complex National Airspace System (NAS) require a more systematic integration of aeronautical knowledge, flight proficiency standards, and risk management. The FAA further recognizes the need to more clearly standardize knowledge, skills, and risk management according to the level of the certificate or rating. To that end, the FAA drew upon the expertise of organizations and individuals across the aviation community to develop the Airman Certification Standards (ACS). The ACS incorporates and supersedes the PTS.

Based on aeronautical knowledge and flight proficiency standards specified in 14 CFR part 61, the ACS integrates the knowledge, skills, and risk management abilities necessary for the safe conduct of each Task. In keeping with this integrated and systematic approach, the knowledge, skills, and risk management sections of each Task stipulate that the applicant must demonstrate understanding of each specific item. The applicant demonstrates this understanding by passing the knowledge exam and practical test.

Throughout this process, the FAA expects evaluators to assess the applicant's mastery of the topic in accordance with the level of learning (i.e., rote, understanding, application, or correlation) most appropriate for the specified Task. For some topics, the evaluator will ask the applicant to describe or explain. For other items, the evaluator will assess the applicant's understanding by providing a scenario that requires the applicant to appropriately apply and/or correlate knowledge, experience, and information to the circumstances of the given scenario. The flight portion of the practical test requires the applicant to demonstrate flight proficiency, operational skill, and risk management in accordance with the ACS.

NOTE: As used in this ACS, an evaluator is any person authorized to conduct airman testing (e.g., an FAA aviation safety inspector, designated pilot examiner, or other individual authorized to conduct a practical test.

Using the ACS

The ACS consists of ***Areas of Operation,*** arranged in a logical sequence that begins with Preflight Preparation and ends with Postflight Procedures. Each Area of Operation includes ***Tasks*** appropriate to that Area of Operation. Each Task begins with an ***Objective*** stating what the applicant should know and/or do. The ACS then lists the aeronautical knowledge, skills, and risk management considerations relevant to the specific Task, along with the conditions and acceptable standards for performance. The ACS uses ***Notes*** to emphasize special considerations. The FAA will revise the ACS as circumstances require.

The abbreviation(s) within parenthesis immediately following a Task refer to the category and/or class aircraft appropriate to that Task. The meaning of each abbreviation is as follows.

ASEL: Airplane – Single Engine Land
ASES: Airplane – Single-Engine Sea
AMEL: Airplane – Multi Engine Land
AMES: Airplane – Multi Engine Sea

NOTE: When administering a test based on this ACS, the Tasks appropriate to the class airplane (ASEL, ASES, AMEL, or AMES) used for the test shall be included in the plan of action. The absence of a class indicates the Task is for all classes.

Each Task in the ACS is coded according to a scheme that includes up to five elements. For example:

CA.I.C.K1.a:
CA = Applicable ACS (commercial pilot airplane)
I = Area of Operation (preflight preparation)
C = Task (weather information);
K1 = Knowledge Task element 1 (weather products required for preflight planning and enroute operations)

NOTE: The fifth element may be used to indicate the level of learning: a=rote; b=understanding; c= application; d= correlation.

Knowledge test questions are mapped to the ACS codes, which replace the previous system of "Learning Statement Codes." Because the airman knowledge test report will list an ACS code that correlates to a specific Task Element for a given Area of Operation and Task, remedial instruction and re-testing will be specific, targeted, and based on specified learning criteria. Similarly, a Notice of Disapproval for the practical test will use the ACS codes to identify the deficient skill(s).

Practical Tests will be based on the ACS in effect the day of the test. The FAA encourages applicants and instructors to use the ACS to measure progress during training, and as a reference to ensure the applicant is adequately prepared for the knowledge and practical tests.

The FAA expects evaluators to adhere to 14 CFR and this ACS. The ACS uses the terms "will" and "must" to convey directive (mandatory) information. The terms "should" and "may" denote items that are recommended, but not required.

The applicant must pass the knowledge test before taking the practical test. Further, the applicant must pass the oral portion of the practical test before beginning the flight portion because the oral portion of the practical test allows the evaluator to determine whether the applicant is sufficiently prepared to advance to the flight portion of the practical test.

AIRPLANE—SINGLE ENGINE, MULTI ENGINE LAND AND SEA AREAS OF OPERATION

I. Preflight Preparation

Task	***A. Pilot Qualifications***
Reference	14 CFR parts 61, 91, 119; FAA-H-8083-25, FAA-H-8083-23
Objective	To determine the applicant exhibits satisfactory knowledge, skills and risk management associated with airman and medical certificates including privileges, limitations, currency, and operating as pilot-in-command as a commercial pilot.
Knowledge	The applicant demonstrates understanding of: 1. Currency, regulatory compliance, privileges and limitations. (CA.I.A.K1) 2. Location of airman documents and identification required when exercising commercial pilot privileges. (CA.I.A.K2) 3. Inspection of certificate. (CA.I.A.K3) 4. Pilot logbook/record-keeping. (CA.I.A.K4) 5. Compensation. (CA.I.A.K5) 6. Towing. (CA.I.A.K6) 7. Category and Class. (CA.I.A.K7) 8. Endorsements. (CA.I.A.K8) 9. Medical Certificates: class, expiration, privileges, temporary disqualifications. (CA.I.A.K9) 10. Drugs, alcohol regulatory restrictions that affect the pilot's ability to operate safely. (CA.I.A.K10)
Skills	The applicant demonstrates the ability to apply requirements to act as PIC in a scenario given by the evaluator.
Risk Management	The applicant applies risk identification, assessment, and mitigation principles to: 1. Distinguishing proficiency vs. currency. (CA.I.A.R1) 2. Setting personal minimums. (CA.I.A.R2) 3. Maintaining fitness to fly. (CA.I.A.R3) 4. Flying unfamiliar aircraft. (CA.I.A.R4) 5. Flying with unfamiliar flight display systems or unfamiliar avionics. (CA.I.A.R5)

Task	***B. Airworthiness Requirements***
Reference	14 CFR parts 39, 43, 91; FAA-H-8083-25
Objective	To determine the applicant exhibits satisfactory knowledge, skills and risk management associated with airworthiness requirements, including aircraft certificates and checklist compliance.
Knowledge	The applicant demonstrates understanding of: 1. General airworthiness requirements and compliance for airplanes. (CA.I.B.K1) a. Certificate location and expiration dates b. Required inspections c. Inspection requirements 2. Individuals who can perform maintenance on the aircraft, including A&P and IA roles in aircraft maintenance. (CA.I.B.K2) 3. Pilot-performed preventative maintenance. (CA.I.B.K3) 4. Equipment requirements for day and night flight including flying with inoperative equipment (approved Minimum Equipment List (MEL), Kinds of Operation Equipment List (KOEL), required equipment for VFR and IFR flight, required equipment, placards). (CA.I.B.K4) 5. Proving airworthiness (specifics of the aircraft–compliance with Airworthiness Directives or Safety Bulletins). (CA.I.B.K5) 6. Obtaining a special flight permit. (CA.I.B.K6) 7. Experimental aircraft airworthiness. (CA.I.B.K7) 8. Equipment malfunctions. (CA.I.B.K8)
Skills	The applicant demonstrates the ability to: 1. Locate aircraft airworthiness information. (CA.I.B.S1) 2. Determine the aircraft is airworthy in a scenario given by the evaluator. (CA.I.B.S2) 3. Explain conditions where flight can be made with inoperative equipment. (CA.I.B.S3)
Risk Management	The applicant applies risk identification, assessment, and mitigation principles to: 1. Flying with inoperative equipment. (CA.I.B.R1) 2. Equipment failure during flight. (CA.I.B.R2) 3. Proper reporting discrepancies or placards. (CA.I.B.R3)

Task	***C. Weather Information***
Reference	14 CFR part 91; AC 00-6, AC 00-45, FAA-H-8083-25; AIM
Objective	To determine the applicant exhibits satisfactory knowledge, skills and risk management associated with weather information for a flight under visual flight rules (VFR).
Knowledge	The applicant demonstrates understanding of: 1. Weather products required for preflight planning and enroute operations. (CA.I.C.K1) 2. Current and forecast weather for departure, arrival, enroute phases of flight. (CA.I.C.K2) 3. Meteorology applicable to local, departure, enroute, alternate, and destination of VFR flight in VMC to include expected climate and hazardous conditions such as: (CA.I.C.K3) a. Atmospheric composition and stability b. Wind c. Temperature d. Moisture e. Weather system formation, including air masses and fronts f. Clouds g. Turbulence h. Thunderstorms i. Wind shear j. Icing k. Fog l. Frost 4. Enroute weather resources. (CA.I.C.K4)
Skills	The applicant demonstrates the ability to: 1. Use available aviation weather resources to obtain an adequate weather briefing. (CA.I.C.S1) 2. Correlate weather information to determine alternate requirements. (CA.I.C.S2) 3. Correlate available weather information to make a competent go-no-go decision. (CA.I.C.S3) 4. Perform procedures to update/interpret weather in flight. (CA.I.C.S4) 5. Given scenario, divert. (CA.I.C.S5) 6. Evaluate environmental conditions using valid and reliable information sources to be able to make a competent go/no-go or diversion decision. (CA.I.C.S6)
Risk Management	The applicant applies risk identification, assessment, and mitigation principles to: 1. Making a valid go/no-go decision. (CA.I.C.R1) 2. Weather in flight. (CA.I.C.R2) 3. Dynamic weather affecting flight. (CA.I.C.R3) 4. Limitations of portable weather equipment. (CA.I.C.R4) 5. Limitations of aviation weather reports and forecasts. (CA.I.C.R5) 6. Limitations of inflight aviation weather resources. (CA.I.C.R6) 7. Identifying alternate airports along the intended route of flight and circumstances that would make diversion prudent. (CA.I.C.R7) 8. Identifying weather conditions that may affect the planned flight. (CA.I.C.R8)

Task	***D. Cross-Country Flight Planning***
Reference	14 CFR part 91; FAA-H-8083-25; Navigation Charts; A/FD; AIM; NOTAMS
Objective	To determine the applicant exhibits satisfactory knowledge, skills and risk management associated with cross-country flights and VFR flight planning.
Knowledge	The applicant demonstrates understanding of: 1. Route planning. (CA.I.D.K1) 2. Applying universal coordinated time to flight planning. (CA.I.D.K2) 3. Converting and calculating time relative to time zones and ETA. (CA.I.D.K3) 4. Calculating heading, speed, course. (CA.I.D.K4) 5. Calculating time, rate, distance. (CA.I.D.K5) 6. Fuel planning. (CA.I.D.K6) 7. Altitude selection accounting for terrain and obstacles, glide distance of aircraft, hemispherical rules, and effect of wind. (CA.I.D.K7) 8. Conditions conducive to icing. (CA.I.D.K8) 9. Symbology found on VFR charts. (CA.I.D.K9) 10. Elements of a VFR flight plan. (CA.I.D.K10) 11. Procedures for activating a VFR flight plan in controlled and non-controlled airspace. (CA.I.D.K11)
Skills	The applicant demonstrates the ability to: 1. Prepare a cross-country flight assigned by the evaluator. (CA.I.D.S1) 2. Transfer knowledge used for one region to another region (given local climate, terrain, etc.). (CA.I.D.S2) 3. Update fuel planning/manage fuel. (CA.I.D.S3) 4. Select appropriate routes, altitudes, and checkpoints. (CA.I.D.S4) 5. Recalculate fuel reserves based on a scenario provided by the evaluator. (CA.I.D.S5) 6. Create and file a VFR flight plan. (CA.I.D.S6) 7. Interpret departure, enroute, arrival, route with reference to proper charts. (CA.I.D.S7) 8. Demonstrate diversion to alternate. (CA.I.D.S8)
Risk Management	The applicant applies risk identification, assessment, and mitigation principles to: 1. Pilot. (CA.I.D.R1) 2. Aircraft. (CA.I.D.R2) 3. Environment. (CA.I.D.R3) 4. External pressures. (CA.I.D.R4) 5. Lack of appropriate training when flight is planned in an area different from local area such as mountains, high density airspace, or Alaska. (CA.I.D.R5) 6. Tendency to complete the flight in spite of changing conditions. (CA.I.D.R6) 7. Not maintaining appropriate VFR altitudes for the direction of flight. (CA.I.D.R7) 8. Limitations of ATC services. (CA.I.D.R8) 9. Establishing conservative fuel reserves. (CA.I.D.R9) 10. Planning a route overflying significant environmental influences, such mountains, and large bodies of water. (CA.I.D.R10) 11. Overflying areas unsuitable for landing or below personal minimums. (CA.I.D.R11)

Task	*E. National Airspace System*
Reference	14 CFR parts 71, 91, 93; Navigation Charts; AIM
Objective	To determine the applicant exhibits satisfactory knowledge, skills and risk management associated with the National Airspace System operating under VFR as a commercial pilot.
Knowledge	The applicant demonstrates understanding of: 1. Kinds of airspace/airspace classes. (CA.I.E.K1) 2. Charting symbology. (CA.I.E.K2) 3. Requirements for flying in that airspace. (CA.I.E.K3) 4. Special use airspace. (CA.I.E.K4) 5. Temporary flight restrictions. (CA.I.E.K5) 6. Aircraft speed requirements in various classes of airspace. (CA.I.E.K6)
Skills	The applicant demonstrates the ability to: 1. Determine the requirements for flying in particular classes of airspace. (CA.I.E.S1) 2. Determine the requirements for flying in special use airspace, and special flight rule airspace. (CA.I.E.S2) 3. Properly identify airspace and operate accordingly with regards to communication and equipment requirements. (CA.I.E.S3)
Risk Management	The applicant applies risk identification, assessment, and mitigation principles to: 1. Various classes of airspace. (CA.I.E.R1) 2. Maintaining VFR at night underneath airspace. (CA.I.E.R2) 3. Special use airspace. (CA.I.E.R3) 4. Effectively planning for compliance with or avoidance of specific enroute airspace. (CA.I.E.R4)

Task	***F. Performance and Limitations***
Reference	FAA-H-8083-1, FAA-H-8083-25; POH/AFM
Objective	To determine the applicant exhibits satisfactory knowledge, skills and risk management associated with operating an aircraft safely within the parameters of the aircraft performance capabilities and limitations.
Knowledge	The applicant demonstrates understanding of: 1. Elements related to performance and limitations (takeoff and landing, crosswind and headwind, density altitude, glide performance, weight and balance, climb, cruise, descent) by explaining the use of charts, tables, and data to determine performance. (CA.I.F.K1) 2. Factors affecting performance to include atmospheric conditions, pilot technique and aircraft condition, airport environment. (CA.I.F.K2) 3. Effects of loading on performance. (CA.I.F.K3) 4. Effects of exceeding weight and balance limits. (CA.I.F.K4) 5. Effects of weight and balance changes over the course of the flight. (CA.I.F.K5) 6. Aerodynamics. (CA.I.F.K6)
Skills	The applicant demonstrates the ability to: 1. Given scenario, compute weight and balance, including practical techniques to resolve out-of-limits calculations. (CA.I.F.S1) 2. Use aircraft manufacturer's approved performance charts, tables, and data. (CA.I.F.S2) 3. Evaluate takeoff and landing performance based on the values calculated. (CA.I.F.S3) 4. Evaluate environmental conditions. (CA.I.F.S4)
Risk Management	The applicant applies risk identification, assessment, and mitigation principles to: 1. Performance charts. (CA.I.F.R1) 2. Exceeding limitations. (CA.I.F.R2) 3. Variations in flight performance resulting in weight and balance changes during flight. (CA.I.F.R3) 4. Applying published aircraft performance data to expected performance. (CA.I.F.R4)

Task	***G. Operation of Systems***
Reference	FAA-H-8083-25, POH/AFM
Objective	To determine the applicant exhibits satisfactory knowledge, skills and risk management associated with the safe operation of systems on the airplane provided for the flight test.
Knowledge	The applicant demonstrates understanding of: 1. Major components of the systems: (CA.I.G.K2) a. Primary flight controls and trim b. Flaps, leading edge devices, and spoilers c. Powerplant and propeller (basic engine knowledge) d. Landing gear e. Fuel, oil, and hydraulic f. Electrical g. Avionics h. Pitot-static, vacuum/pressure, ADC/AHARS and associated flight instruments i. Environmental j. Deicing and anti-icing 2. Normal operation of systems. (CA.I.G.K2) 3. Common mistakes made by pilots (operator error). (CA.I.G.K3) 4. Abnormal operation of systems (recognition of system failures/malfunctions). (CA.I.G.K4) 5. Systems interaction. (CA.I.G.K5)
Skills	The applicant demonstrates the ability to: 1. Explain operation of systems/operate systems. (CA.I.G.S1) 2. Use checklist procedures. (CA.I.G.S2) 3. Use checklist memory items during emergency operations, as applicable. (CA.I.G.S3)
Risk Management	The applicant applies risk identification, assessment, and mitigation principles to: 1. Handling a failure properly. (CA.I.G.R1) 2. Effective troubleshooting of system failures/malfunctions. (CA.I.G.R2) 3. Pilot error, including improperly operating the system that creates failure or problem. (CA.I.G.R3) 4. Determining and/or declaring an emergency. (CA.I.G.R4) 5. Ways to identify system failure, recognizing problems as they develop. (CA.I.G.R5) 6. Outside/environmental factors affecting the systems, including improper fueling, carburetor ice, extremely cold temperatures, vapor lock. (CA.I.G.R6)

Task	***H. Human Factors***
Reference	FAA-H-8083-25; AIM
Objective	To determine the applicant exhibits satisfactory knowledge, skills and risk management associated with personal health, flight physiology and human factors, as it relates to safety of flight.
Knowledge	The applicant demonstrates understanding of: 1. The symptoms, recognition, causes, effects, and corrective actions associated with:(Require all) (CA.I.H.K1) a. hypoxia b. hyperventilation c. middle ear and sinus problems d. spatial disorientation e. motion sickness f. carbon monoxide poisoning g. stress and fatigue h. dehydration and improper/insufficient nutrition i. medication (OTC and Prescription) 2. The effects of alcohol, drugs, and over-the-counter medications, and associated regulations. (CA.I.H.K2) 3. The effects of excess nitrogen during scuba dives upon a pilot or passenger in flight. (CA.I.H.K3) 4. Aeronautical decision making as affected by hazardous attitudes. (CA.I.H.K4) 5. Vision (including optical illusion, environmental impacts, day/night, haze, sloping runways). (CA.I.H.K5) 6. Collision Avoidance (CFIT, scanning, obstacle and wire strike avoidance). (CA.I.H.K6)
Skills	The applicant demonstrates the ability to: 1. Perform self-assessment including whether he or she is fit for flight. (CA.I.H.S1) 2. Show sound decision-making and judgment (based on reality of circumstances). (CA.I.H.S2) 3. Perform Safety Risk Management (SRM) tasks: Aeronautical Decision Making (ADM), risk management, automation management, task management, situational awareness, and avoidance of CFIT. (CA.I.H.S3) 4. Using examples, account for environmental impacts/visual cues at the airport, as well as at one airport vs. a different airport. (CA.I.H.S4) 5. Establish personal limitations. (CA.I.H.S5)
Risk Management	The applicant applies risk identification, assessment, and mitigation principles to: 1. Environmental impacts on medication. (CA.I.H.R1) 2. Personal risk factors and the conflict between being goal oriented and personal limitations. (CA.I.H.R2) 3. Optical illusions, including awareness, being able to anticipate, and limiting the effects. (CA.I.H.R3 4. Circumstances of the flight (day/night, hot/cold) that affect the pilot's physiology. (CA.I.H.R4) 5. Inadvertent continued VFR into Instrument Meteorological Conditions (IMC) (check Weather) (CA.I.H.R5) 6. Hazardous attitudes. (CA.I.H.R6)

Task	***I. Water and Seaplane Characteristics, Seaplane Bases, Maritime Rules, and Aids to Marine Navigation (ASES, AMES)***
Reference	FAA-H-8083-23; AIM; USCG Navigation Rules, International-Inland; POH/AFM; A/FD
Objective	To determine the applicant exhibits satisfactory knowledge, skills and risk management associated with water and seaplane characteristics, seaplane bases, maritime rules, and aids to marine navigation.
Knowledge	The applicant demonstrates understanding of: 1. The characteristics of a water surface as affected by features, such as: (CA.I.I.K1) a. size and location b. protected and unprotected areas c. surface wind d. direction and strength of water current e. floating and partially submerged debris f. sandbars, islands, and shoals g. vessel traffic and wakes h. other features peculiar to the area 2. Float and hull construction, and their effect on seaplane performance. (CA.I.I.K2) 3. Causes of porpoising and skipping, and the pilot action required to prevent or correct these occurrences. (CA.I.I.K3) 4. How to locate and identify seaplane bases on charts or in directories. (CA.I.I.K4) 5. Operating restrictions at various bases. (CA.I.I.K5) 6. Right-of-way, steering, and sailing rules pertinent to seaplane operation. (CA.I.I.K6) 7. Marine navigation aids, such as buoys, beacons, lights, and sound signals. (CA.I.I.K7)
Skills	The applicant demonstrates the ability to: 1. Assess the water surface characteristics for today's flight. (CA.I.I.S1) 2. Locate and identify seaplane bases for the region. (CA.I.I.S2) 3. Identify restrictions at local bases. (CA.I.I.S3) 4. Perform correct right-of-way, steering, and sailing operations. (CA.I.I.S4) 5. Identify marine navigation aids in the local region. (CA.I.I.S5)
Risk Management	The applicant applies risk identification, assessment, and mitigation principles to: 1. Assessing the local conditions. (CA.I.I.R1) 2. The impact of marine traffic. (CA.I.I.R2)

Task	***J. Principles of Flight – Engine Inoperative (AMEL, AMES)***
Reference	FAA-H-8083-3, FAA-H-8083-25; FAA-P-8740-19, POH/AFM
Objective	To determine the applicant exhibits satisfactory knowledge, skills and risk management associated with the elements related to engine inoperative principles of flight.
Knowledge	The applicant demonstrates understanding of: 1. The "critical engine." (CA.I.J.K1) 2. The effects of density altitude on the Vmc demonstration. (CA.I.J.K2) 3. The effects of airplane weight and center of gravity on control. (CA.I.J.K3) 4. Relationship of Vmc to stall speed. (CA.I.J.K4) 5. Reasons for loss of directional control. (CA.I.J.K5) 6. Indications of loss of directional control. (CA.I.J.K6) 7. Importance of maintaining the proper pitch and bank attitude, and the proper coordination of controls. (CA.I.J.K7) 8. Loss of directional control recovery procedure. (CA.I.J.K8) 9. Engine failure during takeoff including planning, decisions, and single-engine operations. (CA.I.J.K9)
Skills	The applicant demonstrates the ability to: 1. Properly plan for engine failure during takeoff. (CA.I.J.S1)
Risk Management	The applicant applies risk identification, assessment, and mitigation principles to: 1. Single-engine operations. (CA.I.J.R1)

II. Preflight Procedures

Task	***A. Preflight Assessment***
Reference	FAA-H-8083-3, FAA-H-8083-23; POH/AFM
Objective	To determine the applicant exhibits satisfactory knowledge, skills and risk management associated with preparing for safe flight accounting for pilot, aircraft, environment, and external factors.
Knowledge	The applicant demonstrates understanding of: 1. Pilot self-assessment. (CA.II.A.K1) 2. Determine if the aircraft is appropriate for the mission by considering load, range, equipment and aircraft ability. (CA.II.A.K2) 3. Aircraft preflight inspection including which items must be inspected, the reasons for checking each item, and how to detect possible defects, and the associated regulations. (CA.II.A.K3) 4. Environmental factors including weather and flight plan (terrain, route selection, obstructions). (CA.II.A.K4) 5. External pressures. (CA.II.A.K5)
Skills	The applicant demonstrates the ability to: 1. Use checklist to systematically identify and manage pilot-related risks and personal minimums associated with the flight. (CA.II.A.S1) 2. Inspect the airplane with reference to an appropriate checklist. (CA.II.A.S2) 3. Verify the airplane is airworthy and in condition for safe flight. (CA.II.A.S3) 4. Assess the factors related to the environment (weather, airports, terrain, airspace). (CA.II.A.S4)
Risk Management	The applicant applies risk identification, assessment, and mitigation principles to: 1. Environmental factors. (CA.II.A.R1) 2. External pressures. (CA.II.A.R2) 3. Aviation security concerns. (CA.II.A.R3)

Task	***B. Cockpit Management***
Reference	FAA-H-8083-3; POH/AFM; AC 91-21.1
Objective	To determine the applicant exhibits satisfactory knowledge, skills and risk management associated with safe cockpit management practices.
Knowledge	The applicant demonstrates understanding of: 1. Pilot and passenger restraint and safety system rules and operational considerations. (CA.II.B.K1) 2. Oxygen use regulations, system operational guidelines, and system checks, if applicable. (CA.II.B.K2) 3. Passenger briefing requirements and appropriate information. (CA.II.B.K3) 4. PIC responsibility to have available material for the flight as planned. (CA.II.B.K4) 5. Purpose of a checklist. (CA.II.B.K5)
Skills	The applicant demonstrates the ability to: 1. Ensure all loose items in the cockpit and cabin are secured. (CA.II.B.S1) 2. Organize, access, and determine suitability of material, equipment, and technology in an efficient manner. (CA.II.B.S2) 3. Brief occupants on the use of safety belts, shoulder harnesses, doors, sterile cockpit, flight control freedom of movement, and emergency procedures. (CA.II.B.S3) 4. Properly program the navigational equipment available to the pilot on that particular aircraft. (CA.II.B.S4) 5. Brief and execute positive exchange of flight controls and PIC responsibility. (CA.II.B.S5) 6. Define who is PIC. (CA.II.B.S6)
Risk Management	The applicant applies risk identification, assessment, and mitigation principles to: 1. Positive exchange of the flight controls. (CA.II.B.R1) 2. Suitability of using portable electronic devices. (CA.II.B.R2) 3. Ensuring technology is an asset and not a distraction. (CA.II.B.R3) 4. Abandoning technology when it is not appropriate. (CA.II.B.R4) 5. Recognizing impact of reported discrepancies. (CA.II.B.R5) 6. Recognizing passenger behavior that could negatively affect safety. (CA.II.B.R6)

Task	*C. Engine Starting*
Reference	FAA-H-8083-3, FAA-H-8083-25; AC 91-13, AC 91-55; POH/AFM
Objective	To determine the applicant exhibits satisfactory knowledge, skills and risk management associated with recommended engine starting procedures including proper airplane positioning.
Knowledge	The applicant demonstrates understanding of: 1. Options for starting with a weak or depleted battery. (CA.II.C.K1) 2. Starting under various atmospheric conditions. (CA.II.C.K2) 3. Starting procedures for carbureted and fuel injected engines. (CA.II.C.K3) 4. Equipment limitations (starter cycles). (CA.II.C.K4) 5. Proper positioning of the aircraft. (CA.II.C.K5)
Skills	The applicant demonstrates the ability to: 1. Position the airplane properly considering structures, other aircraft, and the safety of nearby persons and property. (CA.II.C.S1) 2. Utilize the appropriate checklist for starting procedure. (CA.II.C.S2)
Risk Management	The applicant applies risk identification, assessment, and mitigation principles to: 1. Propeller safety and awareness to include passenger briefing. (CA.II.C.R1) 2. Hand propping. (CA.II.C.R2) 3. Abnormal start. (CA.II.C.R3) 4. Cold weather operation. (CA.II.C.R4) 5. Electrical system failure following aircraft engine starts. (CA.II.C.R5) 6. Engine fires related to over-priming/cold weather starting. (CA.II.C.R6)

Task	***D. Taxiing (ASEL, AMEL)***
Reference	A/FD; FAA-H-8083-3, FAA-H-8083-25 (Appendix 1); POH/AFM; AC 91-73, AC 150-5340-18
Objective	To determine the applicant exhibits satisfactory knowledge, skills and risk management associated with safe taxi operations, including runway incursion avoidance.
Knowledge	The applicant demonstrates understanding of: 1. Positioning aircraft controls for wind. (CA.II.D.K1) 2. Airport markings (including hold short lines), signs, and lights. (CA.II.D.K2) 3. Aircraft lighting. (CA.II.D.K3) 4. Towered and non-towered airport operations. (CA.II.D.K4) 5. Visual indicators for wind. (CA.II.D.K5) 6. Airport information resources (A/FD, airport diagram). (CA.II.D.K6) 7. Good cockpit discipline during taxi, including maintaining a sterile cockpit, proper speed, separation between other aircraft and vehicles, communication procedures. (CA.II.D.K7) 8. Procedures for appropriate cockpit activities during taxiing including taxi route planning, briefing the location of HOT SPOTS, communicating and coordinating with ATC. (CA.II.D.K8) 9. Rules for entering or crossing runways. (CA.II.D.K9) 10. Procedures unique to night operations. (CA.II.D.K10) 11. Hazards of low visibility operations. (CA.II.D.K11)
Skills	The applicant demonstrates the ability to: 1. Perform a brake check immediately after the airplane begins moving. (CA.II.D.S1) 2. Position the flight controls properly for the existing wind conditions. (CA.II.D.S2) 3. Control direction and speed without excessive use of brakes. (CA.II.D.S3) 4. Exhibit procedures for steering, maneuvering, maintaining taxiway, runway position, and situational awareness to avoid runway incursions. (CA.II.D.S4) 5. Exhibit proper positioning of the aircraft relative to hold lines. (CA.II.D.S5) 6. Exhibit procedures to ensure clearances/instructions are received, recorded, and read back correctly. (CA.II.D.S6) 7. Exhibit situational awareness and taxi procedures in the event the aircraft is on a taxiway that is between parallel runways. (CA.II.D.S7) 8. Uses a taxi chart during taxi.(CA.II.D.S8) 9. Comply with airport/taxiway markings, signals, ATC clearances and instructions. (CA.II.D.S9) 10. Utilize procedures for eliminating pilot distractions to avoid other aircraft or vehicles and hazards. (CA.II.D.S10)
Risk Management	The applicant applies risk identification, assessment, and mitigation principles to: 1. Distractions during aircraft taxi. (CA.II.D.R1) 2. Proper workload management. (CA.II.D.R2) 3. Confirmation or expectation bias as related to taxi instructions. (CA.II.D.R3) 4. Recording taxi instructions/clearances. (CA.II.D.R4) 5. Resource management. (CA.II.D.R5)

Task	***E. Taxiing and Sailing (ASES, AMES)***
Reference	A/FD; FAA-H-8083-23, FAA-H-8083-25; POH/AFM; AC 91-73, AC 150-5340-18
Objective	To determine the applicant exhibits satisfactory knowledge, skills and risk management associated with safe taxiing and sailing operations, including runway incursion avoidance.
Knowledge	The applicant demonstrates understanding of: 1. Positioning aircraft controls for wind, water and sailing procedures, including the use of flaps, doors, water rudder, and power so as to follow the desired course while sailing. (CA.II.E.K1) 2. Airport markings (including hold short lines), signs, and lights. (CA.II.E.K2) 3. Aircraft lighting. (CA.II.E.K3) 4. Towered and non-towered airport operations. (CA.II.E.K4) 5. Visual indicators for wind. (CA.II.E.K5) 6. Airport information resources (A/FD, airport diagram). (CA.II.E.K6) 7. Good cockpit discipline during taxi and sailing, including maintaining a sterile cockpit, proper speed, separation between other aircraft and vehicles, communication procedures. (CA.II.E.K7) 8. Procedures for appropriate cockpit activities during taxiing and sailing including taxi route planning, briefing the location of HOT SPOTS, communicating and coordinating with ATC. (CA.II.E.K8) 9. Rules for entering or crossing runways. (CA.II.E.K9) 10. Procedures unique to night operations. (CA.II.E.K10) 11. Hazards of low visibility operations, other aircraft and vessels. (CA.II.E.K11) 12. Proper engine management including leaning, per manufacturer recommendations (CA.II.E.K12) 13. Requesting progressive taxi instructions if there is any doubt on understanding or ability to comply with a taxi clearance. (CA.II.E.K13) 14. Proper technique for the conditions, including idle, plow or step taxi, preventing and correcting for porpoising and skipping. (CA.II.E.K14)
Skills	The applicant demonstrates the ability to: 1. Perform a brake check immediately after the airplane begins moving. (CA.II.E.S1) 2. Position the flight controls, flaps, doors, water rudder, and power correctly for the existing wind, water and sailing conditions and to prevent and correct for porpoising and skipping. (CA.II.E.S2) 3. Uses the appropriate idle, plow, or step taxi technique. (CA.II.E.S3) 4. Exhibit procedures for steering, maneuvering, maintaining taxiway, runway position, and situational awareness to avoid runway incursions. (CA.II.E.S4) 5. Plans and follows the most favorable course while taxiing or sailing. Considers wind, water current, water conditions, and maritime regulations, as appropriate. (CA.II.E.S5) 6. Exhibit procedures to ensure clearances/instructions are received, recorded, and read back correctly. (CA.II.E.S6) 7. Exhibit situational awareness and taxi procedures in the event the aircraft is on a taxiway that is between parallel runways. (CA.II.E.S7) 8. Uses an Airport Diagram during taxi.(CA.II.E.S8) 9. Comply with airport/taxiway markings, signals, ATC clearances and instructions. (CA.II.E.S9) 10. Utilize procedures for eliminating pilot distractions to avoid other aircraft or vehicles and hazards. (CA.II.E.S10)
Risk Management	The applicant applies risk identification, assessment, and mitigation principles to: 1. Distractions during aircraft taxi. (CA.II.E.R1) 2. Proper workload management. (CA.II.E.R2) 3. Confirmation or expectation bias as related to taxi instructions. (CA.II.E.R3) 4. Recording taxi instructions/clearances. (CA.II.E.R4) 5. Resource management. (CA.II.E.R5) 6. Porpoising and skipping. (CA.II.E.R6) 7. Avoid other aircraft, vessels, and hazards while on the water. (CA.II.E.R7)

Task	***F. Before Takeoff Check***
Reference	FAA-H-8083-3, POH/AFM
Objective	To determine the applicant exhibits satisfactory knowledge, skills and risk management associated with the before takeoff check, including the reasons for checking each item, detecting malfunctions, and ensuring the airplane is in safe operating condition as recommended by the manufacturer.
Knowledge	The applicant demonstrates understanding of: 1. Purpose of the runup. (CA.II.F.K1) 2. Aircraft performance given expected conditions. (CA.II.F.K2) 3. Purpose of a checklist. (CA.II.F.K3) 3. Wake turbulence avoidance. (CA.II.F.K4)
Skills	The applicant demonstrates the ability to: 1. Position the airplane properly considering other aircraft, vessels, and wind. (CA.II.F.S1) 2. Divide attention inside and outside the cockpit. (CA.II.F.S2) 3. Ensure that powerplant and instrumentation are suitable for runup and takeoff. (CA.II.F.S3) 4. Accomplish the before takeoff checklist and departure briefing. (CA.II.F.S4) 5. Review takeoff performance, such as airspeeds, takeoff distance, departure, and emergency procedures. (CA.II.F.S5)
Risk Management	The applicant applies risk identification, assessment, and mitigation principles to: 1. Division of attention and scanning. (CA.II.F.R1) 2. Different runway than expected. (CA.II.F.R2) 3. Positive exchange of flight controls. (CA.II.F.R3) 4. Wake turbulence and vessel avoidance. (CA.II.F.R4) 5. Automation management. (CA.II.F.R5)

III. Airport and Seaplane Base Operations

Task	***A. Communications and Light Gun Signals***
Reference	14 CFR part 91; FAA-H-8083-25; AIM
Objective	To determine the applicant exhibits satisfactory knowledge, skills and risk management associated with normal and emergency radio communications and ATC light signals to conduct radio communications safely while operating the aircraft.
Knowledge	The applicant demonstrates understanding of: 1. How to obtain frequency. (CA.III.A.K1) 2. Standard communication procedures and ATC standard phraseology. (CA.III.A.K2) 3. ATC light signal recognition. (CA.III.A.K3) 4. Communication procedures. (CA.III.A.K4) 5. Transponders. (CA.III.A.K5) 6. Emergency Locator Transmitter. (CA.III.A.K6) 7. Radar assistance. (CA.III.A.K7) 8. Lost communication procedures. (CA.III.A.K8) 9. Use of automated weather and airport information. (CA.III.A.K9)
Skills	The applicant demonstrates the ability to: 1. Select appropriate frequencies. (CA.III.A.S1) 2. Transmit using standard phraseology and procedures. (CA.III.A.S2) 3. Acknowledge radio communications and comply with instructions. (CA.III.A.S3)
Risk Management	The applicant applies risk identification, assessment, and mitigation principles to: 1. Overcoming human factors associated with communication (CA.III.A.R1) 2. Overcoming human factors associated with declaring an emergency (CA.III.A.R2) 3. Equipment issues that could cause loss of communication. (CA.III.A.R3) 4. Automation management. (CA.III.A.R4) 5. Single pilot and/or crew resource management. (CA.III.A.R5)

Task	***B. Traffic Patterns***
Reference	FAA-H-8083-3, FAA-H-8083-25, FAA-H-8083-23; AC 90-66; AIM
Objective	To determine the applicant exhibits satisfactory knowledge, skills and risk management associated with safe operations in and around the airport traffic patterns.
Knowledge	The applicant demonstrates understanding of: 1. Towered and non-towered airport operations and runway selection. (CA.III.B.K1) 2. Airport markings, lighting, wind indicators. (CA.III.B.K2) 3. Collision avoidance. (CA.III.B.K3) 4. Right-of-way rules. (CA.III.B.K4) 5. Wake turbulence recognition and resolution. (CA.III.B.K5) 6. Wind shear avoidance. (CA.III.B.K6) 7. Runway incursion avoidance. (CA.III.B.K7) 8. Use of automated weather and airport information. (CA.III.B.K8) 9. Use of radio for proper communications. (CA.III.B.K9) 10.Parachuting operations. (CA.III.B.K10) 11. Approach and landing considerations for different types of aircraft (CA.III.B.K11)
Skills	The applicant demonstrates the ability to: 1. Properly identify and interpret airport/seaplane base runways, taxiways, markings, and lighting. (CA.III.B.S1) 2. Comply with proper traffic pattern procedures. (CA.III.B.S2) 3. Maintain proper spacing from other aircraft. (CA.III.B.S3) 4. Correct for wind drift to maintain the proper ground track. (CA.III.B.S4) 5. Maintain orientation with the runway/landing area in use. (CA.III.B.S5) 6. Maintain traffic pattern altitude, ±100 feet, and the appropriate airspeed, ±10 knots. (CA.III.B.S6) 7. Maintain an awareness of the position of other aircraft in the pattern. (CA.III.B.S7)
Risk Management	The applicant applies risk identification, assessment, and mitigation principles to: 1. Collision avoidance. (CA.III.B.R1) 2. Scanning. (CA.III.B.R2) 3. Wake turbulence. (CA.III.B.R3) 4. Lack of situational awareness. (CA.III.B.R4) 5. Aircraft separation. (CA.III.B.R5) 6. Operating considerations of various aircraft types. (CA.III.B.R6)

IV. Takeoffs, Landings, and Go-Arounds

Task	***A. Normal Takeoff and Climb***
Reference	FAA-H-8083-3, FAA-H-8083-23; POH/AFM
Objective	To determine the applicant exhibits satisfactory knowledge, skills and risk management associated with a normal takeoff, climb operations, and rejected takeoff procedures. **NOTE:** If a crosswind condition does not exist, the applicant's knowledge of crosswind elements shall be evaluated through oral testing.
Knowledge	The applicant demonstrates understanding of: 1. Takeoff distance. (CA.IV.A.K1) 2. Takeoff power. (CA.IV.A.K2) 3. Atmospheric conditions. (CA.IV.A.K3) 4. Minimum safe altitude. (CA.IV.A.K4) 5. Headwind, tailwind, crosswind component. (CA.IV.A.K5) 6. Application of V_X or V_Y and variations with altitude. (CA.IV.A.K6) 7. Emergency procedures during takeoff and climb. (CA.IV.A.K7)
Skills	The applicant demonstrates the ability to: 1. Verify ATC clearance and no aircraft is on final before crossing the Hold Line. (CA.IV.A.S1) 2. Verify aircraft is on the assigned/correct runway. (CA.IVA.A.S2) 3. Ascertain wind direction with or without visible wind direction indicators. (CA.IV.A.S3) 4. Determines if crosswind component exceeds pilot ability or is beyond aircraft manufacture limitations (CA.IV.A.S4) 5. Position the flight controls for the existing wind conditions. (CA.IV.A.S5) 6. Clear the area; taxi into the takeoff position and align the airplane on the runway center/takeoff path. (CA.IV.A.S6) 7. Confirm takeoff power, and proper engine and flight instrument indications prior to rotation. (ASEL, AMEL); Retracts the water rudders, as appropriate, confirm takeoff power, and proper engine instrument indications prior to rotation, establishes and maintains the most efficient planning/lift-off attitude, and corrects for porpoising and skipping (ASES, AMES). (CA.IV.A.S7) 8. Rotate and lift off at the recommended airspeed and accelerates to V_Y. (CA.IV.A.S8) 9. Establish a pitch attitude that will maintain $V_Y \pm 5$ knots. (CA.IV.A.S9) 10. Retract the landing gear and flaps in accordance with manufacturer guidance. (CA.IV.A.S10) 11. Maintain takeoff power and $V_Y \pm 5$ knots to a safe maneuvering altitude. (CA.IV.A.S11) 12. Maintain directional control and proper wind-drift correction throughout the takeoff and climb. (CA.IV.A.S12) 13. Comply with noise abatement and published departure procedures. (CA.IV.A.S13) 14. Complete the appropriate checklist. (CA.IV.A.S14) 15. Comply with manufacturer recommended emergency procedures relating to the takeoff sequence. (CA.IV.A.S15)

Task	*A. Normal Takeoff and Climb*
Risk Management	The applicant applies risk identification, assessment, and mitigation principles to: 1. Selection of runway based on wind, pilot capability, and aircraft limitations (CA.IV.A.R1) 2. Determining if crosswind component exceeds pilot ability or aircraft capability. (CA.IV.A.R2) 3. Windshear. (CA.IV.A.R3) 4. Tailwinds. (CA.IV.A.R4) 5. Wake turbulence. (CA.IV.A.R5) 6. Go/no go decision making. (CA.IV.A.R6) 7. Task management. (CA.IV.A.R7) 8. Low altitude maneuvering. (CA.IV.A.R8) 9. Wire strikes. (CA.IV.A.R9) 10. Situational awareness of obstacles on departure path. (CA.IV.A.R10) 11. Recognition of need for rejected takeoff and predetermines takeoff abort point. (CA.IV.A.R11) 12. Handling engine failure during takeoff and climb. (CA.IV.A.R12) 13. Criticality of takeoff distance available. (CA.IV.A.R13) 14. Plans for engine-failure after takeoff. (CA.IV.A.R14) 15. Sterile cockpit. (CA.IV.A.R15)

Task	***B. Normal Approach and Landing***
Reference	FAA-H-8083-3, FAA-H-8083-23; POH/AFM
Objective	To determine the applicant exhibits satisfactory knowledge, skills and risk management associated with a normal approach and landing with emphasis on proper use and coordination of flight controls. **NOTE:** If a crosswind condition does not exist, the applicant's knowledge of crosswind elements shall be evaluated through oral testing.
Knowledge	The applicant demonstrates understanding of: 1. Available landing distance (ALD). (CA.IV.B.K1) 2. Stabilized approach. (CA.IV.B.K2) 3. Energy management. (CA.IV.B.K3) 4. Atmospheric conditions. (CA.IV.B.K4) 5. Headwind, tailwind, crosswind component. (CA.IV.B.K5) 6. Emergency procedures during approach and landing. (CA.IV.B.K6) 7. Land and hold short operations. (CA.IV.B.K7)
Skills	The applicant demonstrates the ability to: 1. Ensure the aircraft is on the correct/assigned runway. (CA.IV.B.S1) 2. Scan the landing runway/areas and adjoining areas for possible wildlife, vehicular or other aircraft to avoid collision. (CA.IV.B.S2) 3. Complete the appropriate checklist. (CA.IV.B.S3) 4. Consider the wind conditions, landing surface, obstructions, and selects a suitable touchdown point prior to the 1000 foot distance markers (if available), or within the first 1/3 of the runway length. (CA.IV.B.S4) 5. Establish the recommended approach and landing configuration and airspeed, and adjusts pitch attitude and power as required. (CA.IV.B.S5) 6. Maintain a stabilized approach and recommended airspeed, or in its absence, not more than 1.3 V_{SO}, with wind gust factor applied $\pm$5 knots. (CA.IV.B.S6) 7. Make smooth, timely, and correct control application during the round out and touchdown (ASEL, AMEL); Make smooth, timely, and correct control application during the round out and touchdown to contact the water at the proper pitch attitude (ASES, AMES). (CA.IV.B.S7) 8. Touch down smoothly at a speed that provides little or no aerodynamic lift. (CA.IV.B.S8) 9. Touch down within the available runway, within 200 feet beyond a specified point with no drift, and with the airplane's longitudinal axis aligned with and over the runway centerline. (CA.IV.B.S9) 10. Maintain crosswind correction and directional control throughout the approach and landing sequence. (CA.IV.B.S10) 11. Execute a timely go around decision when the approach cannot be made within the tolerances specified above or for any other condition that that may result in an unsafe approach or landing. (CA.IV.B.S11) 12. Utilize after landing runway incursion avoidance procedures. (CA.IV.B.S12)

Task	***B. Normal Approach and Landing***
Risk Management	The applicant applies risk identification, assessment, and mitigation principles to: 1. Selection of runway based on wind, pilot capability and aircraft limitations – considering possibility of selecting a runway at a different airport. (CA.IV.B.R1) 2. Determines if crosswind component exceeds pilot ability or is beyond aircraft manufacturer limitations(CA.IV.B.R2) 3. Windshear. (CA.IV.B.R3) 4. Tailwinds. (CA.IV.B.R4) 5. Wake turbulence. (CA.IV.B.R5) 6. Task management. (CA.IV.B.R6) 7. Low altitude maneuvering. (CA.IV.B.R7) 8. Wire strikes. (CA.IV.B.R8) 9. Collision Avoidance. (CA.IV.B.R9) 10. Right-of-way. (CA.IV.B.R10) 11. Situational awareness of obstacles on approach and departure paths. (CA.IV.B.R11) 12. Recognition of need for go-around/rejected landing. (CA.IV.B.R12) 13. Stall/spin awareness. (CA.IV.B.R13) 14. Land and hold short operations. (CA.IV.B.R14) 15. Maintain a sterile cockpit. (CA.IV.B.R15)

Task	***C. Soft-Field Takeoff and Climb (ASEL)***
Reference	FAA-H-8083-3; POH/AFM
Objective	To determine the applicant exhibits satisfactory knowledge, skills and risk management associated with a soft-field takeoff, climb operations, and rejected takeoff procedures.
Knowledge	The applicant demonstrates understanding of: 1. Importance of weight transfer from wheels to wings. (CA.IV.C.K1) 2. Awareness of additional left turning tendencies. (CA.IV.C.K2) 3. Effects of aircraft configuration. (CA.IV.C.K3) 4. Effects of runway surface. (CA.IV.C.K4) 5. Takeoff distance. (CA.IV.C.K5) 6. Takeoff power. (CA.IV.C.K6) 7. Wind conditions and effects. (CA.IV.C.K7) 8. Density altitude. (CA.IV.C.K8) 9. Headwind, tailwind, crosswind component. (CA.IV.C.K9) 10. Application of V_X or V_Y. (CA.IV.C.K10) 11. Emergency procedures during takeoff and climb. (CA.IV.C.K11) 12. Hazards of other than hard surfaced runway. (CA.IV.C.K12)
Skills	The applicant demonstrates the ability to: 1. Verify ATC clearance and no aircraft is on final before crossing the Hold Line. (CA.IV.S.S1) 2. Ensure the aircraft is properly configured. (CA.IV.C.S2) 3. Ensure the aircraft is on the correct takeoff runway. (CA.IV.C.S3) 4. Ascertain wind direction with or without visible wind direction indicators. (CA.IV.C.S4) 5. Calculate the crosswind component and determine if it is above his or her ability or that of the aircraft's capability. (CA.IV.C.S5) 6. Position the flight controls for the existing wind conditions. (CA.IV.C.S6) 7. Clear the area; taxi into the takeoff position and align the airplane on the runway center without stopping while advancing the throttle smoothly to takeoff power. (CA.IV.C.S7) 8. Confirm takeoff power, and proper engine and flight instrument indications prior to rotation. (CA.IV.C.S8) 9. Establish and maintain a pitch attitude that will transfer the weight of the airplane from the wheels to the wings as rapidly as possible. (CA.IV.C.S9) 10. Rotate and lift off at the lowest possible airspeed consistent with safety and remains in ground effect while accelerating to V_X or V_Y, as appropriate. (CA.IV.C.S10) 11. Establish a pitch attitude for V_X or V_Y, as appropriate, and maintains selected airspeed ±5 knots during the climb. (CA.IV.C.S11) 12. Retract landing gear and flaps after a positive rate of climb has been verified or in accordance with aircraft manufacturer guidance. (CA.IV.C.S12) 13. Maintain takeoff power and V_X or V_Y ±5 knots to a safe maneuvering altitude. (CA.IV.C.S13) 14. Maintain directional control and proper wind-drift correction throughout the takeoff and climb. (CA.IV.C.S14) 15. Comply with noise abatement and published departure procedures. (CA.IV.C.S15) 16. Complete the appropriate checklist. (CA.IV.C.S16) 17. Comply with manufacturer recommended emergency procedures relating to the takeoff sequence. (CA.IV.C.S17)

Task continued on next page.

Task	***C. Soft-Field Takeoff and Climb (ASEL)***
Risk Management	The applicant applies risk identification, assessment, and mitigation principles to: 1. Selection of runway based on wind, pilot capability, and aircraft limitations. (CA.IV.C.R1) 2. Determines if crosswind component exceeds pilot ability or is beyond aircraft manufacture limitations(CA.IV.C.R2) 3. Other than hard surfaced runway. (CA.IV.C.R3) 4. Windshear. (CA.IV.C.R4) 5. Tailwinds. (CA.IV.C.R5) 6. Wake turbulence. (CA.IV.C.R6) 7. Go/no go decision making. (CA.IV.C.R7) 8. Task management. (CA.IV.C.R8) 9. Low altitude maneuvering. (CA.IV.C.R9) 10. Wire strikes. (CA.IV.C.R10) 11. Minimum safe altitude for climb. (CA.IV.C.R11) 12. Situational awareness of obstacles on departure path. (CA.IV.C.R12) 13. Recognition of need for rejected takeoff and predetermines takeoff abort point. (CA.IV.C.R13) 14. Strategies for handling engine failure during takeoff and climb. (CA.IV.C.R14) 15. Make a determination of when a soft field takeoff technique is required. (CA.IV.C.R15) 16. Criticality of takeoff distance available. (CA.IV.C.R16) 17. Plans for engine-failure after takeoff. (CA.IV.C.R17) 18. Sterile cockpit. (CA.IV.C.R18)

Task	***D. Soft-Field Approach and Landing (ASEL)***
Reference	FAA-H-8083-3; POH/AFM
Objective	To determine the applicant exhibits satisfactory knowledge, skills and risk management associated with a soft-field approach and landing with emphasis on proper use and coordination of flight controls.
Knowledge	The applicant demonstrates understanding of: 1. Landing distance. (CA.IV.D.K1) 2. Hazards of other than hard surfaced runway. (CA.IV.D.K2) 3. Stabilized approach. (CA.IV.D.K3) 4. Energy management. (CA.IV.D.K4) 5. Wind conditions and effects. (CA.IV.D.K5) 6. Density altitude. (CA.IV.D.K6) 7. Headwind, tailwind, crosswind component. (CA.IV.D.K7) 8. Emergency procedures during approach and landing. (CA.IV.D.K8)
Skills	The applicant demonstrates the ability to: 1. Ensure the aircraft is on the correct/assigned runway. (CA.IV.D.S1) 2. Scan the landing runway and adjoining areas for possible wildlife, vehicular or other aircraft to avoid collision. (CA.IV.D.S2) 3. Complete the appropriate checklist. (CA.IV.D.S3) 4. Consider the wind conditions, landing surface, obstructions, and selects a suitable touchdown point. (CA.IV.D.S4) 5. Establish the recommended approach and landing configuration and airspeed, and adjusts pitch attitude and power as required. (CA.IV.D.S5) 6. Maintain a stabilized approach and recommended airspeed, or in its absence, not more than 1.3 V_{SO}, with wind gust factor applied, ±5 knots. (CA.IV.D.S6) 7. Make smooth, timely, and correct control application during the round out and touchdown and, for tricycle gear airplanes, keep the nose wheel off the surface until loss of elevator effectiveness. (CA.IV.D.S7) 8. Touch down softly with no drift, and with the airplane’s longitudinal axis aligned in the runway center. (CA.IV.D.S8) 9. Maintain crosswind correction and directional control throughout the approach and landing sequence. (CA.IV.D.S9) 10. Execute a timely go around decision when the approach cannot be made within the tolerances specified above or for any other condition that that may result in an unsafe approach or landing. (CA.IV.D.S10) 11. Maintain proper position of the flight controls and sufficient speed to taxi on the soft surface. (CA.IV.D.S11)

Task continued on next page.

Task	*D. Soft-Field Approach and Landing (ASEL)*
Risk Management	The applicant applies risk identification, assessment, and mitigation principles to: 1. Selection of runway based on wind, pilot capability and aircraft limitations – considering possibility of selecting a runway at a different airport.. (CA.IV.D.R1) 2. Determines if crosswind component exceeds pilot ability or is beyond aircraft manufacturer limitations. (CA.IV.D.R2) 3. Other than hard-surfaced runway. (CA.IV.D.R3) 4. Windshear avoidance. (CA.IV.D.R4) 5. Tailwinds. (CA.IV.D.R5) 6. Wake turbulence. (CA.IV.D.R6) 7. Task management. (CA.IV.D.R7) 8. Low altitude maneuvering. (CA.IV.D.R8) 9. Wire strikes. (CA.IV.D.R9) 10. Collision avoidance. (CA.IV.D.R10) 11. Right-of-way. (CA.IV.D.R11) 12. Situational awareness of obstacles on approach and departure paths. (CA.IV.D.R12) 13. Recognition of need for go-around/rejected landing. (CA.IV.D.R13) 14. Stall/spin awareness. (CA.IV.D.R14) 15. How to accomplish soft field landing without the use of power in power failure situation. (CA.IV.D.R15) 16. Maintaining a sterile cockpit environment. (CA.IV.D.R16)

Task	***E. Short-Field Takeoff and Maximum Performance Climb (ASEL, AMEL)***
Reference	FAA-H-8083-3; POH/AFM
Objective	To determine the applicant exhibits satisfactory knowledge, skills and risk management associated with a short-field takeoff, maximum performance climb operations, and rejected takeoff procedures.
Knowledge	The applicant demonstrates understanding of: 1. Effects of aircraft configuration. (CA.IV.E.K1) 2. Effects of runway surface. (CA.IV.E.K2) 3. Takeoff distance. (CA.IV.E.K3) 4. Takeoff power. (CA.IV.E.K4) 5. Obstruction clearance. (CA.IV.E.K5) 6. Wind conditions and effects. (CA.IV.E.K6) 7. Minimum safe altitude. (CA.IV.E.K7) 8. Density altitude. (CA.IV.E.K8) 9. Headwind, tailwind, crosswind component. (CA.IV.E.K9) 10. Application of V_X or V_Y. (CA.IV.E.K10) 11. Emergency procedures during takeoff and climb. (CA.IV.E.K11)
Skills	The applicant demonstrates the ability to: 1. Verify proper aircraft configuration. (CA.IV.E.S1) 2. Verify ATC clearance and no aircraft is on final before crossing the Hold Line. (CA.IV.E.S2) 3. Ensure the aircraft is on the correct takeoff runway. (CA.IV.E.S3) 4. Ascertain wind direction with or without visible wind direction indicators. (CA.IV.E.S4) 5. Determines if crosswind component exceeds pilot ability or is beyond aircraft manufacture limitations. (CA.IV.E.S5) 6. Position the flight controls for the existing wind conditions. (CA.IV.E.S6) 7. Clear the area; taxi into takeoff position utilizing maximum available takeoff area and align the airplane on the runway center line. (CA.IV.E.S7) 8. Apply brakes (if appropriate), while configuring aircraft power setting to achieve maximum performance.(CA.IV.E.S8) 9. Confirm takeoff power prior to brake release and proper engine and flight instrument indications prior to rotation. (CA.IV.E.S9) 10. Rotate and lift off at the recommended airspeed, and accelerate to the recommended obstacle clearance airspeed or V_X. (CA.IV.E.S10) 11. Establish a pitch attitude that will maintain the recommended obstacle clearance airspeed, or V_X, +5/-0 knots, until the obstacle is cleared, or until the airplane is 50 feet above the surface. (CA.IV.E.S11) 12. After clearing the obstacle, establish the pitch attitude for V_Y, accelerate to V_Y, and maintain V_Y, ±5 knots, during the climb. (CA.IV.E.S12) 13. Retract landing gear and flaps after a positive rate of climb has been verified or in accordance with aircraft manufacturer guidance.. (CA.IV.E.S13) 14. Maintain takeoff power and V_X or V_Y ±5 knots to a safe maneuvering altitude. (CA.IV.E.S14) 15. Maintain directional control and proper wind-drift correction throughout the takeoff and climb. (CA.IV.E.S15) 16. Comply with noise abatement and published departure procedures. (CA.IV.E.S16) 17. Complete the appropriate checklist. (CA.IV.E.S17) 18. Comply with manufacturer recommended emergency procedures relating to the takeoff sequence.(CA.IV.E.S18)

Task continued on next page.

Task	***E. Short-Field Takeoff and Maximum Performance Climb (ASEL, AMEL)***
Risk Management	The applicant applies risk identification, assessment, and mitigation principles to: 1. Selection of runway based on wind and pilot capability and aircraft limitations. (CA.IV.E.R1) 2. Determines if crosswind component exceeds pilot ability or is beyond aircraft manufacturer limitations. (CA.IV.E.R2) 3. Other than hard-surfaced runway. (CA.IV.E.R3) 4. Obstruction clearance. (CA.IV.E.R4) 5. Obstruction clearance climb attitude and stall awareness. (CA.IV.E.R5) 6. Windshear. (CA.IV.E.R6) 7. Tailwinds. (CA.IV.E.R7) 8. Wake turbulence. (CA.IV.E.R8) 9. Go/no go decision making. (CA.IV.E.R9) 10. Task management. (CA.IV.E.R10) 11. Low altitude maneuvering. (CA.IV.E.R11) 12. Wire strikes. (CA.IV.E.R12) 13. Minimum safe altitude for climb. (CA.IV.E.R13) 14. Situational awareness of obstacles on departure and arrival paths. (CA.IV.E.R14) 15. Recognition of need for rejected takeoff and predetermines takeoff abort point. (CA.IV.E.R15) 16. Strategies for handling engine failure during takeoff and climb. (CA.IV.E.R16) 17. Criticality of takeoff distance available. (CA.IV.E.R17) 18. Plans for engine-failure after takeoff. (CA.IV.E.R18) 19. Sterile cockpit. (CA.IV.E.R19)

Task	*F. Short-Field Approach and Landing (ASEL, AMEL)*
Reference	FAA-H-8083-3; POH/AFM
Objective	To determine the applicant exhibits satisfactory knowledge, skills and risk management associated with a short-field approach and landing with emphasis on proper use and coordination of flight controls.
Knowledge	The applicant demonstrates understanding of: 1. Landing distance. (CA.IV.F.K1) 2. Hazards of other than hard-surfaced runways. (CA.IV.F.K2) 3. Obstruction clearance. (CA.IV.F.K3) 4. Stabilized approach. (CA.IV.F.K4) 5. Energy management. (CA.IV.F.K5) 6. Wind conditions and effects. (CA.IV.F.K6) 7. Density altitude. (CA.IV.F.K6) 8. Headwind, tailwind, crosswind component. (CA.IV.F.K7) 9. Emergency procedures during approach and landing. 10. Land and hold short operations.
Skills	The applicant demonstrates the ability to: 1. Ensure the aircraft is on the correct/assigned runway. (CA.IV.F.S1) 2. Scan the landing runway and adjoining areas for possible wildlife, vehicular or other aircraft to avoid collision. (CA.IV.F.S2) 3. Complete the appropriate checklist. (CA.IV.F.S3) 4. Consider the wind conditions, landing surface, obstructions, and select a suitable touchdown point. (CA.IV.F.S4) 5. Establish the recommended approach and landing configuration and airspeed, and adjust pitch attitude and power as required. (CA.IV.F.S5) 6. Maintain a stabilized approach and recommended airspeed, or in its absence, not more than 1.3 V_{SO}, with wind gust factor applied, ±5 knots. (CA.IV.F.S6) 7. Make smooth, timely, and correct control application during the round out and touchdown. (CA.IV.F.S7) 8. Touch down smoothly at manufacturer's recommended airspeed. (CA.IV.F.S8) 9. Touch down within the available runway, at or within 100 feet beyond a the approach end of the runway, threshold markings or runway numbers, with no side drift, minimum float, and with the airplane's longitudinal axis aligned with and over the runway center line. (CA.IV.F.S9) 10. Maintain crosswind correction and directional control throughout the approach and landing sequence. (CA.IV.F.S10) 11. Execute a timely go around decision when the approach cannot be made within the tolerances specified above or for any other condition that that may result in an unsafe approach or landing.. (CA.IV.F.S11) 12. Apply brakes as necessary, to stop in the shortest distance consistent with safety. (CA.IV.F.S12)

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Task	***F. Short-Field Approach and Landing (ASEL, AMEL)***
Risk Management	The applicant applies risk identification, assessment, and mitigation principles to: 1. Selection of runway based on wind, pilot capability and aircraft limitations – considering possibility of selecting a runway at a different airport. (CA.IV.F.R1) 2. Determines if crosswind component exceeds pilot ability or is beyond aircraft manufacture limitations (CA.IV.F.R2) 3. Other than hard surfaced runway. (CA.IV.F.R3) 4. Obstruction clearance. (CA.IV.F.R4) 5. Windshear. (CA.IV.F.R5) 6. Hazards of tailwinds. (CA.IV.F.R6) 7. Wake turbulence. (CA.IV.F.R7) 8. Task management. (CA.IV.F.R8) 9. Low altitude maneuvering. (CA.IV.F.R9) 10. Wire strikes. (CA.IV.F.R10) 11. Collision Avoidance. (CA.IV.F.R11) 12. Right-of-way. (CA.IV.F.R12) 13. Situational awareness of obstacles on approach and departure paths. (CA.IV.F.R13) 14. Recognition of need for go-around/rejected landing. (CA.IV.F.R14) 15. Stall/spin awareness. (CA.IV.F.R15) 16. Land and Hold Short Operations. (CA.IV.F.R16) 17. Maintaining a sterile cockpit environment. (CA.IV.F.R17)

Task	***G. Confined Area Takeoff and Maximum Performance Climb (ASES, AMES)***
Reference	FAA-H-8083-3, FAA-H-8083-23; POH/AFM
Objective	To determine the applicant exhibits satisfactory knowledge, skills and risk management associated with a confined area takeoff, maximum performance climb operations, and rejected takeoff procedures.
Knowledge	The applicant demonstrates understanding of: 1. Effects of aircraft configuration. (CA.IV.G.K1) 2. Effects of water surface. (CA.IV.G.K2) 3. Takeoff distance. (CA.IV.G.K3) 4. Takeoff power. (CA.IV.G.K4) 5. Obstruction clearance. (CA.IV.G.K5) 6. Wind conditions and effects. (CA.IV.G.K6) 7. Minimum safe altitude. (CA.IV.G.K7) 8. Density altitude. (CA.IV.G.K8) 9. Headwind, tailwind, crosswind component. (CA.IV.G.K9) 10. Application of V_X or V_Y. (CA.IV.G.K10) 11. Emergency procedures during takeoff and climb. (CA.IV.G.K11)
Skills	The applicant demonstrates the ability to: 1. Verify proper aircraft configuration. (CA.IV.G.S1) 2. Verify ATC clearance and no aircraft is on final before crossing the Hold Line. (CA.IV.G.S2) 3. Ensure the aircraft is on the correct takeoff center path. (CA.IV.G.S3) 4. Ascertain wind direction with or without visible wind direction indicators. (CA.IV.G.S4) 5. Determine if crosswind component exceeds pilot ability or is beyond aircraft manufacturer limitations. (CA.IV.G.S5) 6. Position the flight controls for the existing wind conditions. (CA.IV.G.S6) 7. Clear the area and select an appropriate takeoff path for the existing conditions; taxi into takeoff position utilizing maximum available takeoff area and align the airplane on the takeoff path. (CA.IV.G.S7) 8. Configure aircraft power to achieve maximum performance and confirm takeoff power and proper engine and flight instrument indications prior to rotation.(CA.IV.G.S8) 9. Establish and maintain the most efficient planning/lift-off attitude and correct for porpoising and skipping. (CA.IV.G.S9) 10. Rotate and lift off at the recommended airspeed, and accelerate to the recommended obstacle clearance airspeed or V_X. (CA.IV.G.S10) 11. Establish a pitch attitude that will maintain the recommended obstacle clearance airspeed, or V_X, +5/-0 knots, until the obstacle is cleared, or until the airplane is 50 feet above the surface. (CA.IV.G.S11) 12. After clearing the obstacle, establish the pitch attitude for V_Y, accelerate to V_Y, and maintain V_Y, +5/-0 knots, during the climb. (CA.IV.G.S12) 13. Retract flaps after a positive rate of climb has been verified or in accordance with aircraft manufacturer guidance. (CA.IV.G.S13) 14. Maintain takeoff power and V_X or V_Y ±5 knots to a safe maneuvering altitude. (CA.IV.G.S14) 15. Maintain directional control and proper wind-drift correction throughout the takeoff and climb. (CA.IV.G.S15) 16. Comply with noise abatement and published departure procedures. (CA.IV.G.S16) 17. Complete the appropriate checklist. (CA.IV.G.S17) 18. Comply with manufacturer recommended emergency procedures relating to the takeoff sequence.(CA.IV.G.S18)

Task continued on next page.

Task	***G. Confined Area Takeoff and Maximum Performance Climb (ASES, AMES)***
Risk Management	The applicant applies risk identification, assessment, and mitigation principles to: 1. Selection of appropriate takeoff path based on wind and pilot capability and aircraft limitations. (CA.IV.G.R1) 2. Determines if crosswind component exceeds pilot ability or is beyond aircraft manufacturer limitations. (CA.IV.G.R2) 3. Water conditions. (CA.IV.G.R3) 4. Obstruction clearance. (CA.IV.G.R4) 5. Obstruction clearance climb attitude and stall awareness. (CA.IV.G.R5) 6. Windshear. (CA.IV.G.R6) 7. Tailwinds. (CA.IV.G.R7) 8. Wake turbulence. (CA.IV.G.R8) 9. Go/no go decision making. (CA.IV.G.R9) 10. Task management. (CA.IV.G.R10) 11. Low altitude maneuvering. (CA.IV.G.R11) 12. Wire strikes. (CA.IV.G.R12) 13. Minimum safe altitude for climb. (CA.IV.G.R13) 14. Situational awareness of obstacles on departure and arrival paths. (CA.IV.G.R14) 15. Recognition of need for rejected takeoff and predetermines takeoff abort point. (CA.IV.G.R15) 16. Strategies for handling engine failure during takeoff and climb. (CA.IV.G.R16) 17. Criticality of takeoff distance available. (CA.IV.G.R17) 18. Plans for engine-failure after takeoff. (CA.IV.G.R18) 19. Sterile cockpit. (CA.IV.G.R19) 20. Confirms gear retracted in amphibious aircraft. (CA.IV.G.R20)

Task	***H. Confined Area Approach and Landing (ASES, AMES)***
Reference	FAA-H-8083-3, FAA-H-8083-23; POH/AFM
Objective	To determine the applicant exhibits satisfactory knowledge, skills and risk management associated with a confined area approach and landing with emphasis on proper use and coordination of flight controls.
Knowledge	The applicant demonstrates understanding of: 1. Landing distance. (CA.IV.H.K1) 2. Hazards of a confined area. (CA.IV.H.K2) 3. Obstruction clearance. (CA.IV.H.K3) 4. Stabilized approach. (CA.IV.H.K4) 5. Energy management. (CA.IV.H.K5) 6. Wind conditions and effects. (CA.IV.H.K6) 7. Density altitude. (CA.IV.H.K7) 8. Headwind, tailwind, crosswind component. (CA.IV.H.K8) 9. Emergency procedures during approach and landing. (CA.IV.H.K9) 10. Land and hold short operations. (CA.IV.H.K10)
Skills	The applicant demonstrates the ability to: 1. Ensure the aircraft is on the correct/assigned runway and adequately survey the intended landing area. (CA.IV.H.S1) 2. Scan the landing area and adjoining areas for possible wildlife, vehicular or other aircraft to avoid collision. (CA.IV.H.S2) 3. Complete the appropriate checklist. (CA.IV.H.S3) 4. Consider the wind conditions, landing surface, obstructions, and select the proper landing path. (CA.IV.H.S4) 5. Establish the recommended approach and landing configuration and airspeed, and adjust pitch attitude and power as required. (CA.IV.H.S5) 6. Maintain a stabilized approach and recommended airspeed, or in its absence, not more than 1.3 V_{SO}, with wind gust factor applied, ± 5 knots. (CA.IV.H.S6) 7. Make smooth, timely, and correct control application during the round out and touchdown. (CA.IV.H.S7) 8. Contact the water at the minimum safe airspeed with the proper pitch attitude for the surface conditions. (CA.IV.H.S8) 9. Touch down within the available water landing area, at or within 100 feet beyond a specified point, with no side drift, minimum float, and with the airplane's longitudinal axis aligned with and over the landing center area. (CA.IV.H.S9) 10. Maintain crosswind correction and directional control throughout the approach and landing sequence. (CA.IV.H.S10) 11. Execute a timely go around decision when the approach cannot be made within the tolerances specified above or for any other condition that that may result in an unsafe approach or landing. (CA.IV.H.S11) 12. Apply elevator control as necessary, to stop in the shortest distance consistent with safety. (CA.IV.H.S12)

Task continued on next page.

Task	*H. Confined Area Approach and Landing (ASES, AMES)*
Risk Management	The applicant applies risk identification, assessment, and mitigation principles to: 1. Selection of landing area based on wind, pilot capability and aircraft limitations – considering possibility of selecting an area at a different location. (CA.IV.H.R1) 2. Determines if crosswind component exceeds pilot ability or is beyond aircraft manufacture limitations (CA.IV.H.R2) 3. Water conditions. (CA.IV.H.R3) 4. Obstruction clearance. (CA.IV.H.R4) 5. Windshear. (CA.IV.H.R5) 6. Hazards of tailwinds. (CA.IV.H.R6) 7. Wake turbulence. (CA.IV.H.R7) 8. Task management. (CA.IV.H.R8) 9. Low altitude maneuvering. (CA.IV.H.R9) 10. Wire strikes. (CA.IV.H.R10) 11. Collision Avoidance. (CA.IV.H.R11) 12. Right-of-way. (CA.IV.H.R12) 13. Situational awareness of obstacles on approach and departure paths. (CA.IV.H.R13) 14. Recognition of need for go-around/rejected landing. (CA.IV.D.R14) 15. Stall/spin awareness. (CA.IV.H.R15) 16. Land and Hold Short Operations. (CA.IV.H.R16) 17. Maintaining a sterile cockpit environment. (CA.IV.H.R17)

Task	***I. Glassy Water Takeoff and Climb (ASES, AMES)***
Reference	FAA-H-8083-23; POH/AFM
Objective	To determine the applicant exhibits satisfactory knowledge, skills and risk management associated with a glassy water takeoff and climb. **NOTE:** If a glassy water condition does not exist, the applicant shall be evaluated by simulating the Task.
Knowledge	The applicant demonstrates understanding of: 1. Water effects on operations. (CA.IV.I.K1) 2. Effects of glassy water on acceleration and lift-off. (CA.IV.I.K2) 3. When and why to use the glassy water takeoff and climb technique. (CA.IV.I.K3)
Skills	The applicant demonstrates the ability to: 1. Position the flight controls and flaps for the existing conditions. (CA.IV.I.S1) 2. Clear the area; select an appropriate takeoff path considering surface hazards and/or vessels and surface conditions. (CA.IV.I.S2) 3. Retract the water rudders as appropriate; advance the throttle smoothly to takeoff power. (CA.IV.I.S3) 4. Establish and maintain an appropriate planning attitude, directional control, and correct for porpoising, skipping, and increase in water drag. (CA.IV.I.S4) 5. Utilize appropriate techniques to lift seaplane from the water considering surface conditions. (CA.IV.I.S5) 6. Establish proper attitude/airspeed, and accelerate to Vy ±5 knots during the climb. (CA.IV.I.S6) 7. Retract flaps after a positive rate of climb has been verified or in accordance with aircraft manufacturer guidance. (CA.IV.I.S7) 8. Maintain takeoff power Vy ±5 to a safe maneuvering altitude. (CA.IV.I.S8) 9. Maintain directional control and proper wind-drift correction throughout takeoff and climb. (CA.IV.I.S9) 10. Complete the appropriate checklist (CA.IV.I.S10)
Risk Management	The applicant applies risk identification, assessment, and mitigation principles to: 1. Selection of appropriate takeoff path based on wind and pilot capability and aircraft limitations. (CA.IV.I.R1) 2. Determines if crosswind component exceeds pilot ability or is beyond aircraft manufacturer limitations. (CA.IV.I.R2) 3. Water conditions. (CA.IV.I.R3) 4. Obstruction clearance. (CA.IV.I.R4) 5. Obstruction clearance climb attitude and stall awareness. (CA.IV.I.R5) 6. Windshear. (CA.IV.I.R6) 7. Tailwinds. (CA.IV.I.R7) 8. Wake turbulence. (CA.IV.I.R8) 9. Go/no go decision making. (CA.IV.I.R9) 10. Task management. (CA.IV.I.R10) 11. Low altitude maneuvering. (CA.IV.I.R11) 12. Wire strikes. (CA.IV.I.R12) 13. Minimum safe altitude for climb. (CA.IV.I.R13) 14. Situational awareness of obstacles on departure and arrival paths. (CA.IV.I.R14) 15. Recognition of need for rejected takeoff and predetermines takeoff abort point. (CA.IV.I.R15) 16. Strategies for handling engine failure during takeoff and climb. (CA.IV.I.R16) 17. Criticality of takeoff distance available. (CA.IV.I.R17) 18. Plans for engine-failure after takeoff. (CA.IV.I.R18) 19. Sterile cockpit. (CA.IV.I.R19) 20. Confirms gear retracted in amphibious aircraft. (CA.IV.I.R20)

Task	*J. Glassy Water Approach and Landing (ASES, AMES)*
Reference	FAA-H-8083-23; POH/AFM
Objective	To determine the applicant exhibits satisfactory knowledge, skills and risk management associated with a glassy water approach and landing. **NOTE:** If a glassy water condition does not exist, the applicant shall be evaluated by simulating the Task.
Knowledge	The applicant demonstrates understanding of: 1. When and why glassy water techniques are used. (CA.IV.J.K1) 2. How a glassy water approach and landing is executed. (CA.IV.J.K2) 3. Landing distance. (CA.IV.J.K3) 4. Stabilized approach. (CA.IV.J.K4) 5. Energy management. (CA.IV.J.K5) 6. Wind conditions and effects. (CA.IV.J.K7) 7. Density altitude. (CA.IV.J.K8) 8. Headwind, tailwind, crosswind component. (CA.IV.J.K9) 9. Emergency procedures during approach and landing. (CA.IV.J.K10)
Skills	The applicant demonstrates the ability to: 1. Adequately survey the intended landing area. (CA.IV.J.S1) 2. Consider the wind conditions, water depth, hazards, surrounding terrain, and other watercraft. (CA.IV.J.S2) 3. Select the most suitable approach path and touchdown area. (CA.IV.J.S3) 4. Establish the recommended approach and landing configuration and airspeed, and adjust pitch attitude and power as required. (CA.IV.J.S4) 5. Maintain a stabilized approach and the recommended approach airspeed, ±5 knots and maintain a touchdown pitch attitude and descent rate from the last altitude reference until touchdown. (CA.IV.J.S5) 6. Make smooth, timely, and correct power and control adjustments to maintain proper pitch attitude and rate of descent to touchdown. (CA.IV.J.S6) 7. Contact the water in the proper pitch attitude, and slow to idle taxi speed. (CA.IV.J.S7) 8. Maintain crosswind correction and directional control throughout the approach and landing sequence. (CA.IV.J.S8) 9. Complete the appropriate checklist. (CA.IV.J.S9)
Risk Management	The applicant applies risk identification, assessment, and mitigation principles to: 1. Performing a go-around/rejected landing. (CA.IV.J.R1) 2. Importance of landing in direction of momentum, with wheels pointed forward on touchdown. (CA.IV.J.R2) 3. Stall/spin awareness. (CA.IV.J.R3) 4. Windshear. (CA.IV.J.R4) 5. Tailwinds. (CA.IV.J.R5) 6. Wake turbulence. (CA.IV.J.R6) 7. Task management. (CA.IV.J.R7) 8. Low altitude maneuvering. (CA.IV.J.R8) 9. Wire strikes. (CA.IV.J.R9) 10. Collision avoidance. (CA.IV.J.R10) 11. Right-of-way. (CA.IV.J.R11) 12. Situational awareness of obstacles on approach and departure paths. (CA.IV.J.R12) 13. Sterile cockpit. (CA.IV.J.R13)

Task	***K. Rough Water Takeoff and Climb (ASES, AMES)***
Reference	FAA-H-8083-23; POH/AFM
Objective	To determine the applicant exhibits satisfactory knowledge, skills and risk management associated with a rough water takeoff and climb. **NOTE:** If a rough water condition does not exist, the applicant shall be evaluated by simulating the Task.
Knowledge	The applicant demonstrates understanding of: 1. Water effects on operations. (CA.IV.K.K1) 2. Effects of rough water on acceleration and lift-off. (CA.IV.K.K2) 3. When and why to use the rough water takeoff and climb technique. (CA.IV.K.K3)
Skills	The applicant demonstrates the ability to: 1. Position the flight controls and flaps for the existing conditions. (CA.IV.K.S1) 2. Clear the area; select an appropriate takeoff path considering surface hazards and/or vessels and surface conditions. (CA.IV.K.S2) 3. Retract the water rudders as appropriate; advance the throttle smoothly to takeoff power. (CA.IV.K.S3) 4. Establish and maintain an appropriate planning attitude, directional control, and correct for porpoising, skipping, and increase in water drag. (CA.IV.K.S4) 5. Lift off at minimum airspeed and accelerate to Vy, ±5 knots before leaving ground effect. (CA.IV.K.S5) 6. Retract flaps after a positive rate of climb has been verified or in accordance with aircraft manufacturer guidance. (CA.IV.K.S6) 7. Maintain takeoff power Vy ±5 to a safe maneuvering altitude. (CA.IV.K.S7) 8. Maintain directional control and proper wind-drift correction throughout takeoff and climb. (CA.IV.K.S8) 9. Complete the appropriate checklist (CA.IV.K.S9)
Risk Management	The applicant applies risk identification, assessment, and mitigation principles to: 1. Selection of appropriate takeoff path based on wind and pilot capability and aircraft limitations. (CA.IV.K.R1) 2. Determines if crosswind component exceeds pilot ability or is beyond aircraft manufacturer limitations. (CA.IV.K.R2) 3. Water conditions. (CA.IV.K.R3) 4. Obstruction clearance. (CA.IV.K.R4) 5. Obstruction clearance climb attitude and stall awareness. (CA.IV.K.R5) 6. Windshear. (CA.IV.K.R6) 7. Tailwinds. (CA.IV.K.R7) 8. Wake turbulence. (CA.IV.K.R8) 9. Go/no go decision making. (CA.IV.K.R9) 10. Task management. (CA.IV.K.R10) 11. Low altitude maneuvering. (CA.IV.K.R11) 12. Wire strikes. (CA.IV.K.R12) 13. Minimum safe altitude for climb. (CA.IV.K.R13) 14. Situational awareness of obstacles on departure and arrival paths. (CA.IV.K.R14) 15. Recognition of need for rejected takeoff and predetermines takeoff abort point. (CA.IV.K.R15) 16. Strategies for handling engine failure during takeoff and climb. (CA.IV.K.R16) 17. Criticality of takeoff distance available. (CA.IV.K.R17) 18. Plans for engine-failure after takeoff. (CA.IV.K.R18) 19. Sterile cockpit. (CA.IV.K.R19) 20. Confirms gear retracted in amphibious aircraft. (CA.IV.K.R20)

Task	*L. Rough Water Approach and Landing (ASES, AMES)*
Reference	FAA-H-8083-23; POH/AFM
Objective	To determine the applicant exhibits satisfactory knowledge, skills and risk management associated with a rough water approach and landing. **NOTE:** If a rough water condition does not exist, the applicant shall be evaluated by simulating the Task.
Knowledge	The applicant demonstrates understanding of: 1. When and why rough water techniques are used. (CA.IV.L.K1) 2. How a rough water approach and landing is executed. (CA.IV.L.K2) 3. Landing distance. (CA.IV.L.K3) 4. Stabilized approach. (CA.IV.L.K4) 5. Energy management. (CA.IV.L.K5) 6. Wind conditions and effects. (CA.IV.L.K7) 7. Density altitude. (CA.IV.L.K8) 8. Headwind, tailwind, crosswind component. (CA.IV.L.K9) 9. Emergency procedures during approach and landing. (CA.IV.L.K10)
Skills	The applicant demonstrates the ability to: 1. Adequately survey the intended landing area. (CA.IV.L.S1) 2. Consider the wind conditions, water depth, hazards, surrounding terrain, and other watercraft. (CA.IV.L.S2) 3. Select the most suitable approach path and touchdown area. (CA.IV.L.S3) 4. Establish the recommended approach and landing configuration and airspeed, and adjust pitch attitude and power as required. (CA.IV.L.S4) 5. Maintain a stabilized approach and the recommended approach airspeed, or in its absence not more than 1.3 Vso ±5 knots with wind gust factor applied. (CA.IV.L.S5) 6. Make smooth, timely, and correct power and control adjustments to maintain proper pitch attitude and rate of descent to touchdown. (CA.IV.L.S6) 7. Contact the water in the proper pitch attitude, considering the type of rough water. (CA.IV.L.S7) 8. Maintain crosswind correction and directional control throughout the approach and landing sequence. (CA.IV.L.S8) 9. Complete the appropriate checklist. (CA.IV.L.S9)
Risk Management	The applicant applies risk identification, assessment, and mitigation principles to: 1. Performing a go-around/rejected landing. (CA.IV.L.R1) 2. Importance of landing in direction of momentum, with wheels pointed forward on touchdown. (CA.IV.L.R2) 3. Stall/spin awareness. (CA.IV.L.R3) 4. Windshear. (CA.IV.L.R4) 5. Tailwinds. (CA.IV.L.R5) 6. Wake turbulence. (CA.IV.L.R6) 7. Task management. (CA.IV.L.R7) 8. Low altitude maneuvering. (CA.IV.L.R8) 9. Wire strikes. (CA.IV.L.R9) 10. Collision avoidance. (CA.IV.L.R10) 11. Right-of-way. (CA.IV.L.R11) 12. Situational awareness of obstacles on approach and departure paths. (CA.IV.L.R12) 13. Sterile cockpit. (CA.IV.L.R13)

Task	***M. Go-Around/Rejected Landing***
Reference	FAA-H-8083-3, FAA-H-8083-23; POH/AFM
Objective	To determine the applicant exhibits satisfactory knowledge, skills and risk management associated with a go around/rejected landing with emphasis on factors that contribute to landing conditions that may require a go around.
Knowledge	The applicant demonstrates understanding of: 1. Available Landing distance (ALD). (CA.IV.M.K1) 2. Stabilized approach. (CA.IVM.K2) 3. Energy management. (CA.IV.M.K3) 4. Wind conditions and effects. (CA.IV.M.K4) 5. Headwind, tailwind, crosswind component. (CA.IV.M.KI5) 6. Emergency procedures during approach and landing. (CA.IV.M.K6) 7. Communication procedures. (CA.IV.M.K7)
Skills	The applicant demonstrates the ability to: 1. Make a timely decision to discontinue the approach to landing. (CA.IV.M.S1) 2. Apply takeoff power immediately and transition to climb pitch attitude for V_X or V_Y as appropriate ±5 knots and/or appropriate pitch attitude. (CA.IV.M.S2) 3. Configure aircraft power settings to achieve maximum performance. (CA.IV.M.S3) 4. Retract the landing gear in accordance with manufacturer guidance. (CA.IV.M.S4) 5. Maneuver to the side of the runway/landing area when necessary to clear and avoid conflicting traffic.(CA.IV.M.S5) 6. Maintain takeoff power V_Y ±5 knots to a safe maneuvering altitude. (CA.IV.M.S6) 7. Maintain directional control and proper wind-drift correction throughout the climb. (CA.IV.M.S67) 8. Complete the appropriate checklist. (CA.IV.M.S8)
Risk Management	The applicant applies risk identification, assessment, and mitigation principles to: 1. Timeliness for making and executing decision. (CA.IV.M.R1) 2. Task management. (CA.IV.M.R2) 3. Low altitude maneuvering. (CA.IV.M.R3) 4. Slow flight. (CA.IV.M.R4) 5. Wire strikes. (CA.IV.M.R5) 6. Collision avoidance. (CA.IV.M.R6) 7. Right-of-way. (CA.IV.M.R7) 8. Situational awareness of obstacles on approach and departure paths. (CA.IV.M.R8) 9. Spin awareness. (CA.IV.M.R9) 10. Elevator trim stalls. (CA.IV.M.R10) 11. Pilot changing mind regarding the go-around decision (CA.IV.M.R11) 12. Sterile cockpit. (CA.IV.M.R12)

V. Performance Maneuvers

Task	*A. Steep Turns (ASEL, ASES)*
Reference	FAA-H-8083-3; POH/AFM
Objective	To determine the applicant exhibits satisfactory knowledge, skills and risk management associated with steep turns.
Knowledge	The applicant demonstrates understanding of: 1. Coordinated flight. (CA.V.A.K1) 2. Attitude control at various airspeeds. (CA.V.A.K2) 3. Maneuvering speed, including changes in weight. (CA.V.A.K3) 4. Controlling rate and radius of turn. (CA.V.A.K4) 5. Accelerated stalls. (CA.V.A.K5) 6. Overbanking tendencies. (CA.V.A.K6) 7. Use of trim in a turn. (CA.V.A.K7) 8. Aerodynamics associated with steep turns. (CA.V.A.K8) 9. Aerobatic requirements and limitations(CA.V.A.K9)
Skills	The applicant demonstrates the ability to: 1. Establish the manufacturer's recommended airspeed or if one is not stated, a safe airspeed not to exceed V_A. (CA.V.A.S1) 2. Rolls into a coordinated 360° steep turn with at least a 50° bank, followed immediately by a 360° steep turn in the opposite direction. (CA.V.A.S2) 3. Perform the task in the opposite direction, as specified by the evaluator. (CA.V.A.S3) 4. Maintain the entry altitude, ±100 feet, airspeed, ±10 knots, bank, ±5°; and roll out on the entry heading, ±10°. (CA.V.A.S4)
Risk Management	The applicant applies risk identification, assessment, and mitigation principles to: 1. Dividing attention between airplane control and orientation. (CA.V.A.R1) 2. Task management. (CA.V.A.R2) 3. Energy management. (CA.V.A.R3) 4. Stall/spin awareness. (CA.V.A.R4) 5. Situational awareness. (CA.V.A.R5) 6. Rate and radius of turn with confined area operations. (CA.V.A.R6)

Task	*B. Chandelles (ASEL, ASES)*
Reference	FAA-H-8083-3, POH/AFM
Objective	To determine the applicant exhibits satisfactory knowledge, skills and risk management associated with chandelles.
Knowledge	The applicant demonstrates understanding of: 1. Purpose and practical applications of chandelle maneuver. (CA.V.B.K1) 2. Positioning of flaps and gear for maximum performance climb. (CA.V.B.K2) 3. Importance of aircraft coordination. (CA.V.B.K3) 4. Phases of chandelle maneuver from entry to recovery. (CA.V.B.K4) 5. Aircraft maneuvering speed, wing loading, and changes in weight. (CA.V.B.K5) 6. Accelerated stalls. (CA.V.B.K6) 7. Overbanking tendencies. (CA.V.B.K7) 8. Proper pitch control required for continually decreasing airspeed. (CA.V.B.K8) 9. Use of trim. (CA.V.B.K9) 10. Aerodynamics associated with chandelles. (CA.V.B.K10) 11. Effects of non-standard conditions on aircraft performance. (CA.V.B.K11) 12. Considerations of performing chandelles to both the left and the right. (CA.V.B.K12)
Skills	The applicant demonstrates the ability to: 1. Select an altitude that will allow the maneuver to be performed no lower than 1,500 feet AGL. (C.V.B.S1) 2. Establish the appropriate entry configuration, power, and airspeed. (CA.V.B.S2) 3. Establish the angle of bank at approximately 30°. (CA.V.B.S3) 4. Simultaneously apply power and pitch to maintain a smooth, coordinated climbing turn, in either direction, to the 90° point, with a constant bank and continually decreasing airspeed. (CA.V.B.S4) 5. Begins a coordinated constant rate rollout from the 90° point to the 180° point maintaining power and a constant pitch attitude. (CA.V.B.S5) 6. Completes rollout at the 180° point, ±10° just above a stall airspeed, and maintaining that airspeed momentarily avoiding a stall. (CA.V.B.S6) 7. Resumes straight-and-level flight with minimum loss of altitude. (CA.V.B.S7)
Risk Management	The applicant applies risk identification, assessment, and mitigation principles to: 1. Dividing attention between airplane control and orientation. (CA.V.B.R1) 2. Task management. (CA.V.B.R2) 3. Energy management. (CA.V.B.R3) 4. Stall/spin awareness. (CA.V.B.R4) 5. Situational awareness. (CA.V.B.R5) 6. Rate and radius of turn with confined area operations. (CA.V.B.R6) 7. CFIT avoidance. (CA.V.B.R7) 8. Visual scanning and collision avoidance. (CA.V.B.R8)

Task	***C. Lazy Eights (ASEL, ASES)***
Reference	FAA-H-8083-3
Objective	To determine the applicant exhibits satisfactory knowledge, skills and risk management associated with lazy eights.
Knowledge	The applicant demonstrates understanding of: 1. Aircraft coordination. (CA.V.C.K1) 2. Performance and limitation airspeeds. (CA.V.C.K2) 3. Smooth, deliberate control applications. (CA.V.C.K3) 4. Accelerated stalls. (CA.V.C.K4) 5. Effects of pitch and roll control on airspeed. (CA.V.C.K5) 6. Aerodynamics associated with lazy eights. (CA.V.C.K6) 7. Phases of the lazy eight maneuver from entry to recovery. (CA.V.C.K7)
Skills	The applicant demonstrates the ability to: 1. Select an altitude that will allow the task to be performed no lower than 1,500 feet AGL. (CA.V.C.S1) 2. Establish the recommended entry configuration, power, and airspeed. (CA.V.C.S2) 3. Maintain coordinated flight throughout the maneuver. (CA.V.C.S3) 4. Achieve the following throughout the maneuver— (CA.V.C.S4) a. approximately 30° bank at the steepest point. b. constant change of pitch and roll rate and airspeed. c. altitude tolerance at 180° point, ±100 feet from entry altitude. d. airspeed tolerance at the 180° point, plus ±10 knots from entry airspeed. e. heading tolerance at the 180° point, ±10°. 5. Continue the maneuver through the number of symmetrical loops specified and resumes straight-and-level flight. (CA.V.C.S5)
Risk Management	The applicant applies risk identification, assessment, and mitigation principles to: 1. Dividing attention between airplane control and orientation. (CA.V.C.R1) 2. Task management. (CA.V.C.R2) 3. Energy management. (CA.V.C.R3) 4. Stall/spin awareness. (CA.V.C.R4) 5. Situational awareness. (CA.V.C.R5) 6. CFIT avoidance. (CA.V.C.R6) 7. Visual scanning and collision avoidance. (CA.V.C.R7)

Task	*D. Eights on Pylons (ASEL, ASES)*
Reference	FAA-H-8083-3
Objective	To determine the applicant exhibits satisfactory knowledge, skills and risk management associated with eights on pylons.
Knowledge	The applicant demonstrates understanding of: 1. Function of pivotal altitude and factors that affect it. (CA.V.D.K1) 2. Aircraft coordination. (CA.V.D.K2) 3. Effect of wind on ground track. (CA.V.D.K3) 4. Proper control inputs for conducting the maneuver. (CA.V.D.K4) 5. Phases of eights on pylons from entry to recovery. (CA.V.D.K5)
Skills	The applicant demonstrates the ability to: 1. Determine the approximate pivotal altitude. (CA.V.D.S1 2. Select suitable pylons that will permit straight-and-level flight between the pylons. (CA.V.D.S2) 3. Enter the maneuver at the appropriate altitude and airspeed and at a bank angle of approximately 30° to 40° at the steepest point. (CA.V.D.S3) 4. Apply the necessary corrections so that the line-of-sight reference line remains on the pylon. (CA.V.D.S4) 5. Divide attention between accurate coordinated airplane control and outside visual references. (CA.V.D.S5) 6. Hold pylon using appropriate pivotal altitude avoiding slips and skids. (CA.V.D.S6)
Risk Management	The applicant applies risk identification, assessment, and mitigation principles to: 1. Dividing attention between airplane control and orientation. (CA.V.D.R1) 2. Task management. (CA.V.D.R2) 3. Situational awareness. (CA.V.D.R3) 4. CFIT avoidance. (CA.V.D.R4) 5. Visual scanning and collision avoidance. (CA.V.D.R5) 6. Emergency landing considerations. (CA.V.D.R6) 7. Low-altitude maneuvering. (CA.V.D.R7)

VI. Navigation

Task	***A. Pilotage and Dead Reckoning***
Reference	FAA-H-8083-25; 14 CFR part 61; Navigation Chart
Objective	To determine the applicant exhibits satisfactory knowledge, skills and risk management associated with pilotage and dead reckoning.
Knowledge	The applicant demonstrates understanding of: 1. Navigation process selection. (CA.VI.A.K1) 2. Determining heading, speed, course. (CA.VI.A.K2) 3. Estimating time, speed, and distance.(CA.VI.A.K3) 4. True airspeed and density altitude. (CA.VI.A.K4) 5. Wind correction angle. (CA.VI.A.K5) 6. Checkpoint selection. (CA.VI.A.K6) 7. Planned vs. actual flight plan calculations and required corrections. (CA.VI.A.K7) 8. Topography. (CA.VI.A.K8) 9. Plotting a course. (CA.VI.A.K9) 10. Magnetic compass errors. (CA.VI.A.K10) 11. Route selection. (CA.VI.A.K11) 12. Altitude selection. (CA.VI.A.K12) 13. Power setting selection. (CA.VI.A.K13)
Skills	The applicant demonstrates the ability to: 1. Prepare a document or electronic equivalent to be used in flight for comparisons with planned fuel usages and times over waypoints while dead reckoning. (CA.VI.A.S1) 2. Follow the preplanned course by reference to landmarks. (CA.VI.A.S2) 3. Identify landmarks by relating surface features to chart symbols. (CA.VI.A.S3) 4. Navigate by means of pre-computed headings, groundspeeds, and elapsed time. (CA.VI.A.S4) 5. Demonstrate use of magnetic direction indicator in navigation, to include turns to headings(CA.VI.A.S5) 6. Correct for and record the differences between preflight groundspeed, fuel consumption, and heading calculations and those determined en route. (CA.VI.A.S6) 7. Verify the airplane's position within 2 nautical miles of the flight-planned route. (CA.VI.A.S7) 8. Arrive at the en route checkpoints within 3 minutes of the initial or revised ETA and provide a destination estimate. (CA.VI.A.S8) 9. Maintain the selected altitude, ±100 feet and headings, ±10°. (CA.VI.A.S9) 10. Determine compass heading based on wind, magnetic variation, and deviation. (CA.VI.A.S10)
Risk Management	The applicant applies risk identification, assessment, and mitigation principles to: 1. CFIT risk avoidance plan. (CA.VI.A.R1) 2. Avoiding/recovering from misidentification of landmarks. (CA.VI.A.R2) 3. Bracketing strategy. (CA.VI.A.R3) 4. Selecting an alternate. (CA.VI.A.R4) 5. Situational awareness. (CA.VI.A.R5) 6. Task management. (CA.VI.A.R6) 7. Actual vs. planned fuel consumption. (CA.VI.A.R7) 8 Exit strategies. (CA.VI.A.R8) 9. Preflight pilot/operation risk assessment and planning. (CA.VI.A.R9) 10. Determine the impact of corrected groundspeed, time enroute and fuel consumption on the overall safety of flight to destination. (CA.IV.A.R10)

Task	*B. Navigation Systems and Radar Services*
Reference	FAA-H-8083-3, FAA-H-8083-6, FAA-H-8083-25; Navigation Equipment Operation Manuals; AIM
Objective	To determine the applicant exhibits satisfactory knowledge, skills and risk management associated with navigation systems and radar services.
Knowledge	The applicant demonstrates understanding of: 1. Ground-based navigation (orientation, course determination, equipment, tests and regulations). (CA.VI.B.K1) 2. Global Positioning System (GPS) (equipment, regulations, databases authorized use, Receiver Autonomous Integrity Monitoring (RAIM)). (CA.VI.B.K2) 3. Radar assistance to VFR aircraft (operations, equipment, available services, traffic advisories). (CA.VI.B.K3) 4. Transponder (Mode A, C, and S). (CA.VI.B.K4)
Skills	The applicant demonstrates the ability to: 1. Demonstrate the ability to use installed electronic navigation system. (CA.VI.B.S1) 2. Locate the airplane's position using the navigation system. (CA.VI.B.S2) 3. Intercept and track a given course, radial, or bearing, as appropriate. (CA.VI.B.S3) 4. Recognize and describe the indication of station passage, if appropriate. (CA.VI.B.S4) 5. Recognize signal loss and take appropriate action. (CA.VI.B.S5) 6. Use proper communication procedures when utilizing radar services. (CA.VI.B.S6) 7. Maintain the appropriate altitude, ±200 feet and headings ±15°. (CA.VI.B.S7)
Risk Management	The applicant applies risk identification, assessment, and mitigation principles to: 1. Automation management. (CA.VI.B.R1) 2. Task management. (CA.VI.B.R2) 3. Situational awareness. (CA.VI.B.R3) 4. Limitations of the navigation system in use. (CA.VI.B.R4) 5. Planning to avoid automation distractions. (CA.VI.B.R5)

Task	***C. Diversion***
Reference	FAA-H-8083-25; AIM; Navigation Chart
Objective	To determine the applicant exhibits satisfactory knowledge, skills and risk management associated with diversion.
Knowledge	The applicant demonstrates understanding of: 1. Selecting divert destination. (CA.VI.C.K1) 2. Deviating from ATC instructions and/or the flight plan. (CA.VI.C.K2)
Skills	The applicant demonstrates the ability to: 1. Select an appropriate diversion airport and route. (CA.VI.C.S1) 2. Make an accurate estimate of heading, groundspeed, arrival time, and fuel consumption to the divert airport. (CA.VI.C.S2) 3. Maintain the appropriate altitude, ±100 feet and heading, ±10°. (CA.VI.C.S3)
Risk Management	The applicant applies risk identification, assessment, and mitigation principles to: 1. Selection of appropriate airport. (CA.VI.C.R1) 2. Timely decision to divert. (CA.VI.C.R2) 3. Improving situation by diversion. (CA.VI.C.R3) 4. Maintaining airmanship during diversion. (CA.VI.C.R4) 5. Collision avoidance. (CA.VI.C.R5) 6. CFIT. (CA.VI.C.R6) 7. Task management. (CA.VI.C.R7) 8. Situational awareness. (CA.VI.C.R8) 9. Utilizing all available resources (automation, ATC, cockpit planning aids). (CA.VI.C.R9)

Task	***D. Lost Procedures***
Reference	FAA-H-8083-25; AIM; Navigation Chart
Objective	To determine the applicant exhibits satisfactory knowledge, skills and risk management associated with lost procedures and taking appropriate steps to achieve a satisfactory outcome if lost.
Knowledge	The applicant demonstrates understanding of: 1. Understands value of recording time at waypoints. (CA.VI.D.K1) 2. Assistance available if lost (radar services, communication procedures). (CA.VI.D.K2) 3. Responsibility and authority of PIC. (CA.VI.D.K3) 4. Deviation from ATC instructions. (CA.VII.D.K4) 5. Declaring an emergency. (CA.VI.D.K5)
Skills	The applicant demonstrates the ability to: 1. Select an appropriate course of action. (CA.VI.D.S1) 2. Maintain an appropriate heading and climbs, if necessary. (CA.VI.D.S2) 3. Identify prominent landmarks. (CA.VI.D.S3) 4. Use navigation systems/facilities and/or contacts an ATC facility for assistance, as appropriate. (CA.VI.D.S4)
Risk Management	The applicant applies risk identification, assessment, and mitigation principles to: 1. Following a procedure of recording times over waypoints. (CA.VI.D.R1) 2. Task management. (CA.VI.D.R2) 3. Situational awareness. (CA.VI.D.R3) 4. CFIT. (CA.VI.D.R4) 5. Collision avoidance. (CA.VI.D.R5) 6. Recognition of a deteriorating situation and seeking assistance. (CA.VI.D.R6) 7. Knowing when to declare an emergency. (CA.VI.D.R7)

VII. Slow Flight and Stalls

NOTE: In accordance with FAA policy, all stalls for the Commercial rating will be taken to the "onset" (buffeting) stall condition.

Task	***A. Maneuvering During Slow Flight***
Reference	FAA-H-8083-3; POH/AFM
Objective	To determine the applicant exhibits satisfactory knowledge, skills and risk management associated with maneuvering during slow flight.
Knowledge	The applicant demonstrates understanding of: 1. Maneuver relative to a real-life portion of a flight. (CA.VII.A.K1) 2. Relationship between Airport Operations Area (AOA), airspeed, load factor, aircraft configuration, aircraft weight, and aircraft attitude. (CA.VI.A.K2) 3. Importance of reliance on aircraft performance indications (aircraft buffet) instead of artificial warning systems (stall horn). (CA.VII.A.K3) 4. The difference between AOA and aircraft attitude during all flight conditions and how it relates to aircraft performance. (CA.VII.A.K4) 5. How environmental elements affect aircraft performance. (CA.VII.A.K5) 6. Importance of the 1,500 foot AGL minimum altitude. (CA.VII.A.K6)
Skills	The applicant demonstrates the ability to: 1. Select an entry altitude that will allow the task to be completed no lower than 1,500 feet AGL (ASEL, ASES) ***OR*** 3,000 feet AGL (AMEL, AMES). (CA.VII.A.S1) 2. Establish and maintain an airspeed at which any further increase in angle of attack, increase in load factor, or reduction in power, would result in an immediate stall. (CA.VII.A.S2) 3. Accomplish coordinated straight-and-level flight, turns, climbs, and descents with landing gear and flap configurations specified by the evaluator. (CA.VII.A.S3) 4. Divide attention between airplane control, traffic avoidance and orientation. (CA.VII.A.S4) 5. Maintain the specified altitude, ±50 feet; specified heading, ±10°; airspeed, +5/-0 knots; and specified angle of bank, ±5°. (CA.VII.A.S5)
Risk Management	The applicant applies risk identification, assessment, and mitigation principles to: 1. Relationship between angle of attack, airspeed, load factor, aircraft configuration, aircraft weight, and aircraft attitude. (CA.VII.A.R1) 2. Reliance on aircraft performance indications, such as aircraft buffet instead of artificial warning systems such as a stall horn. (CA.VII.A.R2) 3. Understanding how environmental elements affect aircraft performance. (CA.VII.A.R3)

Task	***B. Power-Off Stalls***
Reference	FAA-H-8083-3; AC 61-67; POH/AFM
Objective	To determine the applicant exhibits satisfactory knowledge, skills and risk management associated with power-off stalls.
Knowledge	The applicant demonstrates understanding of: 1. Importance of the 1,500 foot AGL minimum altitude. (CA.VII.B.K1) 2. Relating the maneuver to a real-life portion of a flight. (CA.VII.B.K2) 3. Components of a stabilized descent. (CA.VII.B.K3) 4. Approach to stall indications. (CA.VII.B.K4) 5. Full stall indications. (CA.VII.B.K5) 6. Determining which aircraft inputs are required to meet heading or bank angle requirements. (CA.VII.B.K6) 7. Determining the most efficient stall recovery procedure. (CA.VII.B.K7) 8. Importance of establishing the correct aircraft configuration during the recovery process and the consequences of failing to do so. (CA.VII.B.K8) 9. Aerodynamics associated with stalls and spins in various aircraft configurations and attitudes. (CA.VII.B.K9) 10. Circumstances that can lead to an inadvertent stall or spin. (CA.VII.B.K10)
Skills	**NOTE:** When published, the aircraft manufacturer's procedures for the specific make/mode/series aircraft take precedent over the identification and recovery procedures described in paragraphs 5 and 6 below. The applicant demonstrates the ability to: 1. Select an entry altitude that will allow the task to be completed no lower than 1,500 feet AGL (ASEL, ASES) ***OR*** 3,000 feet AGL (AMEL, AMES). (CA.VII.B.S1) 2. Establish a stabilized descent in the approach or landing configuration, as specified by the evaluator. (CA.VII.B.S2) 3. Transition smoothly from the approach or landing attitude to a pitch attitude that will induce a stall. (CA.VII.B.S3) 4. Maintain a specified heading, ±10°, if in straight flight; maintain a specified angle of bank not to exceed 20°, ±5°; if in turning flight, while inducing the stall. (CA.VII.B.S4) 5. Recognize and recover promptly at the "onset" (buffeting) stall condition. (CA.VII.B.S5) **NOTE:** Evaluation criteria for a recovery from an approach to stall should not mandate a predetermined value for altitude loss and should not mandate maintaining altitude during recovery. Proper evaluation criteria should consider the multitude of external and internal variables which affect the recovery altitude. 6. Retract the flaps to the recommended setting; retract the landing gear, if retractable, after a positive rate of climb is established. (CA.VII.B.S6) 7. Execute stall recovery in accordance with procedures set forth in the POH. (CA.VII.B.S7) 8. Accelerates to V_X or V_Y speed before the final flap retraction; returns to the altitude, heading and airspeed specified by the examiner. (CA.VII.B.S8)
Risk Management	The applicant applies risk identification, assessment, and mitigation principles to: 1. Dynamic aerodynamic relationship between angle of attack, airspeed, load factor, aircraft configuration, aircraft weight, and aircraft attitude. (CA.VII.B.R1) 2. Reliance on aircraft performance indications such as aircraft buffet instead of artificial warning systems such as a stall horn. (CA.VII.B.R2) 3. Understanding how environmental elements affect aircraft performance. (CA.VII.B.R3) 4. Understanding the required actions for aircraft maximum performance and the consequences of failing to do so. (CA.VII.B.R4)

Task	***C. Power-On Stalls***
Reference	FAA-H-8083-3; AC 61-67; POH/AFM
Objective	To determine the applicant exhibits satisfactory knowledge, skills and risk management associated with power-on stalls. **NOTE:** In some high performance airplanes, the power setting may have to be reduced below the practical test standards guideline power setting to prevent excessively high pitch attitudes (greater than 30° nose up).
Knowledge	The applicant demonstrates understanding of: 1. Importance of the 1,500 foot AGL minimum altitude. (CA.VII.C.K1) 2. Relating the maneuver to a real-life portion of a flight. (CA.VII.C.K2) 3. Rationale for power setting variances. (CA.VII.C.K3) 4. Approach to stall indications. (CA.VII.C.K4) 5. Full stall indications. (CA.VII.C.K5) 6. Determining which aircraft inputs are required to meet heading or bank angle requirements. (CA.VII.C.K6) 7. Determining the most efficient stall recovery procedure. (CA.VII.C.K7) 8. Importance of establishing the correct aircraft configuration during the recovery process and the consequences of failing to do so. (CA.VII.C.K8) 9. Aerodynamics associated with stalls and spins in various aircraft configurations and attitudes. (CA.VII.C.K9) 10. Circumstances that can lead to an inadvertent stall or spin. (CA.VII.C.K10)
Skills	The applicant demonstrates the ability to: 1. Select an entry altitude that will allow the task to be completed no lower than 1,500 feet AGL (ASEL, ASES) ***OR*** 3,000 feet AGL (AMEL, AMES). (CA.VII.C.S1) 2. Establish the takeoff, departure, or cruise configuration as specified by the evaluator. (CA.VII.C.S2) 3. Set power (as assigned by evaluator) to no less than 65 percent available power. (CA.VII.C.S3) 4. Transition smoothly from the takeoff or departure attitude to the pitch attitude that will induce a stall. (CA.VII.C.S4) 5. Maintain a specified heading, ±10°,if in straight flight; maintain a specified angle of bank not to exceed 20°, ±10°, if in turning flight, while inducing the stall. (CA.VII.C.S5) **NOTE:** Evaluation criteria for a recovery from an approach to stall should not mandate a predetermined value for altitude loss and should not mandate maintaining altitude during recovery. Proper evaluation criteria should consider the multitude of external and internal variables which affect the recovery altitude. 6. Recognize and recover promptly at the “onset” (buffeting) stall condition. (CA.VII.C.S6) 7. Retract the flaps to the recommended setting; retract the landing gear if retractable, after a positive rate of climb is established. (CA.VII.C.S7) 8. Accelerate to V_X or V_Y speed before the final flap retraction; return to the altitude, heading, and airspeed specified by the evaluator. (CA.VII.C.S8)
Risk Management	The applicant applies risk identification, assessment, and mitigation principles to: 1. Dynamic aerodynamic relationship between angle of attack, airspeed, load factor, aircraft configuration, aircraft weight, and aircraft attitude. (CA.VII.C.R1) 2. Reliance on aircraft performance indications such as aircraft buffet instead of artificial warning systems such as stall horn. (CA.VII.C.R2) 3. Understanding how environmental elements affect aircraft performance. (CA.VII.C.R3) 4. Understanding the required actions for aircraft maximum performance and the consequences of failing to do so. (CA.VII.C.R4)

Task	*D. Accelerated Stalls*
Reference	FAA-H-8083-3; AC 61-67; POH/AFM
Objective	To determine the applicant exhibits satisfactory knowledge, skills and risk management related to accelerated (power on or power off) stalls.
Knowledge	The applicant demonstrates understanding of: 1. Relating the maneuver to a realistic flight scenario. (CA.VII.D.K1). 2. Approach to stall indications. (CA.VII.D.K2) 3. Full stall indications. (CA.VII.D.K3) 4. Aircraft inputs required to maintain heading or bank angle. (CA.VII.D.K4) 5. Efficient stall recovery procedure so that a minimum loss of altitude occurs. (CA.VII.D.K5) 6. Importance of establishing the correct aircraft configuration during the recovery process and the consequences of failing to do so, as applicable. (CA.VII.D.K6) 7. Aerodynamics associated with stalls and spins in various aircraft configurations and attitudes. (CA.VII.D.K7) 8. Circumstances that can lead to an inadvertent stall or spin. (CA.VII.D.K8)
Skills	The applicant demonstrates the ability to: 1. Select an entry altitude that will allow the task to be completed no lower than 1,500 feet AGL (ASEL, ASES) **OR** 3,000 feet AGL (AMEL, AMES). (CA.VII.D.S1) 2. Establish the power setting, airspeed and configuration to replicate a realistic flight scenario specific to an accelerated stall. (CA.VII.D.S2) 3. Maintains coordinated flight, increasing elevator back pressure steadily and firmly to induce the stall. (CA.VII.D.S3) 4. Recognize and recover promptly at the onset of the accelerated stall. (CA.VII.D.S4) 5. Returns to the altitude, heading, and airspeed specified by the evaluator. (CA.VII.D.S5)
Risk Management	The applicant applies risk identification, assessment, and mitigation principles to: 1. Dynamic aerodynamic relationship between angle of attack, airspeed, load factor, aircraft configuration, aircraft weight, and aircraft attitude. (CA.VII.D.R1) 2. Reliance on aircraft performance indications such as aircraft buffet instead of artificial warning systems such as stall horn. (CA.VII.D.R2) 3. Understanding how environmental elements affect aircraft performance. (CA.VII.D.R3) 4. Understanding the required actions for aircraft maximum performance and the consequences of failing to do so. (CA.VII.D.R4) 5. Scenarios during which an accelerated stall can occur. (CA.VII.D.R5)

Task	***E. Spin Awareness***
Reference	FAA-H-8083-3; AC 61-67; POH/AFM
Objective	To determine the applicant exhibits satisfactory knowledge, skills and risk management associated with spins, flight situations where unintentional spins may occur and procedures for recovery from unintentional spins.
Knowledge	The applicant demonstrates understanding of: 1. Aerodynamics associated with stalls and spins in various aircraft configurations and attitudes. (CA.VII.E.K1) 2. Circumstances that can lead to an inadvertent stall or spin. (CA.VII.E.K2) 3. Different spin types, causes, recovery strategies. (CA.VII.E.K3) 4. Effects of inappropriate recovery control inputs. (CA.VII.E.K4) 5. Which instrument(s) are reliable for determining the direction of spin to effect recovery. (CA.VII.E.K5)
Skills	The applicant demonstrates the ability to: 1. Assess and avoid situations where unintentional spins may occur. (CA.VII.E.S1) 2. Explain procedures for recovery from unintentional spins. (CA.VII.E.S2)
Risk Management	The applicant applies risk identification, assessment, and mitigation principles to: 1. Dynamic aerodynamic relationship between angle of attack, airspeed, load factor, aircraft configuration, aircraft weight, and aircraft attitude. (CA.VII.E.R1) 2. Reliance on aircraft performance indications such as aircraft buffet instead of artificial warning systems such as stall horn. (CA.VII.E.R2) 3. Understanding how environmental elements affect aircraft performance. (CA.VII.E.R3) 4. Understanding the required actions for aircraft maximum performance and the consequences of failing to do so. (CA.VII.E.R4) 5. Uncoordinated flight. (CA.VII.E.R5) 6. Understanding the hazards associated with the improper application of flight control inputs during the spin recovery. (CA.VII.E.R6)

VIII. Emergency Operations

NOTE (AMEL, AMES): Examiners shall select an entry altitude that will allow the single engine demonstrations task to be completed no lower than 3,000 feet AGL or the manufacturer's recommended altitude, whichever is higher. At altitudes lower than 3,000 feet AGL, engine failure shall be simulated by reducing throttle to idle and then establishing zero thrust.

Task	***A. Power Failure at Altitude (Simulated)***
Reference	FAA-H-8083-3; POH/AFM
Objective	To determine the applicant exhibits satisfactory knowledge, skills and risk management associated with a power failure at altitude and associated emergency approach and landing procedures.
Knowledge	The applicant demonstrates understanding of: 1. Glide speed, distance. (CA.VIII.A.K1) 2. Available landing distance (ALD). (CA.VIII.A.K2) 3. Hazards of other than hard surfaced runway. (CA.VIII.A.K3) 4. Stabilized approach. (CA.VIII.A.K4) 5. Energy management. (CA.VIII.A.K5) 6. Wind conditions and effects. (CA.VIII.A.K6) 7. Density altitude. (CA.VIII.A.K7) 8. Headwind, tailwind, crosswind component. (CA.VIII.A.K8) 9. Emergency procedures. (CA.VIII.A.K9) 10. Communications. (CA.VIII.A.K10) 11. Regulations pertaining to emergencies safe altitudes. (CA.VIII.A.K11) 12. ATC clearance deviations. (CA.VIII.A.K12) 13. Minimum fuel. (CA.VIII.A.K13) 14. Selecting a landing location. (CA.VIII.A.K14) 15. ELTs and/or other emergency locating devices. (CA.VIII.A.K15) 16. Radar assistance to VFR aircraft. (CA.VIII.A.K16) 17. Transponder. (CA.VIII.A.K17)
Skills	The applicant demonstrates the ability to: 1. Analyze the situation and select an appropriate course of action. (CA.VIII.A.S1) 2. Establish and maintain the recommended best-glide airspeed, ±10 knots. (CA.VIII.A.S2) 3. Plan and follow a flight pattern to the selected landing area considering altitude, wind, terrain, and obstructions. (CA.VIII.A.S3) 4. Prepare for landing, or go-around, as specified by the evaluator. (CA.VIII.A.S4) 5. Follow the appropriate checklist. (CA.VIII.A.S5)
Risk Management	The applicant applies risk identification, assessment, and mitigation principles to: 1. Accounting for wind. (CA.VIII.A.R1) 2. Selecting a suitable landing area. (CA.VIII.A.R2) 3. Planning and following a flight pattern to the selected landing area considering. altitude, wind, terrain, and obstructions. (CA.VIII.A.R3) 4. Task management. (CA.VIII.A.R4) 5. Low altitude maneuvering. (CA.VIII.A.R5) 6. Obstacle and wire strike avoidance. (CA.VIII.A.R6) 7. Collision avoidance. (CA.VIII.A.R7) 8. Right-of-way. (CA.VIII.A.R8) 9. Situational awareness. (CA.VIII.A.R9) 10. Stall/spin awareness. (CA.VIII.A.R10) 11. Understanding the difference between best glide speed (L/D) and minimum sink speed and when each one is appropriate. (CA.VIII.A.R11)

Task	*B. Emergency Descent and Landing (Simulated)*
Reference	FAA-H-8083-3; POH/AFM **NOTE:** If this maneuver cannot be completed to touch down due to safety concerns, then the landing portion of this maneuver may be evaluated separately. The evaluator's plan of action must allow for this maneuver to be completed in whole, but it must also allow for the possibility that the landing cannot be completed due to traffic considerations.
Objective	To determine the applicant exhibits satisfactory knowledge, skills and risk management associated with an emergency descent to a precision landing.
Knowledge	The applicant demonstrates understanding of: 1. Fire in flight. (CA.VIII.B.K1) 2. Smoke in cockpit. (CA.VIII.B.K2) 3. Power-off approach. (CA.VIII.B.K3) 4. Energy management. (CA.VIII.B.K4) 5. Maintaining a constant radius about a point. (CA.VIII.B.K5) 6. Available landing distance (ALD). (CA.VIII.B.K6) 7. Hazards of other than hard surfaced runway. (CA.VIII.B.K7) 8. Wind conditions and effects. (CA.VIII.B.K8) 9. Density altitude. (CA.VIII.B.K9) 10. Headwind, tailwind, crosswind component. (CA.VIII.B.K10) 11. Emergency procedures. (CA.VIII.B.K11) 12. Communications. (CA.VIII.B.K12) 13. ATC clearance deviations. (CA.VIII.B.K13) 14. Selecting a landing location and an appropriate touchdown point. (CA.VIII.B.K14) 15. ELTs and/or other emergency locating devices. (CA.VIII.B.K15) 16. Transponder. (CA.VIII.B.K16)
Skills	The applicant demonstrates the ability to: 1. Analyze the situation and select an appropriate course of action. (CA.VIII.B.S1) 2. Establish and maintain a steep spiral, not to exceed 60° angle of bank, to maintain a constant radius about a suitable ground reference point. (CA.VIII.B.S2) 3. Selects an altitude sufficient to continue through a series of at least three 360° turns. (CA.VIII.B.S3) 4. Applies wind-drift correction to track a constant radius circle around selected reference point with bank not to exceed 60° at steepest point in turn. (CA.VIII.B.S4) 5. Divides attention between airplane control and ground track, while maintaining coordinated flight. (CA.VIII.B.S5) 6. Maintains the specified airspeed, ±10 knots, rolls out toward object or specified heading, ±10°. (CA.VIII.B.S6) 7. Plan and follow a flight pattern to the selected landing area considering aircraft performance capabilities, altitude, wind, terrain, and obstructions. (CA.VIII.B.S7) 8. Completes final airplane configuration accounting for glide speed and distance to the intended touchdown point. (CA.VIII.B.S8) 9. Touch down in a normal landing attitude, -0/+200 feet from the specified touchdown point. (CA.VIII.B.S9) 10. Follow the appropriate checklist. (CA.VIII.B.S10)

Task	***B. Emergency Descent and Landing (Simulated)***
Risk Management	The applicant applies risk identification, assessment, and mitigation principles to: 1. Wind effects. (CA.VIII.B.R1) 2. Exceeding airframe and/or airspeed limitations. (CA.VIII.B.R2) 3. Inadvertent stall/spin. (CA.VIII.B.R3) 4. Visual scanning and collision avoidance. (CA.VIII.B.R4) 5. Selecting a landing area. (CA.VIII.B.R5) 6. Task management. (CA.VIII.B.R6) 7. Low altitude maneuvering. (CA.VIII.B.R7) 8. Obstacle and wire strike avoidance. (CA.VIII.B.R8) 9. Situational awareness. (CA.VIII.B.R9)

Task	***C. Systems and Equipment Malfunction***
Reference	FAA-H-8083-3; POH/AFM
Objective	To determine the applicant exhibits satisfactory knowledge, skills and risk management associated with system and equipment malfunctions appropriate to the airplane provided for the practical test and analyzing the situation and take appropriate action for simulated emergencies.
Knowledge	The applicant demonstrates understanding of: 1. Elements related to system and equipment malfunctions appropriate to the airplane, including the following— (CA.VIII.C.K1) a. partial or complete power loss. b. engine roughness or overheat. c. carburetor or induction icing. d. loss of oil pressure. e. fuel starvation. f. electrical malfunction. g. vacuum/pressure, and associated flight instruments malfunction. h. pitot/static system malfunction. i. landing gear or flap malfunction. j. inoperative trim. k. inadvertent door or window opening. l. structural icing. m. smoke/fire/engine compartment fire. n. any other emergency appropriate to the airplane. 2. Supplemental oxygen. (CA.VIII.C.K2) 3. Load factors. (CA.VIII.C.K3) 4. High drag versus low drag. (CA.VIII.C.K4)
Skills	The applicant demonstrates the ability to: 1. Analyze the situation and take appropriate action for simulated emergencies appropriate to the airplane provided for at least three of the system and equipment malfunctions in the knowledge element. (CA.VIII.C.S1) 2. Completes appropriate checklist or procedure. (CA.VIII.C.S2)
Risk Management	The applicant applies risk identification, assessment, and mitigation principles to: 1. Hazardous attitudes. (CA.VIII.C.R1) 2. Preflight inspections. (CA.VIII.C.R2) 3. Maintenance. (CA.VIII.C.R3) 4. Checklist usage. (CA.VIII.C.R4) 5. Recognizing situations, such as depressurization (if applicable), cockpit smoke, and/or fire that require an emergency descent. (CA.VIII.C.R5) 6. Orientation, division of attention, and proper planning. (CA.VIII.C.R6) 7. Energy management. (CA.VIII.C.R7)

Task	*D. Emergency Equipment and Survival Gear*
Reference	FAA-H-8083-3; POH/AFM
Objective	To determine the applicant exhibits satisfactory knowledge, skills and risk management associated with emergency equipment, personal, and survival gear appropriate to the airplane and environment encountered during flight and identifying appropriate equipment that should be onboard the airplane.
Knowledge	The applicant demonstrates understanding of: 1. Emergency equipment. (CA.VIII.D.K1) 2. Climate extremes (hot/cold). (CA.VIII.D.K2) 3. Mountainous terrain. (CA.VIII.D.K3) 4. Overwater operations. (CA.VIII.D.K4) 5. Gear to meet basic physical needs until rescue.. (CA.VIII.D.K5) 6. ELT operation, limitations and testing requirements. (CA.VIII.D.K6)
Skills	The applicant demonstrates the ability to: 1. Identify appropriate equipment that should be onboard the airplane. (CA.VIII.D.S1) 2. Identify appropriate personal gear to meet physical needs until rescue. (CA.VIII.D.S2) 3. Brief the proper use of the fire extinguisher, if installed. (CA.VII.D.S3)
Risk Management	The applicant applies risk identification, assessment, and mitigation principles to: 1. Meeting basic needs (water, clothing, shelter) for 48 to 72 hours until search and rescue is made. (CA.VIII.D.R1) 2. Survival techniques, to include being located by search and rescue. (CA.VIII.D.R2)

Task	***E. Engine Failure During Takeoff Before Vmc (Simulated) (AMEL, AMES)***
Reference	FAA-H-8083-3; FAA-P-8740-19; POH/AFM
Objective	To determine the applicant exhibits satisfactory knowledge, skills and risk management associated with an engine failure during takeoff before Vmc. **NOTE:** Engine failure (simulated) shall be accomplished before reaching 50 percent of the calculated Vmc.
Knowledge	The applicant demonstrates understanding of: 1. Vmc. (CA.VIII.E.K1) 2. Runway distances. (CA.VIII.E.K2)
Skills	The applicant demonstrates the ability to: 1. Close the throttles smoothly and promptly when simulated engine failure occurs. (CA.VIII.E.S1) 2. Maintain directional control and apply brakes, as necessary. (CA.VIII.E.S2)
Risk Management	The applicant applies risk identification, assessment, and mitigation principles to: 1. Emergency planning and communications. (CA.VIII.E.R1) 2. Task management. (CA.VIII.E.R2) 3. Low altitude maneuvering. (CA.VIII.E.R3) 4. Wire strike avoidance. (CA.VIII.E.R4) 5. Collision Avoidance. (CA.VIII.E.R5) 6. Right-of-way. (CA.VIII.E.R6) 7. Situational awareness of obstacles on approach and departure paths. (CA.VIII.E.R7) 8. Stall/Spin Awareness. (CA.VIII.E.R8)

Task	***F. Engine Failure After Lift-Off (Simulated) (AMEL, AMES)***
Reference	FAA-H-8083-3; FAA-P-8740-19; POH/AFM
Objective	To determine the applicant exhibits satisfactory knowledge, skills and risk management associated with an engine failure after lift-off. **NOTE:** Simulated engine failure of the most critical engine shall be demonstrated after lift-off. However, the failure of an engine shall not be simulated until attaining at least Vsse/Vxse/Vyse and at an altitude not lower than 400 feet AGL.
Knowledge	The applicant demonstrates understanding of: 1. Vmc. (CA.VIII.F.K1) 2. Runway distances. (CA.VIII.F.K2) 3. Drag reduction. (CA.VIII.F.K3) 4. How to identify the inoperative engine. (CA.VIII.F.K4) 5. Aircraft configuration for best performance during single-engine operations. (CA.VIII.F.K5) 6. Feathering and zero-thrust procedures. (CA.VIII.F.K6)
Skills	The applicant demonstrates the ability to: 1. Recognize a simulated engine failure promptly, maintain control and utilize appropriate emergency procedures. (CA.VIII.F.S1) 2. Reduce drag, identify and verify the inoperative engine after simulated engine failure. (CA.VIII.F.S2) 3. Simulate feathering the propeller on the inoperative engine. Evaluator shall then establish a zero-thrust on the inoperative engine. (CA.VIII.F.S3) 4. Establish Vyse; if obstructions are present, establish Vxse or Vmc +5 knots, whichever is greater, until obstructions are cleared. Then transition to Vyse. (CA.VIII.F.S4) 5. Bank toward the operating engine as required for best performance. (CA.VIII.F.S5) 6. Monitor operating engine and make adjustments as necessary. (CA.VIII.F.S6) 7. Recognize the airplane's performance capabilities. If a climb is not possible at Vyse, maintain Vyse and return to the departure airport for landing, or initiate an approach to the most suitable landing area available. (CA.VIII.F.S7) 8. Simulate securing the inoperative engine. (CA.VIII.F.S8) 9. Maintain heading +10 degrees, and airspeed ±5 knots. (CA.VIII.F.S9) 10. Complete appropriate emergency checklist. (CA.VIII.F.S10)
Risk Management	The applicant applies risk identification, assessment, and mitigation principles to: 1. Emergency planning and communications. (CA.VIII.F.R1) 2. Task management. (CA.VIII.F.R2) 3. Low altitude maneuvering. (CA.VIII.F.R3) 4. Wire strike avoidance. (CA.VIII.F.R4) 5. Collision Avoidance. (CA.VIII.F.R5) 6. Right-of-way. (CA.VIII.F.R6) 7. Situational awareness of obstacles on approach and departure paths. (CA.VIII.F.R7) 8. Stall/Spin Awareness. (CA.VIII.F.R8)

Task	***G. Approach and Landing with an Inoperative Engine (Simulated) (AMEL, AMES)***
Reference	FAA-H-8083-3; FAA-P-8740-19; POH/AFM
Objective	To determine the applicant exhibits satisfactory knowledge, skills and risk management associated with an approach and landing with an engine inoperative, including engine failure on final approach.
Knowledge	The applicant demonstrates understanding of: 1. Vmc. (CA.VIII.G.K1) 2. Runway distances. (CA.VIII.G.K2) 3. Drag reduction. (CA.VIII.G.K3) 4. How to identify the inoperative engine. (CA.VIII.G.K4) 5. Aircraft configuration for best performance during single-engine operations. (CA.VIII.G.K5) 6. Feathering and zero-thrust procedures. (CA.VIII.G.K6)
Skills	The applicant demonstrates the ability to: 1. Recognize engine failure and take appropriate action, maintain control, and utilize manufacturer's recommended emergency procedures. (CA.VIII.G.S1) 2. Bank toward the operating engine, as required, for best performance. (CA.VIII.G.S2) 3. Monitor the operating engine and make adjustments as necessary. (CA.VIII.G.S3) 4. Maintain the manufacturer's recommended approach airspeed +10/-5, and landing configuration with a stabilized approach, until landing is assured. (CA.VIII.G.S4) 5. Make smooth, timely, and correct control applications, during round out and touchdown. (CA.VIII.G.S5) 6. Touch down on the first one-third of available runway, with no drift and the airplane's longitudinal axis aligned with and over the runway center path. (CA.VIII.G.S6) 7. Maintain crosswind correction and directional control throughout the approach and landing sequence. (CA.VIII.G.S7) 8. Complete appropriate checklists. (CA.VIII.G.S8)
Risk Management	The applicant applies risk identification, assessment, and mitigation principles to: 1. Accounting for wind. (CA.VIII.G.R1) 2. Selecting a suitable landing area. (CA.VIII.G.R2) 3. Planning and following a flight pattern to the selected landing area considering altitude, wind, terrain, and obstructions. (CA.VIII.G.R3) 4. Task management. (CA.VIII.G.R4) 5. Low altitude maneuvering. (CA.VIII.G.R5) 6. Wire strike avoidance. (CA.VIII.G.R6) 7. Collision Avoidance. (CA.VIII.G.R7) 8. Right-of-way. (CA.VIII.G.R8) 9. Situational awareness of obstacles on approach and departure paths. (CA.VIII.G.R9) 10. Stall/Spin Awareness. (CA.VIII.G.R10)

IX. Multiengine Operations

NOTE: If the applicant does not hold an instrument rating airplane, Tasks C and D need not be accomplished. All other Tasks must to be completed.

Task	***A. Maneuvering with One Engine Inoperative (AMEL, AMES)***
Reference	FAA-H-8083-3, FAA-P-8740-19; POH/AFM
Objective	To determine the applicant exhibits satisfactory knowledge, skills and risk management associated with one engine inoperative. **NOTE:** The feathering of one propeller shall be demonstrated in flight, unless the manufacturer prohibits the intentional feathering of the propellers during flight. The maneuvers shall be performed at altitudes above 3,000 feet AGL or the manufacturer's recommended altitude, whichever is higher, and positions where safe landings on established airports can be readily accomplished. In the event a propeller cannot be unfeathered during the practical test, it shall be treated as an emergency.
Knowledge	The applicant demonstrates understanding of: 1. Vmc. (CA.IX.A.K1) 2. Drag reduction. (CA.IX.A.K3) 3. How to identify the inoperative engine. (CA.IX.A.K4) 4. Aircraft configuration for best performance during single-engine operations. (CA.IX.A.K5) 5. Feathering and zero-thrust procedures. (CA.IX.A.K6)
Skills	The applicant demonstrates the ability to: 1. Recognize engine failure and maintain control. (CA.IX.A.S1) 2. Set the engine controls, reduce drag, identify and verify the inoperative engine, and feather appropriate propeller. (CA.IX.A.S2) 3. Establish and maintain a bank toward the operating engine as required for best performance in straight and level flight. (CA.IX.A.S3) 4. Follow the manufacturer's prescribed checklists to verify procedures for securing the inoperative engine. (CA.IX.A.S4) 5. Monitor the operating engine and make necessary adjustments. (CA.IX.A.S5) 6. Demonstrate coordinated flight with one engine inoperative (propeller feathered). (CA.IX.A.S6) 7. Restart the inoperative engine using appropriate manufacturer's restart procedures. (CA.IX.A.S7) 8. Maintain altitude ±100 feet or minimum sink as appropriate and heading ±10 degrees. (CA.IX.A.S8) 9. Complete the appropriate checklist. (CA.IX.A.S9)
Risk Management	The applicant applies risk identification, assessment, and mitigation principles to: 1. Collision avoidance. (CA.IX.A.R1) 2. CFIT avoidance. (CA.IX.A.R2) 3. Task management. (CA.IX.A.R3) 4. Wire strike avoidance. (CA.IX.A.R4) 5. Situational awareness. (CA.IX.A.R5)

Task	*B. Vmc Demonstration (AMEL, AMES)*
Reference	FAA-H-8083-3, FAA-P-8740-19; POH/AFM
Objective	To determine the applicant exhibits satisfactory knowledge, skills and risk management associated with a Vmc demonstration. **NOTE:** An applicant seeking an airplane-multiengine land rating, “Limited to Center Thrust,” is not required to be evaluated on this Task. **NOTE:** Airplane with normally aspirated engines will lose power as altitude increases because of the reduced density of the air entering the induction system of the engine. This loss of power will result in a Vmc lower than the stall speed at higher altitudes. Therefore, recovery should be made at the first indication of loss of directional control, stall warning, or buffet. Do not perform this maneuver by increasing the pitch attitude to a high angle with both engines operating and then reducing power on the critical engine. This technique is hazardous and may result in loss of airplane control.
Knowledge	The applicant demonstrates understanding of: 1. Vmc and factors affecting Vmc. (CA.IX.B.K1) 2. Cause of loss of directional controls at airspeeds less than Vmc. (CA.IX.B.K2) 3. Safe recovery procedures. (CA.IX.B.K3)
Skills	The applicant demonstrates the ability to: 1. Configure the airplane in accordance with the manufacturer’s recommendation, in the absence of the manufacturer’s recommendations, then at Vsse/Vyse, as appropriate-(CA.IX.B.S1) a. Landing gear retracted. b. Flaps set for takeoff. c. Cowl flaps set for takeoff. d. Trim set for takeoff. e. Propellers set for high RPM. f. Power on critical engine reduce to idle. g. Power on operating engine set to takeoff or maximum available power. 2. Establish a single-engine climb attitude with the airspeed at approximately 10 knots above Vsse. (CA.IX.B.S2) 3. Establish a bank toward the operating engine, as required for best performance and controllability. (CA.IX.B.S3) 4. Increase the pitch attitude slowly to reduce the airspeed at approximately 1 knot per second while applying rudder pressure to maintain directional control until full rudder is applied. (CA.IX.B.S4) 5. Recognize indications of loss of directional control, stall warning, or buffet. (CA.IX.B.S5) 6. Recover promptly by simultaneously reducing power sufficiently on the operating engine while decreasing the angle of attack as necessary to regain airspeed and directional control. Recovery SHOULD NOT be attempted by increasing the power on the simulated failed engine. (CA.IX.B.S6) 7. Recover within 20 degrees of the entry heading. (CA.IX.B.S7) 8. Advance power smoothly on operating engine and accelerate to Vxse/Vyse, as appropriate, +10/-5 knots, during the recovery. (CA.IX.B.S8)
Risk Management	The applicant applies risk identification, assessment, and mitigation principles to: 1. Collision avoidance. (CA.IX.B.R1) 2. CFIT avoidance. (CA.IX.B.R2) 3. Task management. (CA.IX.B.R3) 4. Wire strike avoidance. (CA.IX.B.R4) 5. Situational awareness. (CA.IX.B.R5)

Task	***C. Engine Failure During Flight (by reference to instruments) (AMEL, AMES)***
Reference	FAA-H-8083-3, FAA-P-8740-19; POH/AFM
Objective	To determine the applicant exhibits satisfactory knowledge, skills and risk management associated with instrument flight with one engine inoperative.
Knowledge	The applicant demonstrates understanding of: 1. Instrument procedures used with one engine inoperative. (CA.IX.C.K1)
Skills	The applicant demonstrates the ability to: 1. Recognize engine failure, set the engine controls, reduce drag, identify and verify the inoperative engine, and feather appropriate engine propeller. (CA.IX.C.S1) 2. Establish and maintain a bank toward the operating engine as required for best performance in straight-and-level. (CA.IX.C.S2) 3. Follow the prescribed checklists to verify procedures for securing the inoperative engine. (CA.IX.C.S3) 4. Monitor the operating engine and make necessary adjustments. (CA.IX.C.S4) 5. Demonstrate coordinated flight with one engine inoperative. (CA.IX.C.S5) 6. Maintain altitude ±100 feet, or minimum sink as appropriate and heading ±10 degrees bank, bank ±5 degrees, and levels off from climbs and descents within ±100 feet. (CA.IX.C.S6)
Risk Management	The applicant applies risk identification, assessment, and mitigation principles to: 1. Collision avoidance. (CA.IX.C.R1) 2. CFIT avoidance. (CA.IX.C.R2) 3. Task management. (CA.IX.C.R3) 4. Wire strike avoidance. (CA.IX.C.R4) 5. Situational awareness. (CA.IX.C.R5)

Task	***D. Instrument Approach and Landing with an Inoperative Engine (Simulated) by Reference to Instruments (AMEL, AMES)***
Reference	FAA-H-8083-3, FAA-P-8740-19; POH/AFM
Objective	To determine the applicant exhibits satisfactory knowledge, skills and risk management associated with executing a published instrument approach with one engine inoperative.
Knowledge	The applicant demonstrates understanding of: 1. Instrument approach procedures used with one engine inoperative. (CA.IX.D.K1)
Skills	The applicant demonstrates the ability to: 1. Recognize engine failure, set the engine controls, reduce drag, identify and verify the inoperative engine, and feather appropriate engine propeller. (CA.IX.D.S1) 2. Establish and maintain a bank toward the operating engine, as required for best performance in straight-and-level flight. (CA.IX.D.S2) 3. Follow the manufacturer's prescribed checklists to verify procedures for securing the inoperative engine. (CA.IX.D.S3) 4. Monitor the operating engine and make necessary adjustments. (CA.IX.D.S4) 5. Request and receive an actual or a simulated ATC clearance for an instrument approach. (CA.IX.D.S5) 6. Follow the actual or a simulated ATC clearance for an instrument approach. (CA.IX.D.S6) 7. Maintain altitude within 100 feet, the airspeed within ±10 knots if within the aircraft's capability, and heading +-10 degrees. (CA.IX.D.S7) 8. Establish a rate of descent that will ensure arrival at the MDA or DH/DA, with the airplane in a position from which a descent to a landing, on the intended runway can be made, either straight in or circling as appropriate. (CA.IX.D.S8) 9. On final approach segment, no more than three-quarter-scale deflection of the CDI/glide slope indicator. For RMI or ADF indicators, within 10 degrees of the course. (CA.IX.D.S9) 10. Avoid loss of aircraft control, or attempted flight contrary to the engine-inoperative operating limitations of the aircraft. (CA.IX.D.S10) 11. Comply with the published criteria for the aircraft approach category when circling. (CA.IX.D.S11) 12. Complete landing and appropriate manufacturer's checklists. (CA.IX.D.S12)
Risk Management	The applicant applies risk identification, assessment, and mitigation principles to: 1. Collision avoidance. (CA.IX.D.R1) 2. CFIT avoidance. (CA.IX.D.R2) 3. Task management. (CA.IX.D.R3) 4. Wire strike avoidance. (CA.IX.D.R4) 5. Situational awareness. (CA.IX.D.R5)

X. High Altitude Operations

Task	***A. Supplemental Oxygen***
Reference	14 CFR part 91; FAA-H-8083-25; AC 61-107; AIM; POH/AFM
Objective	To determine the applicant exhibits satisfactory knowledge, skills and risk management for flight at higher altitudes where supplemental oxygen is required or recommended.
Knowledge	The applicant demonstrates understanding of: 1. Regulatory requirements for supplemental oxygen for flight crew and passengers. (CA.X.A.K1) 2. Physiological impairment and symptoms of hypoxia. (CA.X.A.K2) 3. Useful conscientious times without supplemental oxygen. (CA.X.A.K3) 4. Operational characteristics, limitations, and applicability of continuous flow, demand, and pressure-demand oxygen systems. (CA.X.A.K4) 5. Differences between and identification of “aviator’s breathing oxygen” and other types. (CA.X.A.K5) 6. The necessary precautions when using supplemental oxygen systems. (CA.X.A.K6)
Skills	The applicant demonstrates the ability to: 1. Operate the installed or portable oxygen equipment in the aircraft, if equipment is installed. (CA.X.A.S1) 2. Determine the quantity of supplemental oxygen required. (CA.X.A.S2) 3. Accurately assess the adequacy of the oxygen supply for a planned flight. (CA.X.A.S3) 4. Brief passengers on the use of the supplemental oxygen equipment. (CA.X.A.S4)
Risk Management	The applicant applies risk identification, assessment, and mitigation principles to: 1. Flight planning to assess the potential need for supplemental oxygen. (CA.X.A.R1) 2. Compressed gas container hazards with portable systems. (CA.X.A.R2) 3. Combustion hazards of an oxygen rich environment. (CA.X.A.R3)

Task	***B. Pressurization***
Reference	FAA-H-8083-3, FAA-H-8083-25A; AC 61-107; AIM; POH/AFM.
Objective	To determine the applicant exhibits satisfactory knowledge, skills and risk management for flight in pressurized aircraft at high altitudes.
Knowledge	The applicant demonstrates understanding of: 1. Fundamental concepts of aircraft pressurization system. (CA.X.B.K1) 2. Supplemental oxygen requirements when operating airplanes with pressurized cabins. (CA.X.B.K2) 3. Physiological hazards associated with high altitude flight and decompression. (CA.X.B.K3)
Skills	The applicant demonstrates the ability to: 1. Operate the installed pressurization system, if equipment is installed. (CA.X.B.S1) 2. React appropriately to simulated pressurization malfunctions. (CA.X.B.S2)
Risk Management	The applicant applies risk identification, assessment, and mitigation principles to: 1. Planning a high altitude flight. (CA.X.B.R1) 2. Checking supplemental oxygen quantities and systems before flight. (CA.X.B.R2) 3. Briefing passengers on use of supplemental oxygen systems in the case of pressurization malfunction. (CA.X.B.R3) 4. Human factors. (CA.X.B.R4)

XI. Postflight Procedures

Task	***A. Parking and Securing***
Reference	FAA-H-8083-3; POH/AFM
Objective	To determine the applicant exhibits satisfactory knowledge, skills and risk management associated with after landing, parking, and securing procedures.
Knowledge	The applicant demonstrates understanding of: 1. Positioning aircraft controls for wind. (CA.XI.A.K1) 2. Familiarity with airport markings (including hold short lines), signs, and lights. (CA.XI.A.K2) 3. Aircraft lighting. (CA.XI.A.K3) 4. Towered and non-towered airport operations. (CA.XI.A.K4) 5. Visual indicators for wind. (CA.XI.A.K5) 6. Airport information resources (A/FD, airport diagram). (CA.XI.A.K6) 7. Good cockpit discipline during taxi. (CA.XI.A.K7) 8. Appropriate taxi speeds. (CA.XI.A.K8) 9. Exhibiting procedures for appropriate cockpit activities during taxiing including taxi route planning, briefing the location of HOT SPOTS, communicating and coordinating with ATC. (CA.XI.A.K9) 10. Procedures unique to night operations. (CA.XI.A.K10) 11. Hazards of low visibility operations. (CA.XI.A.K11) 12. Importance of documenting any in-flight/post-flight discrepancies. (CA.XI.A.K12) 13. National Transport Safety Board (NTSB) accident/incident reporting. (CA.XI.A.K13)
Skills	The applicant demonstrates the ability to: 1. Utilize after landing runway incursion avoidance procedures. (CA.XI.A.S1) 2. Park in an appropriate area, considering the safety of nearby persons and property. (CA.XI.A.S2) 3. Follow the appropriate procedure for engine shutdown. (CA.XI.A.S3) 4. Completes the After Landing checklist after the airplane is stopped. (CA.XI.A.S4) 5. Plan the taxi route to the ramp up. (CA.XI.A.S5) 6. Complete the Engine Shutdown Checklist. (CA.XI.A.S6) 7. Disembark passengers safely and remain aware of passenger movement while on the ramp area. (CA.XI.A.S7) 8. Record aircraft discrepancies and notes for possible service needs before next flight. (CA.XI.A.S8) 9. Conduct an appropriate post flight inspection, secure the aircraft. (CA.XI.A.S9)
Risk Management	The applicant applies risk identification, assessment, and mitigation principles to: 1. Distractions during aircraft taxi and parking. (CA.X.A.R1) 2. Proximity of other aircraft/vehicles/people when operating on airport surfaces. (CA.XI.A.R2) 3. Propeller safety. (CA.XI.A.R3) 4. Proper workload management. (CA.XI.A.R4) 5. Confirmation or expectation bias. (CA.XI.A.R5) 6. Automation Management. (CA.XI.A.R6) 7. Airport security. (CA.XI.A.R7)

Task	***B. Seaplane Post-Landing Procedures (ASES, AMES)***
Reference	FAA-H-8083-23; POH/AFM
Objective	To determine the applicant exhibits satisfactory knowledge, skills and risk management associated with anchoring, docking, mooring, and ramping/beaching. **NOTE:** The examiner shall select at least one after-landing procedure (anchoring, docking and mooring, or ramping/beaching).
Knowledge	The applicant demonstrates understanding of: 1. Mooring. (CA.XI.B.K1) 2. Docking. (CA.XI.B.K2) 3. Anchoring. (CA.XI.B.K3) 4. Ramping/beaching. (CA.XI.B.K4) 5. Post-landing procedures. (CA.XI.B.K5)
Skills	The applicant demonstrates the ability to: 1. Selects a suitable area for anchoring, considering seaplane movement, water depth, tide, wind, and weather changes. (CA.XI.B.S1) 2. Uses an adequate number of anchors and lines of sufficient strength and length to ensure the seaplane's security. (CA.XI.B.S2) 3. Approaches the dock or mooring buoy in the proper direction considering speed, hazards, wind, and water current. (CA.XI.B.S3) 4. Approaches the ramp/beach considering persons and property, in the proper attitude and direction, at a safe speed, considering water depth, tide, current, and wind. (CA.XI.B.S4) 5. Ensures seaplane security in a manner that will protect it from the harmful effect of wind, waves, and changes in water level. (CA.XI.B.S5)
Risk Management	The applicant applies risk identification, assessment, and mitigation principles to: 1. Distractions during aircraft taxi and parking. (CA.XI.B.R1) 2. Proximity of other aircraft/vehicles/people when operating on airport surfaces. (CA.XI.B.R2) 3. Propeller safety. (CA.XI.B.R3) 4. Proper workload management. (CA.XI.B.R4) 5. Confirmation or expectation bias. (CA.XI.B.R5) 6. Automation Management. (CA.XI.B.R6) 7. Airport security. (CA.XI.B.R7) 8. Water and environmental impacts on securing a seaplane. (CA.XI.B.R8)

APPENDIX 1: THE KNOWLEDGE TEST

The knowledge test is an important part of the airman certification process. Applicants must pass the knowledge test before taking the practical test.

Knowledge Test Description

The knowledge test consists of objective, multiple-choice questions. There is a single best response for each test question. Each test question is independent of other questions. A correct response to one does not depend upon, or influence, the correct response to another.

Test Code	Test Name	Number of Questions	Allotted Time	Passing Score
CAX	Commercial Pilot Airplane	100	3.0	70%
CCP	Commercial Pilot Canadian Conversion	40	2.0	70%

Knowledge Test Eligibility Requirements

For information concerning eligibility for Commercial Pilot certification, please refer to:

- Medical Certificates: Requirement and Duration: 14 CFR 61.23
- Knowledge Test: Prerequisites and Passing Grades: 14 CFR 61.35
- Eligibility: 14 CFR 61.123, 61.125, 61.127, 61.129

Knowledge Test Centers

The FAA authorizes hundreds of knowledge testing center locations. For information on authorized testing centers and to register for the knowledge test, contact one of the providers listed at www.faa.gov.

Test Authorization

In order to take the Commercial Pilot knowledge test, you must provide one of the following:

- Graduation certificate issued by a Federal Aviation Administration (FAA) certificated pilot school (14 CFR 61.71), or a
- Written statement or logbook endorsement from an authorized instructor certifying that the applicant completed an applicable ground training or home study course and is prepared for the knowledge test (14 CFR 61.35, 61.96(b)(3) or 61.103(d)(2)).

Acceptable forms of authorization for PCP only:

- Confirmation of Verification Letter issued by the Airmen Certification Branch (AFS-760).

Acceptable forms of retest authorization for ALL Commercial Pilot tests:

- Original failed, passing, or expired Airman Knowledge Test Report, provided the applicant still has the test report in his or her possession.

  NOTE: If the applicant no longer possesses the original test report, he or she may present an 'expired test/credit' letter issued by AFS-760.

- An applicant retesting AFTER FAILURE is required to submit the applicable test report indicating failure, along with an endorsement from an authorized instructor who gave the applicant the required additional training. The endorsement must certify that the applicant is competent to pass the test. The test proctor must retain the original failed test report presented as authorization and attach it to the applicable sign-in/out log.

Knowledge Test Procedures

Before starting the actual test, the testing center will provide an opportunity to practice navigating through the test. This practice or tutorial session may include sample questions to familiarize the applicant with the look and feel of the software. (e.g., selecting an answer, marking a question for later review, monitoring time remaining for the test, and other features of the testing software).

The applicant may use the following aids, reference materials, and test materials, as long as the material does not include actual test questions or answers:

Acceptable Materials	Unacceptable Materials	Notes
Supplement book provided by proctor	Written materials that are handwritten, printed, or electronic	Testing centers may provide calculators and/or deny the use of personal calculators
All models of aviation-oriented calculators or small electronic calculators that perform only arithmetic functions	Electronic calculators incorporating permanent or continuous type memory circuits without erasure capability	Unit Member (proctor) may prohibit the use of your calculator if he or she is unable to determine the calculator's erasure capability
Calculators with simple programmable memories, which allow addition to, subtraction from, or retrieval of one number from the memory; or simple functions, such as square root and percentages	Magnetic cards, magnetic tapes, modules, computer chips, or any other device upon which pre-written programs or information related to the test can be stored and retrieved	Printouts of data must be surrendered at the completion of the test if the calculator incorporates this design feature.
Scales, straightedges, protractors, plotters, navigation computers, blank log sheets, holding pattern entry aids, and electronic or mechanical calculators that are directly related to the test	Dictionaries	Before, and upon completion of the test, while in the presence of the Unit Member, actuate the ON/OFF switch or RESET button, and perform any other function that ensures erasure of any data stored in memory circuits
Manufacturer's permanently inscribed instructions on the front and back of such aids, e.g., formulas, conversions, regulations, signals, weather data, holding pattern diagrams, frequencies, weight and balance formulas, and air traffic control procedures	Any booklet or manual containing instructions related to use of test aids	Unit Member makes the final determination regarding aids, reference materials, and test materials

FAA Knowledge Test Question Coding

Each task in the Airman Certification Standard includes an Airman Certification Standards (ACS) code. This ACS code is displayed on the airman test report to indicate what task element was proven deficient on the Knowledge Exam. Instructors can then provide remedial training in the deficient areas and evaluators can re-test this element during the practical exam.

The ACS coding consists of 5 elements. For example: this code is deciphered accordingly:

CA.I.C.K1.a:

CA = Applicable ACS (commercial pilot airplane)
I = Area of Operation (preflight preparation)
C = Task (weather information);
K1 = Knowledge Task element 1 (weather products required for preflight planning and enroute operations)
a = rote – represents the level of learning and guides question development (e.g., rote would require the applicant to define, recall, list, name, match, label)

Every question is correlated to a specific ACS task/element. This coding methodology will be useful to all involved with airman certification—the applicant, the evaluator, and the flight instructor. It indicates what test subjects (tasks) were satisfactorily passed and what tasks need to be reviewed prior to the practical test.

Testing Procedures for Applicants Requesting Special Accommodations

An applicant with a learning or reading disability may request approval from AFS-630 through the local Flight Standards District Offices (FSDO) or International Field Offices (IFO) to take an airman knowledge test using one of the three options listed below, in preferential order:

Option 1: Use current testing facilities and procedures whenever possible.

Option 2: Use a self-contained, electronic device which pronounces and displays typed-in words (e.g., the Franklin Speaking Wordmaster®) to facilitate the testing process.

*(**NOTE:** The device should consist of an electronic thesaurus that audibly pronounces typed-in words and presents them on a display screen. The device should also have a built-in headphone jack in order to avoid disturbing others during testing.)*

Option 3: Request the proctor's assistance in reading specific words or terms from the test questions and/or supplement book. To prevent compromising the testing process, the proctor must be an individual with no aviation background or expertise. The proctor may provide reading assistance only (i.e., no explanation of words or terms). When an applicant requests this option, the FSDO or IFO inspector must contact the Airman Testing Standards Branch (AFS-630) for assistance in selecting the test site and assisting the proctor. Before approving any option, the FSDO or IFO inspector must advise the applicant of the regulatory certification requirement to be able to read, write, speak, and understand the English language.

Cheating or Other Unauthorized Conduct

Computer testing centers must follow strict security procedures to avoid test compromise in accordance with FAA Order 8080.6 (as amended), Conduct of Airman Knowledge Tests. Testing centers will terminate a test any time the test proctor suspects an occurrence of cheating.

The FAA will conduct an investigation of the incident. If the investigation determines that cheating or unauthorized conduct occurred, any airman certificate or rating the applicant holds may be revoked. In addition, the applicant may be prohibited from applying for or taking any test for a certificate or rating under 14 CFR part 61 for a period of one year.

Airman Knowledge Test Report

Immediately upon completion of the knowledge test, the applicant receives a printed Airman Knowledge Test Report documenting the score with the testing center's raised, embossed seal. The applicant must retain the original Airman Knowledge Test Report and present it to the evaluator conducting the practical test.

An Airman Knowledge Test Report expires 24-calendar months from the month the applicant completes the knowledge test. If the Airman Knowledge Test Report expires before completion of the practical test, the applicant must retake the knowledge test.

To obtain a duplicate Airman Knowledge Test Report due to loss or destruction of the original, the applicant can send a signed request accompanied by a check or money order for $1.00, payable to the FAA to:

> Federal Aviation Administration
> Airmen Certification Branch, AFS-760
> P.O. Box 25082
> Oklahoma City, OK 73125

APPENDIX 2: THE PRACTICAL TEST

The evaluator must conduct the practical test in accordance with this ACS. The evaluator must assess the applicant on all tasks included in each Area of Operation of the ACS unless otherwise noted.

NOTE: The applicant must pass the knowledge test before taking the practical test, and the applicant must pass the oral portion of the practical test before beginning the flight portion.

For an applicant who holds at least a commercial pilot certificate and seeks an additional airplane category and/or class rating at the private pilot level, the examiner shall evaluate that applicant in the Areas of Operation and Tasks listed in the Additional Rating Task Table. Please note, however, that the evaluator has the discretion to evaluate the applicant's competence in the remaining Areas of Operation and Tasks.

If the applicant holds two or more category or class ratings at least at the commercial level, and the ratings table indicates differing required Tasks, the "least restrictive" entry applies. For example, if "ALL" and "NONE" are indicated for one Area of Operation, the "NONE" entry applies. If "B" and "B, C" are indicated, the "B" entry applies.

Conduct of the Practical Test

The evaluator must develop a written Plan of Action to conduct the test, which includes all required Areas of Operation and Tasks. The Plan of Action will include a scenario that evaluates as many of the required Areas of Operation and Tasks as possible. As the scenario unfolds during the test, the examiner will interject problems and emergencies the applicant must manage.

The evaluator has the discretion and flexibility to change the Plan of Action in order to accommodate unexpected situations as they arise. The evaluator will evaluate any selected Task in its entirety. The evaluator may elect to suspend a scenari006F and then resume the scenario in order to assess certain tasks.

If performing aspects of a given maneuver, such as emergency procedures, would jeopardize safety, the evaluator will ask the applicant to simulate that portion of the maneuver.

Use of Checklists

Throughout the practical test, the applicant is evaluated on the use of an approved manufacturer's checklist or equivalent.

NOTE: If there is no published manufacturer's checklist, the applicant may use the appropriate FAA handbook or equivalent checklist.

Assessing proper checklist use depends upon the specific Task. In all cases, the evaluator should determine the applicant appropriately divides attention and uses proper visual scanning. In some situations, reading the actual checklist may be impractical or unsafe. In such cases, the evaluator should assess the applicant's performance of published or recommended immediate action "memory" items along with his or her review of the appropriate checklist once conditions permit.

Use of Distractions

Research and accident analysis indicate that pilot distraction during critical phases of flight is a factor in many accidents. The evaluator will cause realistic distractions during the flight portion of the practical test in order to evaluate the applicant's ability to use and maintain proper control technique while dividing attention both inside and/or outside the cockpit.

Positive Exchange of Flight Controls

There must always be a clear understanding of who has control of the aircraft. Prior to flight, the pilots involved should conduct a briefing that includes reviewing the procedures for exchanging flight controls.

The FAA recommends a positive three-step process for exchanging flight controls between pilots:

- When one pilot seeks to have the other pilot take control of the aircraft, he or she will say, "You have the flight controls."
- The second pilot acknowledges immediately by saying, "I have the flight controls."
- The first pilot again says, "You have the flight controls."

Pilots should follow this procedure during any exchange of flight controls, including any occurrence during the practical test. The FAA also recommends that both pilots use a visual check to verify that the exchange has occurred. There must never be any doubt as to who is flying the aircraft.

Stall and Spin Awareness

During flight training and testing, the applicant and the instructor or evaluator must always recognizeandavoidoperationthatcouldleadtoaninadvertentstallorspin

Possible Outcomes of the Practical Test

There are three possible outcomes of the practical test:(1) pass, (2) fail, or (3) discontinuance.

Pass

Satisfactory performance requires the applicant to:

- Perform the Tasks specified in the Areas of Operation for the certificate or rating sought within the approved standards;
- Demonstrate mastery of the aircraft by performing each Task successfully;
- Demonstrate proficiency and competency in accordance with the approved standards;
- Demonstrate sound judgment and exercise aeronautical decision-making/risk management;
- Demonstrate single-pilot competence if the aircraft is type certificated for single-pilot operations.

Satisfactory performance will result in the issuance of a temporary certificate.

NOTE: The tolerances listed in the ACS represent the performance expected in good flying conditions.

Fail

If, in the judgment of the evaluator, the applicant does not meet the standards for any Task, the applicant fails the Task and associated Area of Operation, the test is unsatisfactory, and the examiner issues a Notice of Disapproval. When the examiner issues a Notice of Disapproval, he or she shall list the Area of Operation in which the applicant did not meet the standard. The Notice of Disapproval must also list the Area(s) of Operation not tested, and the number of practical test failures.

The examiner or the applicant may end the test if the applicant fails a Task. The examiner may continue the test only with the consent of the applicant and examiner, and the applicant is entitled to credit for only those Areas of Operation and the associated Tasks performed satisfactorily. Though not required, the examiner has discretion to reevaluate any Task, including those previously passed, during the retest.

Typical areas of unsatisfactory performance and grounds for disqualification include:

- Any action or lack of action by the applicant that requires corrective intervention by the examiner to maintain safe flight.
- Failure to use proper and effective visual scanning techniques to clear the area before and while performing maneuvers.
- Consistently exceeding tolerances stated in the Objectives.
- Failure to take prompt corrective action when tolerances are exceeded.
- Failure to exercise Risk Management

Discontinuance

When it is necessary to discontinue a practical test for reasons other than unsatisfactory performance (e.g., equipment failure, weather, illness), the evaluator returns all the test paperwork to the applicant. The evaluator must prepare, sign, and issue a Letter of Discontinuance that lists those Areas of Operation the applicant successfully completed and the time remaining to complete the test. The evaluator should advise the applicant to present the Letter of Discontinuance to the evaluator when the practical test resumes in order to receive credit for the items successfully completed. The Letter of Discontinuance becomes part of the applicant's certification file.

Prerequisites for the Test

According to 14 CFR part 61, an applicant for the Commercial Pilot Practical Test must:

- Be at least 18 years of age;
- Be able to read, speak, write, and understand the English language as detailed in AC 60-28;
- Possess a private pilot certificate with an airplane rating, if a commercial pilot certificate with an airplane rating is sought, or meet the flight experience required for a private pilot certificate (airplane rating) and pass the private airplane knowledge and practical test;
- Possess an instrument rating (airplane) or the following limitation shall be placed on the commercial pilot certificate: "Carrying passengers in airplanes for hire is prohibited at night or on cross-country flights of more than 50 nautical miles;"
- Have passed the appropriate commercial pilot knowledge test since the beginning of the 24th month before the month in which he or she takes the practical test;
- Have satisfactorily accomplished the required training and obtained the prescribed aeronautical experience;
- Possess at least a current third class medical certification or, when a military pilot of the U.S. Armed Forces, show and present evidence of an up-to-date medical examination by the U.S. Armed Forces authorizing pilot status;
- Have an endorsement from an authorized instructor certifying that the applicant has received and logged training time within two (2) calendar months preceding the date of application in preparation for the practical test, and is prepared for the practical test;
- Receive and log ground training from an authorized instructor or complete a home-study course on the aeronautical knowledge areas of 14 CFR part 61.105 paragraph (b) that apply to the aircraft category and class rating sought; and
- Have an endorsement certifying that the applicant has demonstrated satisfactory knowledge of the subject areas in which the applicant was deficient on the airman knowledge test (not required for power aircraft to non-power aircraft or power aircraft to power aircraft for additional category or class rating).

Aircraft and Equipment Required for the Practical Test

The Commercial Pilot—Airplane applicant is required by 14 CFR 61.45 to provide an airworthy, certificated aircraft for use during the practical test. This section states that the aircraft must:

- Be of U.S., foreign, or military registry of the same category, class, and type, if applicable, for the certificate and/or rating for which the applicant is applying;
- Have fully functioning dual controls, except as provided for in 14 CFR 61.45(c) and (e); and
- Be capable of performing all Areas of Operation appropriate to the rating sought and have no operating limitations which prohibit its use in any of the Areas of Operation required for the practical test.
- Be a complex airplane furnished by the applicant, unless the applicant currently holds a commercial pilot certificate with a single-engine or multiengine class rating as appropriate, for the performance of takeoffs, landings, and appropriate emergency procedures. A complex landplane is one having retractable landing gear, flaps, and controllable propeller or turbine-powered. A complex seaplane is one having flaps and controllable propeller.

Instructor Responsibilities

Instructors are responsible for training the applicant to acceptable standards in knowledge, skills, and risk management procedures in all the Tasks, even if the applicant is simply adding an additional Commercial pilot certificate.

Evaluator Responsibilities

The evaluator who conducts the practical test is responsible for determining the applicant meets the acceptable standards of aeronautical knowledge, skills, and risk management for each Task in the appropriate ACS.

The evaluator must test at least one item in each of the Knowledge and Risk Management elements for every Task, emphasizing the topics (if any) the applicant missed on the Knowledge Test. The evaluator must test each item in the Skills elements unless otherwise noted in the Task.

Applicants must complete the oral portion of the practical test before the flight portion; however, oral questioning will continue throughout the flight. To the greatest extent practicable, evaluators shall test the applicant's ability to apply and correlate information, and only use rote questions when appropriate for the material being tested.

If the evaluator determines that a Task is incomplete, or the outcome is uncertain, the evaluator may require the applicant to repeat that Task, or portions of that Task. The FAA made this provision in the interest of fairness, but it does not mean that instruction, practice, or the repetition of an unsatisfactory task is permitted during the practical test.

On multiengine practical tests, where the failure of the most critical engine after liftoff is required, the examiner must give consideration to local atmospheric conditions, terrain, and type of aircraft used. However, the failure of an engine shall not be simulated until attaining at least V_{SSE}/V_{XSE}/V_{YSE} and at an altitude not lower than 400 feet AGL.

During simulated engine failures on multiengine practical tests, the examiner shall set zero thrust after the applicant has simulated feathering the propeller. The examiner shall require the applicant to demonstrate at least one landing with a simulated-feathered propeller with the engine set to zero thrust. The feathering of one propeller shall be demonstrated in flight, unless the manufacturer prohibits the intentional feathering of the propellers during flight.

The evaluator will assess the applicant's use of visual scanning and collision avoidance procedures throughout the entire test.

APPENDIX 3: ADDITIONAL RATING TASK TABLES

Addition of an Airplane Single-Engine Land Rating to an existing Commercial Pilot Certificate

Required Tasks are indicated by either the Task letter(s) that apply(s) or an indication that all or none of the Tasks must be tested based on the notes in each Area of Operation.

COMMERCIAL PILOT RATING(S) HELD								
AREAS OF OPERATION	**ASES**	**AMEL**	**AMES**	**RH**	**RG**	**Glider**	**Balloon**	**Airship**
I	F,G	F,G	F,G	F,G	F,G	F,G	F,G	F,G
II	D	D	D	A,C,D, F	A,D,F	A,B,C,D,F	A,B,C,D,F	A,B,C,D,F
III	B	NONE	B	B	NONE	B	B	B
IV	A,B,C, D,E,F	A,B,C, D,E,F	A,B,C, D,E,F	A,B,C, D,E,F, M	A,B,C, D,E,F, M	A,B,C, D,E,F,M	A,B,C, D,E,F, M	A,B,C, D,E,F,M
V	NONE	B,C,D	B,C,D	ALL	ALL	ALL	ALL	ALL
VI	NONE	NONE	NONE	NONE	NONE	ALL	ALL	NONE
VII	NONE	NONE	NONE	ALL	ALL	ALL	ALL	ALL
VIII	B	B	B	ALL	ALL	ALL	ALL	ALL
IX	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE
X	NONE	NONE	NONE	ALL	ALL	ALL	ALL	ALL
XI	A	NONE	A	A	A	A	A	A

Addition of an Airplane Single-Engine Sea Rating to an existing Commercial Pilot Certificate

Required Tasks are indicated by either the Task letter(s) that apply(s) or an indication that all or none of the Tasks must be tested based on the notes in each Area of Operation.

COMMERCIAL PILOT RATING(S) HELD								
AREAS OF OPERATION	**ASEL**	**AMEL**	**AMES**	**RH**	**RG**	**Glider**	**Balloon**	**Airship**
I	F,G,I	F,G,I	F,G	F,G,I	F,G,I	F,G,I	F,G,I	F,G,I
II	E	E	E	A,B,C,E	A,B,E, F	A,B,C,E,F	A,B,C,E,F	A,B,C,E,F
III	B	B	NONE	B	B	B	B	B
IV	A,B,G, H,J,K,L	A,B,G, H,I,J,K,L	A,B,G, H,I,J,K,L	A,B,G, H,I,J,K,L, M,N	A,B,G, H,I,J,K,L, M,N	A,B,G, H,I,J,K,L, M,N	A,B,G, H,I,J,K,L, M,N	A,B,G, H,I,J,K,L, M,N
V	NONE	B,C,D	B,C,D	ALL	ALL	ALL	ALL	ALL
VI	NONE	NONE	NONE	NONE	NONE	ALL	ALL	NONE
VII	NONE	NONE	NONE	ALL	ALL	ALL	ALL	ALL
VIII	B	B	B	ALL	ALL	ALL	ALL	ALL
IX	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE
X	NONE	NONE	NONE	ALL	ALL	ALL	ALL	ALL
XI	B	B	NONE	B	B	B	B	B

Addition of an Airplane Multi-Engine Land Rating to an existing Commercial Pilot Certificate

Required Tasks are indicated by either the Task letter(s) that apply(s) or an indication that all or none of the Tasks must be tested based on the notes in each Area of Operation.

COMMERCIAL PILOT RATING(S) HELD								
AREAS OF OPERATION	**ASEL**	**ASES**	**AMES**	**RH**	**RG**	**Glider**	**Balloon**	**Airship**
I	F,G,J	F,G,J	F,G	F,G,J	F,G,J	F,G,J	F,G,J	F,G,J
II	ALL	ALL	D	ALL	ALL	ALL	ALL	ALL
III	NONE	B	B	B	NONE	B	B	B
IV	A,B,C,D	A,B,C,D	A,B,C,D	A,B,C,D,N	A,B,C,D,N	A,B,C,D,N	A,B,C,D,N	A,B,C,D,N
V	ALL	ALL	NONE	ALL	ALL	ALL	ALL	ALL
VI	NONE	NONE	NONE	NONE	NONE	ALL	ALL	NONE
VII	ALL	ALL	NONE	ALL	ALL	ALL	ALL	ALL
VIII	ALL	ALL	E,F,G	ALL	ALL	ALL	ALL	ALL
IX	ALL	ALL	NONE	ALL	ALL	ALL	ALL	ALL
X	NONE	NONE	NONE	ALL	ALL	ALL	ALL	ALL
XI	NONE	A	A	A	A	A	A	A

Addition of an Airplane Multi-Engine Sea Rating to an existing Commercial Pilot Certificate

Required Tasks are indicated by either the Task letter(s) that apply(s) or an indication that all or none of the Tasks must be tested based on the notes in each Area of Operation.

COMMERCIAL PILOT RATING(S) HELD								
AREAS OF OPERATION	**ASEL**	**ASEL**	**AMES**	**RH**	**RG**	**Glider**	**Balloon**	**Airship**
I	F,G,I	F,G,I,J	F,G,J	F,G,I,J	F,G,I,J	F,G,I,J	F,G,I,J	F,G,I,J
II	E	ALL	ALL	ALL	ALL	ALL	ALL	ALL
III	B	B	NONE	B	B	B	B	B
IV	A,B,G, H,J,K,L	A,B,G, H,I,J,K,L	A,B,G, H,I,J,K,L	ALL	ALL	ALL	ALL	ALL
V	NONE	ALL	ALL	ALL	ALL	ALL	ALL	ALL
VI	NONE	NONE	NONE	NONE	NONE	ALL	ALL	NONE
VII	NONE	ALL	ALL	ALL	ALL	ALL	ALL	ALL
VIII	B,C,D, E,F,G	ALL	ALL	ALL	ALL	ALL	ALL	ALL
IX	NONE	ALL	ALL	ALL	ALL	ALL	ALL	ALL
X	NONE	NONE	NONE	ALL	ALL	ALL	ALL	ALL
XI	B	B	NONE	ALL	B	ALL	ALL	ALL

APPENDIX 4: PRACTICAL TEST CHECKLIST

Applicant's Practical Test Checklist

Appointment with Evaluator

Evaluator's Name: ______________________________

Location: ______________________________

Date/Time: ______________________________

ACCEPTABLE AIRCRAFT

- ☐ Aircraft Documents:
  - ☐ Airworthiness Certificate
  - ☐ Registration Certificate
  - ☐ Operating Limitations
- ☐ Aircraft Maintenance Records:
  - ☐ Logbook Record of Airworthiness Inspections and AD Compliance
- ☐ Pilot's Operating Handbook, FAA-Approved Aircraft Flight Manual

PERSONAL EQUIPMENT

- ☐ View-Limiting Device
- ☐ Current Aeronautical Charts (Printed or Electronic)
- ☐ Computer and Plotter
- ☐ Flight Plan Form
- ☐ Flight Plan Form and Flight Logs (printed or electronic)
- ☐ Airport Facility Directory, Airport Diagrams and Appropriate Publications
- ☐ Current AIM

PERSONAL RECORDS

- ☐ Identification—Photo/Signature ID
- ☐ Pilot Certificate
- ☐ Current Medical Certificate
- ☐ Completed FAA Form 8710-1, Airman Certificate and/or Rating Application with Instructor's Signature
- ☐ Original Knowledge Test Report
- ☐ Pilot Logbook with appropriate Instructor Endorsements
- ☐ FAA Form 8060-5, Notice of Disapproval (if applicable)
- ☐ Letter of Discontinuance (if applicable)
- ☐ Approved School Graduation Certificate (if applicable)
- ☐ Evaluator's Fee (if applicable)

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APPENDIX 5: REFERENCES

14 CFR part 39	Airworthiness Directives
14 CFR part 43	Maintenance, Preventive Maintenance, Rebuilding, and Alteration
14 CFR part 61	Certification: Pilots, Flight Instructors, and Ground Instructors
14 CFR part 71	Designation of Class A, B, C, D and E Airspace Areas; Air Traffic Service Rotes; and Reporting Points
14 CFR part 91	General Operating and Flight Rules
14 CFR part 93	Special Air Traffic Rules
AC 00-6	Aviation Weather
AC 00-45	Aviation Weather Services
AC 60-28	English Language Skill Standards Required by 14 CFR Parts 61, 63 and 65
AC 61-67	Stall and Spin Awareness Training
AC 90-66	Recommended Standard Traffic Patterns and Practices for Aeronautical Operations at Airports Without Operating Control Towers
AC 91-13	Cold Weather Operation of Aircraft
AC 91-21.1	Use of Portable Electronic Devices Aboard Aircraft
AC 91-55	Reduction of Electrical System Failures Following Aircraft Engine Starting
AC 91-73	Part 91 and 135 Single-Pilot Procedures During Taxi Operations
AC 150-5340-18	Standards for Airport Sign Systems
AIM	Aeronautical Information Manual
A/FD	Airport Facility Directory
FAA-H-8083-1	Aircraft Weight and Balance Handbook
FAA-H-8083-3	Airplane Flying Handbook
FAA-H-8083-6	Advanced Avionics Handbook
FAA-H-8083-23	Seaplane, Skiplane, and Float/Ski Equipped Helicopter Operations Handbook
FAA-H-8083-25	Pilot's Handbook of Aeronautical Knowledge
NOTAM	Notices to Airmen
POH/AFM	Pilot's Operating Handbook/FAA-Approved Aircraft Flight Manual
Other	Navigation Charts
	Navigation Equipment Manual

NOTE: Users should reference the current edition of the reference documents listed above. The current edition of all FAA publications can be found at www.faa.gov.

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APPENDIX 6: ABBREVIATIONS AND ACRONYMS

The following abbreviations and acronyms are used in this ACS.

14 CFR	Title 14 of the Code of Federal Regulations
AC	Advisory Circular
ACS	Airman Certification Standards
ADM	Aeronautical Decision-Making
AFS	Flight Standards Service
AGL	Above Ground Level
AMEL	Airplane Multiengine Land
AMES	Airplane Multiengine Sea
AOA	Airport Operations Area
ASEL	Airplane Single Engine Land
ASES	Airplane Single Engine Sea
ATC	Air Traffic Control
CAX	Commercial Pilot Airplane
CCP	Commercial Pilot Canadian Conversion
CFIT	Controlled Flight Into Terrain
ELT	Emergency Locator Transmitter
FAA	Federal Aviation Administration
FSDO	Flight Standards District Office
GPS	Global Positioning System
IFO	International Field Office
IMC	Instrument Meteorological Conditions
NAS	National Airspace System
NTSB	National Transport Safety Board
POH	Pilot’s Operating Handbook
PTS	Practical Test Standards
RAIM	Receiver Autonomous Integrity Monitoring
SRM	Safety Risk Management
SMS	Safety Management System
VFR	Visual Flight Rules
VOR	Very High Frequency Omni-Directional Range
$\mathbf{V_X}$	Best Angle of Climb Speed
$\mathbf{V_Y}$	Best Rate of Climb Speed
$\mathbf{V_{S0}}$	Stalling Speed or the Minimum Steady Flight Speed in the Landing Configuration

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APPENDIX G: HANDBOOKS/COMPUTER TESTING SUPPLEMENTS + RECOMMENDED CHANGES

Appendix G includes a matrix documenting the ATST WG's recommended changes to FAA Handbooks (FAA-H-8083-XX series) and Computer Testing Supplements (FAA-CT-8080-XX series) in order to align the documents with the Airman Certification Standards (ACS) system. The matrix was developed by compiling the "Recommended Handbook Changes" from each ACS worksheet and the general recommendations regarding streamlined content proposed to the ATST WG by the Guidance Material Subgroup.

**ACS – HANDBOOK/COMPUTER TESTING SUPPLEMENT RECOMMENDED CHANGES TRACKING MATRIX
(PHASE II, TASK A – CHANGES REQUIRED TO ALIGN HANDBOOKS WITH ACS)**

Publication Number	Title	Objective	Edition/ Last Revised	OPR	Revision Schedule**	Recommendations	Distribution
FAA-H-8083-6	***Advanced Avionics Handbook***	Provide general aviation users with comprehensive information on advanced avionics equipment available in technically advanced aircraft.	2009			Include Chapters 1, 2, and 5 in the FAA-H-8083-25 or FAA-H-8083-3. More pilots are flying TAA aircraft and may never train to be an instrument pilot. This information may help with the newer technology that is becoming standard equipment in newer aircraft. This is a similar concept as IFR, but for the VFR pilot. Recommendation: Incorporate material in this handbook into the FAA-H-8083-31 for AMTs. Recommendation: Remove the basic info about glass cockpits already covered in FAA-H-8083-25 and FAA-H-8083-15; it does not need to be repeated.	GPO GPO (eBook) FAA website
FAA-H-8083-1A	***Aircraft Weight and Balance Handbook***	The objective of this handbook is twofold: to provide the Airframe and Powerplant Mechanic (A&P) with the method of determining the empty weight and empty weight center of gravity (EWCG) of an aircraft, and to furnish the flightcrew with information on loading and operating the aircraft to ensure its weight is within the allowable limit and the center of gravity (CG) is within the allowable range.	2007			Any pertinent information not already covered in FAA-H-8083-30 and FAA-H-8083-25 should be added to these handbooks and the handbook eliminated.	GPO * FAA website
FAA-H-8083-3A	***Airplane Flying Handbook***	This handbook is developed to assist student pilots learning to fly airplanes. It is also beneficial to pilots who wish to improve their flying proficiency and aeronautical knowledge, those pilots preparing for additional certificates or ratings, and flight instructors engaged in the instruction of both student and certificated pilots. It introduces the future pilot to the realm of flight and provides information and guidance in the performance of procedures and maneuvers required for pilot certification. Topics such as navigation and communication, meteorology, use of flight information publications, regulations, and aeronautical decision making are available in other Federal Aviation Administration (FAA) publications.	2004		AFS-630: Started 3/2012 (A: 18-24 mos.)	Add information as follows: (1) Ch 2 Ground Operations: Prove Airworthiness (what documents need to be reviewed; where do you find the information?) (PVT: Airworthiness Requirements); (2) Consider new chapter "Transition to TAA" and include information such as: variations in glass cockpit/advanced avionics (PVT: Airworthiness Requirements), What is a PFD? What is an MFD? (PVT: Airworthiness Requirements), Address how to detect a failure. (PVT: Airworthiness Requirements), Transition/Differences Training. (PVT: Airworthiness Requirements); (3) Ch 4 Slow Flight, Stalls and Spins: Include information about detailed aerodynamic influences for maneuvering and stall/spin susceptibility to correlate with information in FAA-H-8083-25. (PVT: Spin Awareness); (4) Ch 9, Chandelles, add scenarios for altitude gain within a confined area -- reference FAA-H-8083-2 for an example that could be adapted here as well; (5) Ch 9, merge steep spiral with Power-Off 180 content in Ch 8. Incorporate the new IFH-style presentation where instrument interpretation is divided into two parts, one for analog, and one for digital displays.	FAA website
NAVAIR 00-80T-80	***Aerodynamics for Naval Aviators***	The purpose of this textbook is to present the elements of applied aerodynamics and aeronautical engineering which relate directly to the problems of flying operations.	1/2/1965			Move high priority, critical safety areas to FAA-H-8083-3 and FAA-H-8083-25 and remove as as reference.	GPO ($3.50) *

Publication Number	Title	Objective	Edition/ Last Revised	OPR	Revision Schedule**	Recommendations	Distribution
FAA-H-8083-9A	***Aviation Instructor's Handbook***	Designed for ground instructors, flight instructors, and aviation maintenance instructors to help beginning instructors understand and apply the fundamentals of instruction.	2008			(1) Place the "summary of instructor's actions" blurbs in shaded boxes or further separate them out of the other content. These summary sections are good references for applicants and existing CFIs. (FOI: Learning Process). (2) Move Motivation covered in Chapter 2 to Chapter 1 where motivation is first discussed. (The Theory X Theory Y Motivation theory by MacGregor is fairly outdated. Newer concepts of motivation could be used.) (3) Review information to ensure all is appropriate to both a classroom instructor and the individual flight instructor who is working one on one. (4) Add teaching techniques that can be used in the aircraft to address common student errors as identified in the Authorized Instructor ACS -- comparable to the information that is now found in FAA-H-8083-4. Including information in this 8083-9 will increase value and reduce workload for maintaining separate publications. (5) Provide additional information on the use of (all levels of) simulation training aids; Instructors need to know what devices/software are available (in general terms), what you can do with what, and how to effectively teach with these aids. (6) Add Plan of Action discussion. (7) Add SMS and application.	GPO GPO (eBook) FAA website
FAA-H-8083-30	***Aviation Maintenance Technician Handbook-General***	The handbook is designed to aid students enrolled in a formal course of instruction preparing for FAA certification as a maintenance technician, as well as for current technicians who wish to improve their knowledge.	2008				GPO * FAA website
FAA-H-8083-Addendum	***AMT Handbook-Human Factors Addendum***		2011			Incorporate into the book along with similar information in Chapter 13 and include in Table of Contents and Index.	FAA website
H8083-31 V1 H8083-31 V2	***Aviation Maintenance Technician Handbook-Airframe Vol. 1 & 2***	It is intended that this handbook provide the basic information on principles, fundamentals, and technical procedures in the subject matter areas relating to the airframe rating. It is designed to aid students enrolled in a formal course of instruction, as well as the individual who is studying on his or her own. Note: Since the knowledge requirements for the airframe and powerplant ratings closely parallel each other in some subject areas, the chapters which discuss fire protection systems and electrical systems contain some material which is also duplicated in the Aviation Maintenance Technician Handbook—Powerplant (FAA-H-8083-32).	2012				FAA website

Publication Number	Title	Objective	Edition/ Last Revised	OPR	Revision Schedule**	Recommendations	Distribution
H8083-32 V1 H8083-32 V2	***Aviation Maintenance Technician Handbook-Powerplant Vol. 1 & 2***	It is intended that this handbook provide the basic information on principles, fundamentals, and technical procedures in the subject matter areas relating to the powerplant rating. It is designed to aid students enrolled in a formal course of instruction, as well as the individual who is studying on his or her own. Note: Since the knowledge requirements for the airframe and powerplant ratings closely parallel each other in some subject areas, the chapters which discuss fire protection systems and electrical systems contain some material which is also duplicated in the Aviation Maintenance Technician Handbook–Airframe (FAA-H-8083-31).	2012				FAA website
H-8083-11A	***Balloon Flying Handbook***	Student pilots learning to fly balloons, certificated pilots preparing for additional balloon ratings or who desire to improve their flying proficiency and aeronautical knowledge, and commercial balloon pilots teaching balloon students how to fly should find this handbook helpful. This book introduces the prospective pilot to the realm of balloon flight and provides information and guidance to all balloon pilots in the performance of various balloon maneuvers and procedures.	2008				GPO GPO (eBook) FAA website
FAA/FS-I-8700-1	***Information for Banner Tow Operations***	This publication is presented as an information guide for banner tow operations, to promote safe operations through careful preparation and planning.	3/27/2003			Note: Reference to Commercial PTS on page 4-2.	FAA website
FAA-H-8083-22	***Flight Dispatcher Handbook***				AFS-630: Started 11/2011 (A: 18-24 mos.)	New Publication (?)	
FAA-H-8083-18	***Flight Navigator Handbook***	This handbook is a source of reference for navigators and navigator students. This handbook explains how to measure, chart the earth, and use flight instruments to solve basic navigation problems.	2011			Review whether this handbook is necessary. Only 1-3 navigator certificates are issued annually. Perhaps pertinent information from this document could be placed in the FAA-H-8083-25.	FAA website
FAA-H-8083-13A	***Glider Flying Handbook***	The Glider Flying Handbook is a technical manual for applicants who are preparing for glider category rating, and for currently certificated glider pilots who wish to improve their knowledge.	2013				FAA website

Publication Number	Title	Objective	Edition/ Last Revised	OPR	Revision Schedule**	Recommendations	Distribution
FAA-H-8083-21A	***Helicopter Flying Handbook***	The Helicopter Flying Handbook is designed as a technical manual for applicants who are preparing for their private, commercial, or flight instructor pilot certificates with a helicopter class rating. Note: FAA-8083-21, Rotorcraft Flying Handbook, is to be used for GYROPLANE information ONLY.	2012				FAA website
FAA-H-8083-4	***Helicopter Instructor's Handbook***	This handbook is designed as a technical manual for applicants who are preparing for their flight instructor pilot certificate with a helicopter class rating. This handbook contains detailed coverage of aerodynamics, flight controls, systems, performance, flight maneuvers, emergencies, and aeronautical decision-making.	2012			Move pertinent information from this document to FAA-H-8083-9.	FAA website
FAA-H-8083-15B	***Instrument Flying Handbook***	This Instrument Flying Handbook is designed for use by instrument flight instructors and pilots preparing for instrument rating tests.	2012			Review to ensure FAA-H-8083-15 and FAA-H-8261-1 are working as companion documents and eliminate redundancies. Add clarification on touchdown zone elevation, threshold elevation, height above threshold/touchdown, etc. Some company OpSpecs require specific altitudes above TDZE and this designation has been omitted from some recent IAPs complicating things. Training docs need to reflect current, correct terms, use and definitions. Reference for further information: http://www.pilotsofamerica.com/forum/showthread.php?t=53814&referrerid=3196	GPO FAA website
FAA-H-8261-1A	***Instrument Procedures Handbook***	This handbook is designed as a technical reference for professional pilots who operate under instrument flight rules (IFR) in the National Airspace System (NAS).	2007			Review to ensure FAA-H-8083-15 and FAA-H-8261-1 are working as companion documents and eliminate redundancies. Add clarification on touchdown zone elevation, threshold elevation, height above threshold/touchdown, etc. Some company OpSpecs require specific altitudes above TDZE and this designation has been omitted from some recent IAPs complicating things. Training docs need to reflect current, correct terms, use and definitions. Reference for further information: http://www.pilotsofamerica.com/forum/showthread.php?t=53814&referrerid=3196	FAA website
FAA-H-8083-17	***Parachute Rigger Handbook***	This handbook is primarily intended to assist individuals who are preparing for the parachute rigger airman knowledge test, and the oral and practical test. The material presented in this handbook is appropriate for senior and master parachute riggers.	2005		AFS-630: Started 9/2011 (A: 18-24 mos.)	Can pertinent information be moved to the AMT Handbook series; is a separate publication necessary?	FAA website

Publication Number	Title	Objective	Edition/ Last Revised	OPR	Revision Schedule**	Recommendations	Distribution
FAA-H-8083-25A	***Pilot's Handbook of Aeronautical Knowledge***	This handbook provides basic knowledge that is essential for pilots. This handbook introduces pilots to the broad spectrum of knowledge that will be needed as they progress in their pilot training. Note: Appendix A: Runway Incursion Avoidance (4/1/2012) will be used as a reference for airmen knowledge test questions beginning November 1, 2012.	2008		AFS-630: Started 7/2011 (B: 30-60 days)	(1) Ch 8 Prove Airworthiness (what documents need to be reviewed; where do you find the information?) (PVT & COM: Airworthiness Requirements). (2) Ch 7 Add information and presentation of analog/digital side-by-side comparable to FAA-H-8083-15; expand information for PFD, MFD, detecting failures, transition/differences training. Comparable information from Ch 1, 2, and 5 from FAA-H-8083-6 for ther VFR pilot. (3) Ch 11, incorporate any info currently missing from AC 00-6A so this very old AC can be cancelled; (4) Ch 16, rename to "Human Factors" to be consistent with ACS; add discussion of how OTC meds and legally prescribed drugs affect pilot performance. (PVT & COM: Human Factors), tools for pilot decision-making and self-assessment (IMSAFE as an example – not the standard/no testing to pneumonics). (PVT & COM: Human Factors), Pilot/Aircraft Team (PVT & COM: Preflight Assessment). (5) Ch 15, expand discussion of what to do in case of lost (PVT: Lost Procedures). (6) Ch 4, expand information to include more advanced aerodynamic relationships and maneuvering flight (PVT & COM: Maneuvering during Slow Flight, Power-On Stalls, Power-Off Stalls). (7) Ch 17, incorporate information from FAA-H-8083-2. Note: Use technology in inadvertent IMC.	GPO FAA website
FAA-H-8083-19A	***Plane Sense: General Aviation Information***	This handbook introduces aircraft owners and operators, or prospective aircraft owners and operators, to basic information about the requirements involved in acquiring, owning, operating, and maintaining a private aircraft.	2008			No references to ACS. Does not require revision as part of this project.	GPO FAA website
FAA-H-8083-2	***Risk Management Handbook***	This handbook is a tool designed to help recognize and manage risk. It provides a higher level of training to the pilot in command (PIC) who wishes to aspire to a greater understanding of the aviation environment and become a better pilot. This handbook is for pilots of all aircraft from Weight-Shift Control (WSC) to a Piper Cub, a Twin Beechcraft, or a Boeing 747.	2009			Move pertinent information to Chapter 17 of the FAA-H-8083-25 and FAA-H-8083-15 and consider removing reference. If kept and maintained, it should NOT be a repeat of the other handbooks but a more practical guidebook to continue use of good use of case studies.	GPO * FAA website
FAA-H-8083-23	***Seaplane, Skiplane, and Float/Ski Equipped Helicopter Operations Handbook***	This handbook is primarily intended to assist pilots who already hold private or commercial certificates and who are learning to fly seaplanes, skiplanes, or helicopters equipped for water or ski operations. It is also beneficial to rated seaplane pilots who wish to improve their proficiency, pilots preparing for flights using ski equipped aircraft, and flight instructors engaged in the instruction of both student and transitioning pilots.	2004				FAA website
FAA-H-8083-27A	***Student Pilot Guide***	This publication is intended to serve as a guide for prospective student pilots and for those already engaged in flight training. This guide presents in "how to" fashion, general procedures for obtaining FAA student pilot, sport pilot, recreational pilot, and private pilot certificates.	2006				GPO * FAA website

Publication Number	Title	Objective	Edition/ Last Revised	OPR	Revision Schedule**	Recommendations	Distribution
FAA-H-8083-5	***Weight-Shift Control Aircraft Flying Handbook***	Student pilots learning to fl y WSC aircraft, certifi cated pilots preparing for additional WSC ratings or who desire to improve their fl ying profi ciency and aeronautical knowledge, and commercial WSC pilots teaching WSC students how to fl y should find this handbook helpful. This book introduces the prospective pilot to the realm of WSC flight and provide information and guidance to all WSC pilots in the performance of various maneuvers and procedures.	2008				FAA website
FAA-CT-8080-4E	***Computer Testing Supplement for Aviation Mechanic General, Powerplant, and Airframe; and Parachute Rigger***	This computer testing supplement ("figures booklet") is designed by the Flight Standards Service of the FAA for use by computer testing designees (CTDs) in the administration of computer-assisted airman knowledge tests: AMG, AMP, AMA, RMP.	2005		No revisions planned.	Update to include figures currently displaying on-screen for consistent accessibility to figures being used on the figures; i.e. some of the figures are in this booklet and others are available as "Additional Figures" file posted separate from the booklet on the FAA website.	FAA website, Industry prints and distributes to CTDs
FAA-CT-8080-8D	***Computer Testing Supplement for Inspection Authorization***	This computer testing supplement ("figures booklet") is designed by the Flight Standards Service of the FAA for use by computer testing designees (CTDs) in the administration of computer-assisted IA airman knowledge test.	2008		No revisions planned.	Update to include "pencil corrections" being submitted to the CTDs; confusing to issue updates in this manner (pencil corrections).	Industry prints and distributes to CTDs
FAA-CT-8080-10A	***Computer Testing Supplement for Sport Pilot, Sport Pilot Instructor, Sport Pilot Examiner***	This computer testing supplement ("figures booklet") is designed by the Flight Standards Service of the FAA for use by computer testing designees (CTDs) in the administration of computer-assisted airman knowledge tests: Sport Pilot and Sport Pilot Instructor.	2005		Planning to cancel with next revision ETA 10/13	High priority. All figures with exception to 4 (which are in Commercial booklet) are already in Private and CFI CT-8080 books. No need for this separate Sport Pilot supplement; it is expensive and unnecessary due to redundancy with existing FAA materials. Recommend cancelling asap and referring Sport Pilot knowledge exam questions to Private and CFI supplement (figure numbers).	Industry prints and distributes to CTDs
FAA-CT-8080-2E	***Computer Testing Supplement for Recreational Pilot and Private Pilot***	This computer testing supplement ("figures booklet") is designed by the Flight Standards Service of the FAA for use by computer testing designees (CTDs) in the administration of computer-assisted airman knowledge tests: Recreational Pilot and Private Pilot.	2004		Revision to -2F ETA 10/13	High priority. Update to account for Sport Pilot test (so this book would work for Sport, Recreational, and Private Pilots) for cost savings and alleviate redundancy. Sectional, A/FD, and Winds Aloft forecasts outdated reflecting obsolete procedures.	Industry prints and distributes to CTDs
FAA-CT-8080-3E	***Computer Testing Supplement for Instrument Rating***	This computer testing supplement ("figures booklet") is designed by the Flight Standards Service of the FAA for use by computer testing designees (CTDs) in the administration of computer-assisted airman knowledge tests: Instrument Rating, Instrument Flight Instructor (CFII), Instrument Ground Instructor (IGI), and Instrument Foreign Pilot (IFP).	2005		No revisions planned.	High priority. Instrument Approach Procedures (IAPs), chart excerpts, and Winds Aloft forecasts outdated reflecting obsolete procedures. Additional figures available onscreen and in separate file; should consolidate for a single-source document for these applicants.	Industry prints and distributes to CTDs

Publication Number	Title	Objective	Edition/ Last Revised	OPR	Revision Schedule**	Recommendations	Distribution
FAA-CT-8080-1C	***Computer Testing Supplement for Commercial Pilot***	This computer testing supplement ("figures booklet") is designed by the Flight Standards Service of the FAA for use by computer testing designees (CTDs) in the administration of computer-assisted airman knowledge tests: Commercial Pilot and Military Competence.	2005		No revisions planned.	High priority. Sectional, A/FD, and Winds Aloft forecasts outdated reflecting obsolete procedures. Known errors in existing figures. Additional figures available in separate file; should consolidate for a single-source document for Commercial applicants	Industry prints and distributes to CTDs
FAA-CT-8080-5E	***Computer Testing Supplement for Flight and Ground Instructor***	This computer testing supplement ("figures booklet") is designed by the Flight Standards Service of the FAA for use by computer testing designees (CTDs) in the administration of computer-assisted airman knowledge tests: Fundamentals of Instructing (FOI), Ground Instructor (BGI and AGI), Flight Instructor (CFI).	2001		Revision to -5G ETA 10/13	High priority. Update to account for Sport Instructor Pilot test to alleviate redundancy. Sectional, A/FD, and Winds Aloft forecasts outdated reflecting obsolete procedures. Known errors in some figures.	Industry prints and distributes to CTDs
FAA-CT-8080-6A	***Computer Testing Supplement for Flight Engineer***	This computer testing supplement ("figures booklet") is designed by the Flight Standards Service of the FAA for use by computer testing designees (CTDs) in the administration of computer-assisted airman knowledge tests: Flight Engineer.	1999		No revisions planned.	Low priority. Low test volume.	Industry prints and distributes to CTDs
FAA-CT-8080-7C	***Computer Testing Supplement for Airline Transport Pilot and Aircraft Dispatcher***	This computer testing supplement ("figures booklet") is designed by the Flight Standards Service of the FAA for use by computer testing designees (CTDs) in the administration of computer-assisted airman knowledge tests: ATP, Dispatcher.	2005 (Addendum A July 2011, Addendum B May 2012)		Revision to -7D ETA 06/14	High priority. Instrument Approach Procedures (IAPs), chart excerpts, and Winds Aloft forecasts outdated reflecting obsolete procedures. Known errors in existing figures. Two (2) additional Addendums used with CT-8080-7C for a total of 3, adding cost to each test. Additional figures available onscreen and in separate file; should consolidate for a single-source document for ATP and Dispatcher applicants.	

* Preface indicates Handbook is published by GPO, but it is not available in GPO online bookstore.

** Under Revision Schedule:
A—Handbook is currently in development/revision. Content of handbook is being revised and/or developed. (Estimated18 to 24 month process.)
B—Handbook is currently in a final draft/editorial review. Content of handbook is complete. (Estimated 30 to 60 day process.)
C—Handbook is currently in final formal coordination (review) with Agency Divisions. This is the final stage before the handbook is posted to www.faa.gov. (Estimated 30 to 120 day process.)

APPENDIX H: REFERENCE DOCUMENTS + RECOMMENDED CHANGES

Appendix H includes a matrix of the reference documents (other than FAA-H-8083-XX handbooks) cited in the current Practical Test Standards (PTS), as well as recommended changes to align the Airman Certification Standards (ACS) documents with current guidance material. The matrix was developed by compiling the reference documents cited in the current PTS documents (as listed on each ACS worksheet) and integrating the general recommendations regarding aligning the ACS with current guidance material proposed to the ATST WG by the Guidance Material Subgroup.

ACS – REFERENCE DOCUMENTS TRACKING MATRIX
(PHASE II, TASK A – CHANGES REQUIRED TO ALIGN HANDBOOKS WITH ACS)

Publication Number	Title	Description	Date	OPR	Revision Schedule	Recommendations	Distribution
14 CFR Part 1	Definitions and Abbreviations					Appropriate Reference.	eCFR FAA website
14 CFR Part 23	Airworthiness Standards: Normal, Utility, Acrobatic, and Commuter Category Airplanes					Appropriate Reference.	eCFR FAA website
14 CFR Part 25	Airworthiness Standards: Transport Category Airplanes					Appropriate Reference.	eCFR FAA website
14 CFR Part 43	Maintenance, Preventive Maintenance, Rebuilding, and Alteration					Appropriate Reference.	eCFR FAA website
14 CFR Part 61	Certification: Pilots, Ground Instructors, and Flight Instructors					Appropriate Reference.	eCFR FAA website
14 CFR Part 67	Medical Standards and Certification					Appropriate Reference.	eCFR FAA website
14 CFR Part 71	Designation of Class A, B, C, D, and E Airspace Areas; Air Traffic Service Routes; and Reporting Points					Appropriate Reference.	eCFR FAA website
14 CFR Part 91	General Operating and Flight Rules					Appropriate Reference.	eCFR FAA website
14 CFR Part 119	Certification: Air Carriers and Commerical Operators					Appropriate Reference.	eCFR FAA website
14 CFR Part 121	Operating Requirements: Domestic, Flag and Supplemental Operations					Appropriate Reference.	eCFR FAA website
14 CFR Part 135	Operating Requirements: Commuter and On Demand Operations and Rules Governing Persons on board such Aircraft					Appropriate Reference.	eCFR FAA website
49 CFR Part 830	Notification and Reporting of Aircraft Accidents or Incidents and Overdue Aircraft, and Preservation of Aircraft Wreckage, Mail, Cargo, and Records					Appropriate Reference.	eCFR FAA website
AIM	Aeronautical Information Manual (AIM)	This manual is designed to provide the aviation community with basic flight information and ATC procedures for use in the National Airspace System (NAS) of the United States. An international version called the "Aeronautical Information Publication" contains parallel information, as well as specific information on the international airports for use by the international community.	2/9/2012 (CHG 3: 3/7/13)			Appropriate Reference.	GPO FAA website
AC 00-6A	Aviation Weather For Pilots and Flight Operations Personnel	Provides an up-to-date and expanded text for pilots and other flight operations personnel whose interest in meteorology is primarily in its application to flying.	1/1/75	AFS-400		Not updated since 1975. Replace with FAA-H-8083-25 for weather theory and eliminate this reference.	FAA website
AC 00-45G	Aviation Weather Services	Aviation Weather Services, Advisory Circular 00-45F, is published jointly by the National Weather Service (NWS) and the Federal Aviation Administration (FAA). This publication supplements its companion manual Aviation Weather, Advisory Circular 00-6A, which documents weather theory and its application to the aviation community. This AC explains U.S. aviation weather products and services. It details the interpretation and application of advisories, coded weather reports, forecasts, observed and prognostic weather charts, and radar and satellite imagery. Product examples and explanations are taken primarily from the Aviation Weather Center's Aviation Digital Data Service.	3/11/10	AFS-330		Appropriate Reference.	FAA website

Publication Number	Title	Description	Date	OPR	Revision Schedule	Recommendations	Distribution
AC 120-51E	Crew Resource Management	Provides FAA guidance for approval of an Advanced Qualification Program (AQP) under SFAR 58.	1/22/04	AFS-210		Any pertinent information not already covered should be moved to one of the handbooks and the reference could be eliminated.	FAA website
AC 120-58	Pilot Guide for Large Aircraft Ground Deicing	Contains recommendations for ensuring safe operations of large airplanes during icing conditions and guidelines for the development of adequate procedures for the deicing of large airplanes.	9/30/92	AFS-400		Any pertinent information not already covered should be moved to one of the handbooks and the reference could be eliminated.	FAA website
AC 135-17	Pilot Guide for Small Aircraft Ground Deicing	Contains information and recommendations to assist pilots in conducting ground operations during weather conditions conducive to aircraft icing. Also contains information and guidance regarding deicing and anti-icing fluids and procedures for use and identifies the aircraft critical surfaces which must be free of contamination prior to takeoff.	12/14/94	AFS-250		Any pertinent information not already covered should be moved to one of the handbooks and the reference could be eliminated.	FAA website
AC 00-30B	Atmospheric Turbulence Avoidance	This document's content is not currently available.	9/9/97	AFS-400		Any pertinent information not already covered should be moved to one of the handbooks and the reference could be eliminated.	FAA website
AC 91-74A	Pilot Guide: Flight in Icing Conditions	Provides pilots with a convenient reference on the principal factors related to flight in icing conditions and the location of additional information in related publications.	12/31/07	AFS-800		Any pertinent information not already covered should be moved to one of the handbooks and the reference could be eliminated.	FAA website
AC 00-54	Pilot Wind Shear Guide	Communicates key windshear information relevant to flight crews. Appendix 1 of this advisory circular is the Pilot Windshear Guide, which is only one section of the two-volume Windshear Training Aid.	11/25/88	AFS-200		Any pertinent information not already covered should be moved to one of the handbooks and the reference could be eliminated.	FAA website
AC 91-43	Unreliable Airspeed Indication	Alerts pilots to the possibility of erroneous airspeed/Mach indications that may be caused by blocking or freezing of the pilot system and advises of corrective action that can be taken.	6/26/75	AFS-223		Any pertinent information not already covered should be moved to one of the handbooks and the reference could be eliminated.	FAA website
AC 20-117	Hazard Following Ground Deicing and Ground Operations in Conditions Conductive to Aircraft	Provides information on the identified hazards associated with ground deicing and ground operations in conditions conducive to aircraft icing.	12/3/82	AFS-200		Any pertinent information not already covered should be moved to one of the handbooks and the reference could be eliminated.	FAA website
AC 00-24C	Thunderstorms	This advisory circular (AC) describes the hazards of thunderstorms to aviation and offers guidance to help prevent accidents caused by thunderstorms.	2/19/13	AFS-430		Any pertinent information not already covered should be moved to one of the handbooks and the reference could be eliminated.	FAA website
AC 60-22	Aeornautical Decision Making	Provides introductory material, background information, and reference material on aeronautical decision making. Provides a systematic approach to risk assessment and stress management in aviation, illustrates how personal attitudes can influence decision.	12/13/91	AFS-800		Any pertinent information not already covered should be moved to one of the handbooks and the reference could be eliminated.	FAA website
AC 91-13C	Cold Weather Operation of Aircraft	Provides background and guidelines relating to operation of aircraft in the colder climates where wide temperature changes may occur.	7/24/79	AFS-820		Any pertinent information not already covered should be moved to one of the handbooks and the reference could be eliminated.	FAA website
AC 90-48C	Pilots' Role in Collision Avoidance	Alerts all pilots to the potential hazards of midair collision and near midair collision, and to emphasize those basic problem areas related to the human causal factors where improvements in pilot education, operating practices, procedures, and improved scanning techniques are needed to reduce midair conflicts.	3/18/83	AFS-820		Any pertinent information not already covered should be moved to one of the handbooks and the reference could be eliminated.	FAA website
AC 20-103	Aircraft Engine Crankshaft Failure	Provides information and suggests procedures to increase crankshaft service life and to minimize failures.	3/7/78	AFS-340		Any pertinent information not already covered should be moved to one of the handbooks and the reference could be eliminated.	FAA website

Publication Number	Title	Description	Date	OPR	Revision Schedule	Recommendations	Distribution
AC 20-43C	Aircraft Fuel Control	Alerts the aviation community to the potential hazards of inadvertent mixing or contamination of turbine and piston fuels, and provides recommended fuel control and servicing procedures.	10/20/76	AFS-340		Any pertinent information not already covered should be moved to one of the handbooks and the reference could be eliminated.	FAA website
AC 25-7	Flight Test Guide for Certification of Transport Category Airplanes	Includes flight test methods and procedures to show compliance with the regulations contained in subpart B of Title 14, Code of Federal Regulations (14 CFR) part 25, which address airplane performance and handling characteristics.	10/16/12	ANM-110		Any pertinent information not already covered should be moved to one of the handbooks and the reference could be eliminated.	FAA website
AC 91-51A	Effect of Icing on Aircraft Control and Airplane Deice and Anti-Ice Systems	Provides information for pilots regarding the hazards of aircraft icing and the use of airplane deice and anti-ice systems.	7/17/96	AFS-820		Any pertinent information not already covered should be moved to one of the handbooks and the reference could be eliminated.	FAA website
	U.S. Terminal Procedures/Instrument Approach Procedure Charts	U.S. Terminal Procedures Publications are published in 24 loose-leaf or perfect bound volumes covering the conterminous U.S., Puerto Rico, and the Virgin Islands.	Revised every 56 days.			Appropriate Reference.	FAA website
	Sectional Aeronautical Chart	Sectional Aeronautical Charts are the primary navigational reference medium used by the VFR pilot community. The aeronautical information on Sectional Charts includes visual and radio aids to navigation, airports, controlled airspace, restricted areas, obstructions, and related data.	Updated every 6 months (most Alaska charts annually).			Appropriate Reference.	FAA website
	IFR/VFR Low Altitude Planning Chart	U.S. IFR/VFR Low Altitude Planning Charts is designed for preflight and enroute flight planning for IFR/VFR flights. Information includes the depiction of low altitude LF/MF and VHF airways and mileages, navigational facilities, airports, special use airspace areas, cities, time zones, major drainage, a directory of airports with their airspace classification and a mileage table showing great circle distances between major airports, 40 x 36 inches.	Revised annually.			Appropriate Reference.	FAA website
	STARs Standard Terminal Arrivals and Profile Descent Procedures	The Digital En-Route Supplement is specifically designed to provide digital airspace data not otherwise readily available.	Revised every 56 days.			Appropriate Reference.	FAA website
d-A/FD	Airport/Facility Directory	The A/FD is a seven volume set plus Alaska and Pacific Territories of printed paper books containing data on public and joint use airports, seaplane bases heliports, VFR airport sketches, NAVAIDs, communications data, weather data sources, airspace, special notices, and operational procedures. The seven volumes cover the conterminous United States, Puerto Rico, and the Virgin Islands. The Airport/Facility Directory includes data that cannot be readily depicted in graphic form: e.g., airport hours of operation, types of fuel available, runway data, lighting codes, etc. General Information, Directory Legend and Supplemental information pages printed in each of the A/FD volumes are provided as multi-page PDF files.	3/7/2013 (end 5/2/13)			Appropriate Reference.	FAA website

APPENDIX I: SAMPLE TEST MAPS

Appendix I includes the Sample Test Maps for the Private Pilot – Airplane Airman Certification Standards (ACS) and Instrument Rating Airman Certification Standards (ACS), as proposed to the ATST WG by the Question Development Subgroup.

Proposed Private Pilot ACS Test Map

(60 Questions—2 hours available time)

PVT ACS Area of Operation PVT ACS Task	**Rote** Define, Recall, List, Name, Match, Label	**Understanding** Describe, Identify, Select, Recognize, Explain, Locate, Translate	**Application** Apply, Choose, Interpret, Use, Solve, Operate	**Correlation** Calculate, Differentiate, Organize, Formulate, assess, Compare, Evaluate	**Total**	**Percentage**	**Proposed Test Map Correlation With Aeronautical Knowledge FARs**
I. Preflight	12	10	9	1	32	53.33%	
Pilot Qualifications							61.105(b)(1); 61.105(b)(2); 61.105(b)(12)
Airworthiness Requirements							61.105(b)(1); 61.105(b)(12)
Weather Information							61.105(b)(1); 61.105(b)(6); 61.105(b)(8); 61.105(b)(12)
Cross-Country Flight Planning							61.105(b)(1); 61.105(b)(3); 61.105(b)(4); 61.105(b)(12); 61.105(b)(13)(i),(ii)
National Airspace System							61.105(b)(1); 61.105(b)(5)
Performance & Limitations							61.105(b)(1); 61.105(b)(8); 61.105(b)(9);61.105(b)(12)
Operation of Systems							61.105(b)(10); 61.105(b)(12)
Human Factors							61.105(b)(12)
Preflight Assessment							61.105(b)(1); 61.105(b)(12); 61.105(b)(13)(i),(ii)
Cockpit Management							61.105(b)(12)
Engine Starting							61.105(b)(12)
Taxiing							61.105(b)(3); 61.105(b)(5); 61.105(b)(12)
Before Takeoff Check							61.105(b)(12); 61.105(b(13)(i),(ii)

PVT ACS Area of Operation PVT ACS Task	**Rote** Define, Recall, List, Name, Match, Label	**Understanding** Describe, Identify, Select, Recognize, Explain, Locate, Translate	**Application** Apply, Choose, Interpret, Use, Solve, Operate	**Correlation** Calculate, Differentiate, Organize, Formulate, assess, Compare, Evaluate	**Total**	**Percentage**	**Proposed Test Map Correlation With Aeronautical Knowledge FARs**
II. Airport Operations	2	1	1	1	5	8.33%	
Communications & Light Gun Signals							61.105(b)(5)
Traffic Patterns							61.105(b)(1); 61.105(b)(3); 61.105(b)(4); 61.105(b)(7)
III. Takeoffs, Landings & Go-Arounds	1	1	1	1	4	6.67%	
Normal Takeoff & Climb							61.105(b)(7); 61.105(b)(8); 61.105(b)(12);
Normal Approach & Landing							61.105(b)(7); 61.105(b)(8); 61.105(b)(12);
Soft-Field Takeoff & Climb							61.105(b)(7); 61.105(b)(8); 61.105(b)(12);
Soft-Field Approach & Landing							61.105(b)(7); 61.105(b)(8); 61.105(b)(12);
Short-Field Takeoff & Maximum Performance Climb							61.105(b)(7); 61.105(b)(8); 61.105(b)(12);
Short-Field Approach & Landing							61.105(b)(7); 61.105(b)(8); 61.105(b)(12);
Forward Slip to a Landing							61.105(b)(7); 61.105(b)(8); 61.105(b)(12);
Go-Around/Rejected Landing							61.105(b)(7); 61.105(b)(8); 61.105(b)(12);

PVT ACS Area of Operation PVT ACS Task	**Rote** Define, Recall, List, Name, Match, Label	**Understanding** Describe, Identify, Select, Recognize, Explain, Locate, Translate	**Application** Apply, Choose, Interpret, Use, Solve, Operate	**Correlation** Calculate, Differentiate, Organize, Formulate, assess, Compare, Evaluate	**Total**	**Percentage**	**Proposed Test Map Correlation With Aeronautical Knowledge FARs**
IV. Performance Maneuvers		1	1		2	3.33%	
Ground Reference Maneuvers							61.105(b)(1); 61.105(b)(10); 61.105(b)(11); 61.105(b)(12)
Steep Turns							61.105(b)(10); 61.105(b)(11); 61.105(b)(12)
V. Navigation	1	1	2	1	5	8.33%	
Pilotage & Dead Reckoning							61.105(b)(4);61.105(b)(5); 61.105(b)(6); 61.105(b)(7); 61.105(b)(12)
Navigation Systems & Radar Services							61.105(b)(4);61.105(b)(5); 61.105(b)(6); 61.105(b)(7); 61.105(b)(12)
Diversion							61.105(b)(4);61.105(b)(5); 61.105(b)(6); 61.105(b)(7); 61.105(b)(12); 61.105(b(13)(i),(ii)
Lost Procedures							61.105(b)(4);61.105(b)(5); 61.105(b)(6); 61.105(b)(7); 61.105(b)(12)
VI. Slow Flight & Stalls	1	1	1	1	4	6.67%	
Maneuvering During Slow Flight							61.105(b)(10); 61.105(b)(11); 61.105(b)(12)
Power-Off Stalls							61.105(b)(10); 61.105(b)(11); 61.105(b)(12)
Power-On Stalls							61.105(b)(10); 61.105(b)(11); 61.105(b)(12)
Spin Awareness							61.105(b)(10); 61.105(b)(11); 61.105(b)(12)

PVT ACS Area of Operation PVT ACS Task	**Rote** Define, Recall, List, Name, Match, Label	**Understanding** Describe, Identify, Select, Recognize, Explain, Locate, Translate	**Application** Apply, Choose, Interpret, Use, Solve, Operate	**Correlation** Calculate, Differentiate, Organize, Formulate, assess, Compare, Evaluate	**Total**	**Percentage**	**Proposed Test Map Correlation With Aeronautical Knowledge FARs**
VII. Emergency Operations	1	1	2	1	5	8.33%	
Inadvertent IMC							61.105(b)(5); 61.105(b)(6); 61.105(b)(7); 61.105(b)(10); 61.105(b)(12)
Emergency Approach Landing (Simulated)							61.105(b)(5); 61.105(b)(6); 61.105(b)(7); 61.105(b)(10); 61.105(b)(12)
Systems & Equipment Malfunctions							61.105(b)(5); 61.105(b)(6); 61.105(b)(7); 61.105(b)(10); 61.105(b)(12)
Emergency Equipment & Survival Gear							61.105(b)(5); 61.105(b)(6); 61.105(b)(7); 61.105(b)(10); 61.105(b)(12)
VIII. Night Operation		1	1		2	3.33%	
Night Preparation							61.105(b)(1); 61.105(b)(3); 61.105(b)(6); 61.105(b)(7); 61.105(b)(12)
IX. Postflight Procedures		1			1	1.67%	
After Landing, Parking, & Securing							61.105(b)(1); 61.105(b)(3); 61.105(b)(7); 61.105(b)(12);
Total	18	18	18	6	60	100%	

Proposed Instrument Rating ACS Test Map
(60 Questions—2.5 hours available time)

IFR ACS Area of Operation IFR ACS Task	**Rote** Define, Recall, List, Name, Match, Label	**Understanding** Describe, identify, Select, Recognize, Explain, locate, Translate	**Application** Apply, Choose, Interpret, Use, Solve, Operate	**Correlation** Calculate, Differentiate, Organize, Formulate, assess, Compare, Evaluate	**Total**	**Percentage**	**Proposed Test Map Correlation With Aeronautical Knowledge FARs**
I. Preflight Preparation	10	4	5	1	20	33.33%	
Pilot Qualifications							61.65(b)(1)/(7)/(9)
Weather Information							61.65(b)(6)/(7)/(8)/(9)
Cross-Country Flight Planning							61.65(b)(1)/(2)/(3)/(4)/(5)/(6)/(7)/(9)
II. Preflight Procedures	2	2	1	1	6	10.00%	
Aircraft Systems Related to IFR Operations							61.65(b)(1)/(2)/(7)/(9)
Aircraft Flight Instruments & Navigation Equip.							61.65(b)(1)/(2)/(7)/(9)
Instrument Cockpit Check							61.65(b)(1)/(2)/(7)/(9)
III. Air Traffic Control Clearances & Procedures	2	3	3	1	9	15.00%	
Compliance with Departures, En Route, &							61.65(b)(2)/(3)/(4)/(5)/(7)/(9)
Arrival Procedures & Clearances							61.65(b)(2)/(3)/(4)/(5)/(7)/(9)
Holding Procedures							61.65(b)(2)/(3)/(4)/(5)/(7)/(9)

IFR ACS Area of Operation IFR ACS Task	**Rote** Define, Recall, List, Name, Match, Label	**Understanding** Describe, identify, Select, Recognize, Explain, locate, Translate	**Application** Apply, Choose, Interpret, Use, Solve, Operate	**Correlation** Calculate, Differentiate, Organize, Formulate, assess, Compare, Evaluate	**Total**	**Percentage**	**Proposed Test Map Correlation With Aeronautical Knowledge FARs**
IV. Flight by Reference to Instruments		2	1		3	5.00%	
Basic Instrument Flight Maneuvers							61.65(b)(7)/(9)
Recovery from Unusual Flight Attitudes							61.65(b)(7)/(8)/(9)
V. Navigation Systems		3	2	1	6	10.00%	
Intercepting & Tracking Navigational Systems							61.65(b)(4)
VI. Instrument Approach Procedures	2	3	3	1	9	15.00%	
Nonprecision Approach							61.65(b)(1)/(2)/(3)/(4)/(5)/(7)/(9)/(10)
Precision Approach							61.65(b)(1)/(2)/(3)/(4)/(5)/(7)/(9)/(10)
Missed Approach							61.65(b)(1)/(2)/(3)/(4)/(5)/(7)/(9)/(10)
Circling Approach							61.65(b)(1)/(2)/(3)/(4)/(5)/(7)/(9)/(10)
Landing from an Instrument Approach							61.65(b)(1)/(2)/(3)/(4)/(5)/(7)/(9)/(10)
VII. Emergency Operations	1	1	2	1	5	8.33%	
Loss of Communications							61.65(b)(1)/(2)/(3)/(4)/(5)/(7)/(9)

IFR ACS Area of Operation IFR ACS Task	**Rote** Define, Recall, List, Name, Match, Label	**Understanding** Describe, identify, Select, Recognize, Explain, locate, Translate	**Application** Apply, Choose, Interpret, Use, Solve, Operate	**Correlation** Calculate, Differentiate, Organize, Formulate, assess, Compare, Evaluate	**Total**	**Percentage**	**Proposed Test Map Correlation With Aeronautical Knowledge FARs**
One Engine Inoperative-- Instrument Approach							61.65(b)(1)/(2)/(3)/(4)/(5)/(7)/(9)
(Multi-Engine Airplane)							61.65(b)(1)/(2)/(3)/(4)/(5)/(7)/(9)
Approach with Loss of Primary Flight							61.65(b)(1)/(2)/(3)/(4)/(5)/(7)/(9)
Instrument Indicators							61.65(b)(1)/(2)/(3)/(4)/(5)/(7)/(9)
VIII. Postflight Procedures	1		1		2	3.33%	
Checking Instruments & Equipment							61.65(b)(1)/(2)/(3)/(4)/(5)/(7)/(9)/(10)
Total	18	18	18	6	60	100%	

APPENDIX J: TEST QUESTION DEVELOPMENT GUIDELINES

The ATST WG used the Test Question Development Guidelines included in this appendix to review test questions and develop the recommendations included in this report. The Test Question Development Guidelines were initially formulated by the Question Development Subgroup and finalized by the members during multiple knowledge test question review ("boarding") sessions.

Test Question Review Guidelines

Basic questions to start:

1. Is the question content relevant for the pilot certificate or rating being sought? (Is this question pertinent and relevant to operations as a certificated, rated pilot?)
2. Is this question testing knowledge required to be a safe, competent aviator?
3. Is it more effective to introduce this new question or revise an existing question?
4. Does this new question apply to other certificates and ratings?
5. Is the subject matter relevant to the pilot (every day)?
6. Would this question be better covered during the oral? Where should this question adequately be covered? (as part of the oral – or as part of the practical test?)
7. Is the key correct?
8. Is the reference valid?

Content-related Rules:

Each item should be based on an educational or instructional objective of the certificate/rating, not trivial information.

- Test for important or significant information.
- Focus on a single problem or idea for each test item.
- Keep the vocabulary consistent with the examinees' level of understanding.
- Avoid cueing one item with another; keep items independent of one another.
- Avoid overly specific knowledge when developing items.
- Avoid textbook, verbatim phrasing when developing the items.
- Avoid items based on opinions.
- Be sensitive to cultural and gender issues.

Stem Construction Rules:

State the stem in either question form or completion form.

- When using a completion form, don't leave a blank for completion in the beginning or middle of the stem.
- Ensure that the directions in the stem are clear, and that wording lets the examinee know exactly what is being asked.
- Avoid excessive verbiage in the stem.
- Word the stem positively; avoid negative phrasing such as "not" or "except."
- Include the central idea and most of the phrasing in the stem.
- Avoid giving clues such as linking the stem to the answer.

General Option Development Rules:

- Place options in logical or numerical order.
- Keep options independent; options should not be overlapping.
- Keep all options homogeneous in content.
- Keep the length of options fairly consistent.
- Avoid the phrases "*all of the above*" or "*none of the above*."
- Phrase options positively, not negatively.
- Avoid distractors that can clue test-wise examinees; for example, absurd options, formal prompts, or overly specific or overly general clues.
- Avoid specific determinates, such as *never* and *always*.
- Position the correct option so that it appears about the same number of times in each possible position for a set of items.
- Make sure that there is one and only one correct option.

Distractor (incorrect options) Development Rules:

- Use plausible distractors.
- Incorporate common errors of students in distractors.
- Use familiar yet incorrect phrases as distractors.
- Use true statements that do not correctly answer the item.
- Avoid the use of humor when developing options.

<u>Source</u>:
Writing Good Multiple-Choice Exams
Dawn M. Zimmaro, Ph.D.
Center for Teaching and Learning
Telephone: (512) 232-2662
Web: www.utexas.edu/academic/ctl
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APPENDIX K: SAMPLE TEST QUESTIONS

Appendix K includes Sample Test Questions for the Private Pilot Knowledge Test, which are based on (and coded to) the draft Private Pilot – Airplane Airman Certification Standards (ACS). These sample questions were reviewed and revised by the ATST WG using the test question development guidelines included in Appendix J.

SAMPLE TEST QUESTIONS

The following sample test questions apply to the Private Pilot ACS: Preflight Preparation Area of Operation: Pilot Qualifications Task. Each chart depicts the original question, a mark-up of the question that resulted from review of (“boarding”) the question, the final question, and notes on the boarding/review process to illustrate the rationale behind the changes.

Question #1

Original Question	Mark-up/Review/Boarding	Final Question
You were born 38 years before this year. If you had your medical exam on March 18th this year and received a first class medical certificate, when can you no longer exercise the privileges as a private pilot on that medical certificate? (Reference: 14 CFR 61.23) A) March 18th, 2 years from this year. B) March 18th, 5 years from this year. **C) April 1st, 5 years from this year.**	You ~~were born~~ are 38 years ~~before this year~~ old. ~~If you~~ You had your medical exam on March 18th this year and received a first class medical certificate~~,~~. ~~when~~ When can you no longer exercise the privileges as a private pilot ~~on~~ with that medical certificate? (Reference: 14 CFR 61.23) (P.I.A.K9.a) A) March 18th, 2 years from this year. B) March ~~18th~~19th, 5 years from this year. **C) April 1st, 5 years from this year.**	You are 38 years old. You had your medical exam on March 18th this year and received a first class medical certificate. When can you no longer exercise the privileges as a private pilot with that medical certificate? (Reference: 14 CFR 61.23) (P.I.A.K9.a) A) March 18th, 2 years from this year. B) March 19th, 5 years from this year. **C) April 1st, 5 years from this year.**

Notes on Boarding/Review Process:

- The question was coded to the Private Pilot – Airplane ACS.
- The reference was checked, and it was correct.
- The question stem was shortened to make it more concise and to the point.
- The distractor in Answer Option B was changed to add more variations within the distractors to reduce the likelihood of the test taker guessing the answer to the question.
- The question does apply to other certificates and ratings and can be managed collectively.

Question #2

Original Question	Mark-up/Review/Boarding	Final Question
You invited two friends to join you for a two hour flight to a city for an afternoon presentation. You expect to return to your home airport by 7:45 PM. Sunset is 6:30. For night recent experience, you must have completed within the last 90 days… (Reference: 14 CFR 61.57) A) 3 touch-and-go landings at least an hour after sunset. B) 3 takeoffs and full stop landings after sunset. **C) 3 takeoffs and full stop landings at least an hour after sunset.**	~~You invited two friends to join you for a two hour flight to a city for an afternoon presentation~~You are PIC carrying passengers on a flight and ~~expect~~plan to return to your home airport by 7:45 PM. Sunset is 6:30 PM. ~~For night recent experience, you must have completed w~~ Within the last 90 days, you must have completed… (Reference: 14 CFR 61.57) (P.I.A.K1.a) A) 3 touch-and-go landings at least an hour after sunset. B) 3 takeoffs and full stop landings after sunset. **C) 3 takeoffs and full stop landings at least an hour after sunset.**	You are PIC carrying passengers on a flight and plan to return to your home airport by 7:45 PM. Sunset is 6:30 PM. Within the last 90 days, you must have completed… (Reference: 14 CFR 61.57) (P.I.A.K1.a) A) 3 touch-and-go landings at least an hour after sunset. B) 3 takeoffs and full stop landings after sunset. **C) 3 takeoffs and full stop landings at least an hour after sunset.**

Notes on Boarding/Review Process:

- The question was coded to the Private Pilot – Airplane ACS.
- The reference was checked, and it was correct.
- By taking out most of the first sentence, the stem was shortened to make it more concise and focused on the intent of the question.
- Cueing was taken out of the stem: "For night recent experience, you must have completed" is a teaching or cueing statement and should not be a part of the stem of the question.
- The question does apply to other certificates and ratings and can be managed collectively.

Question #3

Original Question	Mark-up/Review/Boarding	Final Question
You invited two friends to join you in your plane for a two hour flight to a city for an afternoon presentation. You may accept their offer to… (Reference: 14 CFR 61.113) **A) Pay their pro-rata share of the flight expenses.** B) Pay for your lunch, dinner and the fuel expenses. C) Pay 70% of the expenses of the flight.	You ~~invited~~ asked two friends to join you ~~in your plane~~ for a leisurely two hour flight ~~to a city for an afternoon presentation~~. As a private pilot, ~~Y~~you may accept their offer to… (Reference: 14 CFR 61.113) (P.I.A.K1.a) **A) Pay their pro-rata share of the flight expenses.** B) Pay ~~for your lunch, dinner and the fuel expenses~~ for all of the associated flight expenses. C) Pay ~~70% of the expenses of the flight~~ their pro-rata share of the flight expenses plus maintenance costs.	You asked two friends to join you for a leisurely two hour flight. As a private pilot, you may accept their offer to… (Reference: 14 CFR 61.113) (P.I.A.K1.a) **A) Pay their pro-rata share of the flight expenses.** B) Pay for all of the associated flight expenses. C) Pay their pro-rata share of the flight expenses plus maintenance costs.

Notes on Boarding/Review Process:

- The question was coded to the Private Pilot – Airplane ACS.
- The reference was checked, and it was correct.
- The stem was shortened to remove excess verbiage (the words "leisurely two hour" have nothing to do with the question).
- The distractors were altered to make them more plausible answers (without the changes, answer B can be easily eliminated and answer C can be eliminated because "70%" does not appear in 14 CFR part 61). All distracters should be plausible to some degree so make sure the test taker knows the correct answer.
- "As a private pilot" was added to better define the question.

General Notes on Questions #1 – #3:

In keeping with test question writing best practices, the ATST WG made the following general observations during the boarding/review process:

- For all three questions above, the stem was shortened to remove excess verbiage.
- The question stem should be focused to a single point, and the use of adverbs and adjectives should be used sparingly.
- The question stem should be free of teaching or cueing statements.
- The distractors should all be plausible answers to reduce the "guess factor" and better measure what the test taker knows (and does not know).

APPENDIX L: OBSOLETE QUESTIONS

Appendix L includes the ATST WG Recommendation to Remove Obsolete Questions from FAA Knowledge Exams submitted to AFS-600 on May 13, 2013. The ATST WG identified terms/technologies as obsolete and recommended the FAA no longer reference the terms/technologies on FAA Knowledge Exams.

NOTE: The ATST WG Recommendation to Remove Obsolete Questions from FAA Knowledge Exams original submission is included in this appendix as a stand-alone document.

AFS-630 Disposition of Recommendation

The FAA Airman Testing Standards Branch (AFS-630) received and responded to the ATST WG submission. After analysis of the recommendation, AFS-630 removed several of the obsolete questions from the applicable knowledge test item bank(s), including:

- VHF/DF Steer (Direction Finding)
- MLS (Microwave Landing System) (Only used as distractor.)
- TWEB (In the next revision of the ATP supplement this figure will be updated.)
- On-Airport FSS
- Composite Moisture Stability Chart
- Winds Aloft Forecasts (In the next question cycle roll scheduled for 6-2013 the questions that refer to "FD" will be revised to read "FB" in the IRA.)
- LORAN (Only used as a distractor.)

Aviation Rulemaking Advisory Committee
Airman Testing Standards and Training Working Group

Recommendation to Remove Obsolete Questions from FAA Knowledge Exams

The ARAC ATST WG identified the following terms/technologies as obsolete and recommends the FAA no longer reference the terms/technologies on FAA Knowledge Exams.

The terms are followed by questions historically used on knowledge exams and/or the public data (sample tests and databases posted on AFS-630 website). Questions are identified where the obsolete information is part of an answer choice (not the question stem). The ARAC ATST WG recommends that obsolete technologies be removed as distracters, as they are then required to be part of a training curriculum.

The ARAC ATST WG further recommends that once these terms and associated questions are no longer issued on the FAA Knowledge Exams, the FAA issue a formal notice so training providers can remove the terms/technologies from the training process.

VHF/DF Steer (Direction Finding)
Service now only available in very limited capacity and in Alaska only

- Commercial: To use VHF/DF facilities for assistance in locating your position, you must have an operative VHF
- Private: To use VHF/DF facilities for assistance in locating an aircraft's position, the aircraft must have a
- Private: The letters VHF/DF appearing in the Airport/Facility Directory for a certain airport indicate that

MLS (Microwave Landing System)
Used in answer choices for the following questions:

- ATP: 'Unreliable', as indicated in the following GPS NOTAMS: SFO 12/051 SFO WAAS LNAV/VNAV AND LPV MNM UNRELBL WEF0512182025-0512182049 means
- ATP: What does "UNREL" indicate in the following GPS and WAAS NOTAM: BOS WAAS LPV AND LNAV/VNAV MNM UNREL WEF 0305231700 -0305231815?
- Taxiway Centerline Lead-Off Lights are color coded to warn pilots that

INS (Inertial Navigation System)

- ATP: Which equipment requirement must be met by an air carrier that elects to use a dual Inertial Navigation System (INS) on a proposed flight?
- ATP: An air carrier that elects to use an Inertial Navigational System (INS) must meet which equipment requirement prior to takeoff on a proposed flight?
- What type navigation system is Inertial Navigation System (INS)? A navigation computer which provides position

TWEB
Used in answer choices for the following questions:
- ATP: (Refer to Figure 186.) The NAVAID box at Mormon Mesa (MMM) has a black square in the upper left corner. What does this indicate?
- CFI: (Refer to Figure 44.) Select the correct statement concerning the Maverick VOR (area 6).

On-Airport FSS
- Private: If a control tower and an FSS are located on the same airport, which function is provided by the FAA during those periods when the tower is closed?

Composite Moisture Stability Chart
Replaced by Lifted Index chart
- Commercial: A freezing level panel of the composite moisture stability chart is an analysis of

Winds Aloft Forecasts
CT-8080s depict these as “FD” which has been replaced with “FB”; questions could be salvaged if the FB forecast is embedded into the question stem rather than referring applicants to an obsolete figure:
- Sport: questions referring to Figure 7 and Figure 43
- Private: questions referring to Figure 17
- CFI: questions referring to Figure 7

LORAN
Most questions dealing with LORAN have been removed; however, LORAN still referenced in incorrect answers:
- Instrument: (Refer to Figure 40.) For planning purposes, what is the highest useable altitude for an IFR flight on V16 from BGS VORTAC to ABI VORTAC? (one of the answer choices details the MRA at LORAN intersections)

AIM Change 2 (03/07/2013) makes this question obsolete:
- Instrument: Your onboard GPS-based FMS/RNAV unit is IFR certified under TSO-C129. Your destination is below minimums and you proceed to your filed alternate. You know that

Instrument Approach Procedures: Instrument and ATP Questions are referencing CT-8080 Figures with dated approach plate procedures – using the old layout and obsolete components (such as inner and middle markers where they no longer apply). Ideally all questions should be removed until approach plates can be updated; however, an interim solution could be to embed the necessary information into the question stem.

APPENDIX M: FREQUENTLY ASKED QUESTIONS

Appendix M includes the Frequently Asked Questions (FAQ) prepared by the ATST WG in response to several comments/questions submitted when the Private Pilot – Airplane Airman Certification Standards (ACS) and Instrument Rating ACS documents were published for comment.[15] The FAQs were published for additional clarification with the first draft of the Authorized Instructor ACS (and second draft of Private Pilot – Airplane and Instrument Rating ACS documents).[16]

NOTE: The contents of the FAQs has been modified since publication in order to be consistent with the ATST WG work product at the time of submission of this report.

FREQUENTLY ASKED QUESTIONS

What is the ACS project all about?

The goal of this project is to improve airman training and testing with an integrated, holistic system that clearly aligns testing with certification standards and guidance.

What is the ATST WG? How does it relate to the ARC?

ARC refers to the Airman Testing Standards and Training Aviation Rulemaking Committee, which the FAA chartered in September 2011 to make recommendations for more effective training and testing. The ARC submitted its report and nine recommendations to the FAA on April 13, 2012.

To benefit from industry expertise in implementing the ARC recommendations, in August 2012 the FAA turned to the Aviation Rulemaking Advisory Committee (ARAC). ARAC, a formal standing committee of aviation associations and industry, assigned this work to a newly-formed Airman Testing Standards and Training Working Group (ATST WG) consisting of aviation education and training professionals from all major segments of this community.

[15] 78 FR 24289 (Docket No. FAA-2013-0316) (April 24, 2013).
[16] 78 FR 44619 (Docket No. FAA-2013-0649) (July 24, 2013).

Who are these people? What expertise do they have?

When the FAA asked the industry-comprised Aviation Rulemaking Advisory Committee (ARAC) to accept this project, the agency stipulated that the Airman Testing Standards and Training Working Group should be:

> [C]omprised of aviation professionals with experience and expertise in airman training and testing, and technical experts having an interest in the assigned task. The FAA would like a wide range of members to ensure that all aspects of airman testing and training, including best practices, are considered in the development of its recommendations.

In response to the Federal Register notice published on September 12, 2012 (77 FR 56251), a number of individuals and organizations contacted the FAA to request participation on the ATST WG. The FAA selected its membership to include aviation professionals who could collectively represent all major sectors of the industry. These include flight instructors, designated pilot examiners, the aviation academic community, industry advocacy associations, and training and test preparation providers involved with aviation training and testing in 14 CFR Part 61, 141, 147, and 121 environments. To help ensure that the FAA has a full understanding of the ATST WG's work and the rationale for its recommendations, the FAA also assigned subject matter experts from a number of its policy divisions to attend ATST WG meetings.

What is the problem you're trying to solve? What's wrong with the tests we have now?

To many stakeholders, FAA knowledge testing is the most deeply flawed part of the airman certification system. It matters because the knowledge test is an important component of the airman certification process. It measures an applicant's understanding of the rules, regulations, and knowledge areas required to receive an FAA airman certificate.

For the flight proficiency (skills) part of the airman certification process, the FAA developed the Practical Test Standards (PTS) to define acceptable performance of the required skills. There is currently no such guidance for the knowledge test, which creates problems familiar to anyone who has ever taken an FAA knowledge test. These include questions that are overly broad, trivial, outdated, and sometimes irrelevant. Test questions that require multiple interpolations to calculate takeoff, landing, and density altitude to the foot imply a level of precision that, ironically, is grossly inaccurate in terms of safety and reality.

Moreover, the knowledge exam is not a reflection of a typical ground training program. Consequently, applicants who have demonstrated knowledge and mastery in an approved flight and ground school curriculum must still conduct a comprehensive "test prep" to pass the knowledge test. It is difficult for instructors to provide the required remedial training for missed knowledge, and difficult for examiners to accurately re-test the missed knowledge. As a result, the knowledge exam is disconnected from both training and the practical test. For these reasons, many regard the knowledge test as a rote memorization exercise that has no real value for aviation safety education and training.

If there are problems with the knowledge test, why can't you just fix those and leave the rest alone?

In September 2011, the FAA convened a group of industry experts to recommend ways to "fix testing." This group – the Airman Testing Standards and Training Aviation Rulemaking Committee (ARC) – quickly determined that there is no way to fix the knowledge test in a meaningful and sustainable way without having a knowledge test standard akin to the PTS.

The ARC briefly considered proposing a "Knowledge Test Standards" (KTS) document that would be the knowledge test companion to the skill-focused PTS. After much discussion, the ARC discarded this approach as unworkable. ARC members feared that creation of separate KTS documents could result in divergence between the KTS and the PTS. It would burden stakeholders with an additional set of documents, and require a greater expenditure of shrinking FAA resources to develop, deploy, and maintain a full range of KTS documents.

The ARC ultimately concluded that aviation safety and stakeholder needs, including the core desire for a more relevant FAA knowledge test, would be best served by integrating task-specific aeronautical knowledge into the appropriate Area of Operation in the existing PTS, and by adding task-appropriate risk management elements for each Area of Operation. The ACS would thus define not only the performance metrics for knowledge and skill, but also the required content for guidance materials such as the FAA-H-series handbooks and for relevant knowledge test questions.

What's wrong with the PTS?

The PTS provides metrics to define acceptable performance of the "flight proficiency" skills listed in 14 CFR part 61 for a given certificate or rating. Most people believe that the PTS generally serves its intended purpose but, like all such documents, it has become bloated over the years with an ever-expanding list of "special emphasis" items, repetitive or overlapping Areas of Operation/tasks, and poorly-defined additional requirements (e.g., evaluation of the applicant's risk management and aeronautical decision-making skills).

How does the ACS approach improve the PTS?

The ACS approach does **not** increase or expand any of the skill evaluation requirements in the existing PTS, but it significantly improves the PTS in several ways. The ACS:

- Provides integrated guidance that defines performance metrics for aeronautical knowledge as well as flight proficiency (skill).
- Strengthens the PTS by explicitly defining the aeronautical knowledge needed to support each Area of Operation/task. This linkage enhances the relevance of the testing/training process for adult learners by clearly answering the "why do I need to know **that**?!" question.
- Enhances safety by using the risk management section in each ACS Area of Operation to translate abstract terms like "aeronautical decision-making" into specific safety behaviors relevant to each task.
- Eliminates "bloat" by consolidating duplicative or overlapping tasks in the existing PTS.

Why does the ACS have a separate section for risk management? Isn't that just the latest buzz word?

The PTS already requires evaluation of the applicant's risk management abilities, but the existing document doesn't offer the kind of concrete "what do I have to do?" guidance that users need and deserve.

The rationale for including a risk management section in the ACS is to enhance safety by translating abstract terms into specific safety behaviors relevant to each task. The ACS is also intended to communicate and demonstrate that risk management is a continuous process that includes identification, assessment, and mitigation of task-specific hazards that create risk. The risk management element identifies the circumstantial issues that aviators must consider in association with a particular task.

So how does the ACS approach improve the test?

Accepted industry practices for any certification process stipulate that training and testing be based on a job/task analysis. The ACS documents function as the required job/task analysis, as they define the knowledge and skills needed to perform at the level of the target certificate or rating. By so doing, the ACS approach better serves the applicant, the instructor, and the evaluator. And because the process of developing the ACS requires a thorough review and update of knowledge and skills for airman certification, it aligns with certification industry standards for periodic review and revision of the job/task analysis. In addition, the ACS approach will enable the FAA to create and maintain a clear link between the regulations, knowledge/skill performance standards, guidance, and test materials.

How do you propose to provide the "clear link" connecting knowledge/skill performance standards, guidance, and test materials?

One of the overarching goals of this project is to create an integrated, coherent airman certification system in which standards, guidance, and testing can be aligned and maintained in alignment. Such symmetry is key to fully realizing the benefits the ACS system promises to both the FAA and its many stakeholders. It is also key to conformance with accepted industry standards for certification programs, which require that items to be trained and tested be directly linked to the job/task analysis – in this case, the ACS.

You may have noticed that the revised versions of the private pilot and instrument rating ACS documents and the new Authorized Instructor ACS include a series of letters and numbers after each task. These codes provide the means to correlate the tasks in the ACS with guidance and testing, and to keep them aligned going forward. The proposed ACS codes would supersede the current system of "Learning Statement Codes" (LSC), which is too limited to serve as the mechanism for alignment and too complex to effectively serve the needs of the FAA and the stakeholder community.

The proposed coding system has five elements that are anchored in the ACS (not in reference documents, like the current LSCs).

PA.X.A.K1.a:

PA = Applicable ACS (private pilot airplane)*
X = Area of Operation (night operation)
A = Task (night preparation)
K1 = Knowledge Task element 1 (physiological aspects of night flying as it relates to vision) **
a = rote***– represents the level of learning and guides question development (e.g., rote would require the applicant to define, recall, list, name, match, label).

* IR = instrument rating, CA = commercial airplane, etc.
** S = skills elements, R = risk management elements
*** b = understanding, c = application, d = correlation (representing the level of learning which also informs the manner of the question (e.g., rote = define, recall, list, name, match, label))

The proposed ACS-based coding scheme will:

- Clearly align guidance and test questions to the ACS;
- Make the airman test report meaningful to stakeholders (applicant, instructor, evaluator);
- Provide a means for automated generation of tests, whether using the existing test forms or future randomized selections; and
- Eliminate subjectivity and vastly simplify system management requirements for the FAA.

Isn't the real problem related to deficient skills? If so, what is the point of this change?

Aviators love to debate, and we can argue endlessly about what **really** causes accidents. Perhaps we can agree, though, that most accidents have multiple causes.

According to the AOPA Air Safety Institute, the three leading general aviation (GA) fatal accident factors are maneuvering flight, continued VFR into IMC, and loss of control on takeoff. These factors all imply some degree of deficiency in the pilot's knowledge, skill, and risk management abilities. Even the world's best stick-and-rudder pilot is at risk for loss of control if he or she has an inadvertent flight into IMC because of deficiencies in weather knowledge or risk management ability. Safety is not served by emphasizing just one of these three abilities. On the contrary, each supports the others.

The ACS is therefore an improvement over the current system, because it offers a holistic approach to aviation training and testing – it integrates knowledge, skills, and risk management, and it provides a way to ensure that the elements of the certification process – standards, guidance, and testing – are correlated to these abilities and aligned with each other.

How can you map knowledge to skills?

The ATST WG invested considerable time developing a standardized approach to integrating knowledge and risk management with the skills in the existing PTS Areas of Operation/tasks. To assist the FAA in this process, the ATST WG's final report will describe its PTS-to-ACS transition methodology in detail. In summary, though, the ATST WG sought to:

- Ensure that all aeronautical knowledge topics listed in 14 CFR part 61 are addressed in the appropriate Area(s) of Operation in the ACS
- Define the knowledge topics required to support the skill area for the level of airman certificate covered by the target ACS.
- Calibrate the required knowledge to the level of the airman certificate or rating level.

The ATST WG strongly recommends that the FAA seek expert stakeholder participation in this process. And, while calibration is unavoidably somewhat subjective, the use of standardized rubrics and a comprehensive task chart (i.e., a document that displays the required level of performance for each Area or Operation and/or task) would be helpful.

The group took a similar approach to risk management. Drawing from the special emphasis topics in the existing PTS and sources such as the FAA Risk Management Handbook (FAA-H-8083-2), the group listed specific, practical, risk management tasks, skills, or behaviors appropriate to each Area of Operation.

What benefits come from mapping knowledge to skills?

Most accidents have multiple causes, and many involve at least some degree of deficiency in the pilot's knowledge, skill, and risk management abilities. Each of these abilities supports the others. The ACS reflects this reality because it offers a holistic approach to aviation training and testing – it integrates knowledge, skills, and risk management, and it provides a way to ensure that the elements of the certification process – standards, guidance, and testing – are correlated to these abilities and aligned with each other.

Another benefit is that the holistic ACS approach is consistent with principles for effective adult education and meaningful testing. According to Malcolm Knowles, effective instruction and education of adults occurs when they perceive a need for certain knowledge or skills, understand how the area of learning relates to what they want to achieve, and recognize how the area of learning applies to the life or work context.

By mapping specific items of aeronautical knowledge and actionable risk management practices with the flying skill performance metrics in the existing PTS, the ACS meets these needs and significantly enhances the educational value of the FAA knowledge test.

Finally, the holistic ACS approach is consistent with accepted industry practices for any certification process. The ACS documents function as the required job/task analysis, because they define the knowledge and skills needed to perform at the level of the target certificate or rating. By so doing, the ACS approach better serves the applicant, the instructor, and the evaluator.

Why is the Authorized Instructor ACS different?

Because the ACS is intended to be a foundation for the entire airman certification testing and training system, the ATST WG invested considerable effort developing an ACS framework that can be consistently applied to the majority of airman certificates and ratings.

The draft Authorized Instructor ACS follows the overall conceptual framework developed for the private pilot ACS and the instrument rating ACS, but its construction reflects fundamental differences between the family of pilot certificates/ratings and the instructor certificate. The core of the Authorized Instructor ACS addresses practical application of the instructional concepts and techniques presented in the traditional Fundamentals of Instructing (FOI). The Authorized Instructor ACS uses appendices to define the acceptable standards for knowledge, skill, and risk management in the aeronautical proficiency tasks unique to a particular instructor certificate or rating.

It is also important to understand that the Authorized Instructor ACS is not intended to be a stand-alone document. Just as a flight instructor certificate must be accompanied by a commercial pilot certificate, the Authorized Instructor ACS is to be used in conjunction with the ACS for the pilot certificate level or rating for which the instructor-applicant seeks to provide instruction. In addition to mastery of the knowledge and skills defined in the Authorized Instructor ACS, the instructor-applicant must demonstrate instructional competence for Tasks in the ACS for the appropriate certificate level or rating, to include analyzing and correcting common learner errors.

What's the point of changing terms to words like "evaluator" or "plan of action?"

One of the goals of this project is greater consistency. Instead of trying to list every category of person authorized to conduct a practical test (e.g., examiner, designee, designated pilot examiner, aviation safety inspector), the ACS uses the term "evaluator" to cover the entire range. The term "plan of action" is used in the Authorized Instructor ACS because a plan of action for instruction better conveys the intended concept, and also because it corresponds with the requirement for an evaluator to have a plan of action for conducting the test.

Why does the ACS mix the terms "learner" and "student pilot?"

The education and training industry has generally adopted the term "learner," because it conveys recognition and respect for adults' experience and motivation. We followed this convention in most instances. However, the ACS retains the term "student pilot" when it refers to certification activities involving an individual who is a student pilot within the meaning of 14 CFR part 61.

Why use the term "airman" instead of "pilot" or "aviator?"

The regulations use the term "airman" to encompass the full range of aviation functions that require an FAA certificate or rating. Not all airman certificates and ratings are for pilots or aviators; some apply to aircraft maintenance technicians, dispatchers, and other specialties. We continued to use this term because it includes all aviation functions that require an FAA certificate or rating, and because it is used in the regulations. We did not recommend a change because changes that require rulemaking are beyond the scope of this group's charter.

Doesn't this kind of change require a formal rulemaking process?

No. Like the PTS, the ACS simply defines the metrics – the standards -- for meeting the regulatory requirements that 14 CFR part 61 enumerates for aeronautical knowledge and flight proficiency. The ACS does not change any of the requirements in 14 CFR.

Doesn't this approach increase the standards?

No. The ACS approach does not increase the standards. Except for those areas where the ACS consolidates overlapping or duplicative Areas of Operation/tasks in the existing PTS, none of the PTS material has changed. The knowledge and risk management sections simply define the standards for meeting the requirements in 14 CFR part 61.

Doesn't the ACS approach increase the cost of flight training?

No. In fact, a more integrated and efficient presentation of the material to be tested could make training far more effective and efficient for all stakeholders – and thus less costly. Instructors will be able to effectively and efficiently remediate any deficient knowledge identified on the airman knowledge test report in preparation for the practical test.

Won't the ACS approach dramatically increase the length (and expense) of the practical test?

No. In fact, a more integrated and efficient presentation of the material to be tested could even shorten the test, especially if the evaluator has more confidence in the quality and meaning of the applicant's knowledge test score. Evaluators will be able to effectively and efficiently re-test any deficient knowledge identified on the airman knowledge test report to ensure the applicant has trained to proficiency in all areas.

How much will the ACS cost in terms of money and manpower?

Today's airman certification system is far more costly than it should be for both the FAA and stakeholders, because the absence of a knowledge standard and the lack of standardized and solid integration of standards, guidance, and testing leads to disconnects and errors that have to be corrected on a piecemeal basis. For the FAA, the shortcomings of the present system also make it difficult to coherently accommodate and integrate requests for new or enhanced material on special emphasis topics.

For stakeholders, the current system is costly because it creates uncertainty and leads to expensive last-minute or off-cycle changes and corrections to training and test preparation materials. It is certainly costly for applicants, instructors, and evaluators, if only because of the time wasted in teaching or learning topics that have no value for safe operation in today's National Airspace System (NAS).

While there will be an initial investment needed to implement the ACS approach, the ATST WG's proposal for a phased transition – designed to match the existing schedule for updates – will minimize the cost. And, if properly implemented, the ACS approach to airman certification testing and training will be much less costly than today's highly inefficient system.

What do you mean when you say that the ACS concept is consistent with SMS principles?

The safety management system (SMS) framework provides a systematic approach to achieving acceptable levels of safety risk. The holistic ACS concept for the overall airman certification system is consistent with SMS, because it addresses each of the four "pillars" of SMS:

- Safety Policy that demonstrates FAA senior management commitment to continually improve safety through enhancements to the airman certification testing and training system; specifically, better integration of the aeronautical knowledge, flight proficiency, and risk management components of the airman certification system;
- Safety Risk Management processes that create a structured means of safety risk management decision making to identify, assess, and determine acceptable level of risk associated with regulatory changes, safety recommendations, or other factors requiring modification of airman testing and training materials;
- Safety Assurance processes which allow increased confidence on the part of industry and FAA stakeholders in risk controls through a continual review of FAA products and the systematic, prompt and appropriate incorporation of changes arising from new regulations, data analysis, and safety recommendations; and
- Safety Promotion framework to support a positive safety culture in the form of training and ongoing engagement with both external stakeholders (e.g., the aviation training industry) and FAA policy divisions.

What did you do with the comments submitted to the docket on the initial private pilot and instrument rating ACS documents?

We appreciate the many comments and questions we received in response to the first set of documents. As planned, we used this feedback to refine the draft ACS documents. You will see some of that feedback reflected in the revised ACS for the private pilot certificate and the instrument rating. Other comments and questions were very valuable in showing us the areas we need to clarify or better explain, as we have tried to do with these “frequently asked questions.” The ATST WG’s final report (submitted in September 2013) includes a more detailed discussion of how we addressed the comments received through this process.

What’s the difference between this ACS and a training syllabus?

The ACS defines **what** the applicant must know, do, and consider in order to earn an airman certificate or rating. A training syllabus defines **how** (where, when and why) these standards are met. Accepted industry practices for any certification process stipulate that it be based on a job/task analysis. The certification process must analyze, define, and publish the domains and tasks that are a part of the certification process. It must further identify the knowledge and skills associated with performance of those tasks. The required knowledge and skills become the basis for development of assessment activities.

The ACS documents function as the required job/task analysis, as they define the knowledge and skills needed to perform at the level of the target certificate or rating. By so doing, the ACS approach better serves the applicant, the instructor, and the evaluator. Because the process of developing the ACS required a thorough review and update of knowledge and skills for airman certification, it also aligns with certification industry standards requiring periodic review and revision of the job/task analysis.

How can risk management be tested on a knowledge test?

Risk management can be effectively tested on a knowledge test through the use of scenarios, common student errors, misconceptions, or frequent accident causes. Risk management questions will remain objective because they will be specific to an area of operation/task.

How do you expect to evaluate soft skills?

So called “soft skills” are already evaluated through the use of scenarios and circumstances that require decision-making and judgment. By providing more specific guidance on the knowledge and risk management abilities needed to support a particular skill, the ACS will give applicants, instructors, and evaluators much better guidance than they have in today’s system.

How will use of the ACS approach change airman training?

With clearly defined standards for knowledge, skill and risk management, airman training can be conducted more effectively to ensure applicants who complete flight and ground training are safe, competent aviators as well as successful in passing the FAA knowledge test. Training and testing will be aligned, which means that “test prep” will be a review of the ground school curriculum rather than a separate, unrelated step to learn questions for the sole purpose of passing a test.

APPENDIX N: PROPOSED PRIORITIES FOR ACS CONVERSION + DEPLOYMENT

Appendix N includes the ATST WG's proposed Practical Test Standards (PTS)-to-Airman Certification Standards (ACS) Recommended Conversion Priorities. The matrix describing the proposed schedule is based on a three-phase deployment plan designed to complete the conversion process as efficiently as possible, while leveraging existing resources and recognizing the overlapping nature of some of the underlying documents.

PTS to ACS RECOMMENDED CONVERSION SCHEDULE (PHASE I, FOLLOW-ON TO COMPLETED ACS DOCUMENTS)			
Proposed ACS Title	**Current PTS Document Number(s)**	**ACS Conversion Priority**	**Notes**
Private Pilot – Airplane Airman Certification Standards	FAA-S-8081-14B	Phase 1	ACS will have 1 section (with tasks/elements specific to SEL, SES, MEL, MES noted); Will need new edition of Test Guide (FAA-G-8082-17M) to remove PAT, PAR tests.
Private Pilot – Rotorcraft (Helicopter and Gyroplane) Airman Certification Standards	FAA-S-8081-15A	Phase 1	ACS will have 2 sections (HELI, GYRO); will need new edition of Test Guide (FAA-G-8082-17M) to remove PHT, PGT, PRH, PRG tests.
Instrument Rating Airman Certification Standards	FAA-S-8081-4E	Phase 1	ACS will have 3 sections (AIR, RTC, PL); will need new edition of Test Guide (FAA-G-8082-13M) to remove IRA, IRH, IFP tests
Commercial Pilot – Airplane Airman Certification Standards	FAA-S-8081-12C	Phase 1	ACS will have 1 section (with tasks/elements specific to SEL, SES, MEL, MES noted); Will need new edition of Test Guide (FAA-G-8082-5I) to remove CAX, MCA tests.
Commercial Pilot – Rotorcraft (Helicopter and Gyroplane) Airman Certification Standards	FAA-S-8081-16B	Phase 1	ACS will have 2 sections (HELI, GYRO); will need new edition of Test Guide (FAA-G-8082-5I) to remove CRH, CRG, MCH tests.
Authorized Instructor Airman Certification Standards	FAA-S-8081-6D FAA-S-8081-9D FAA-S-8081-7B FAA-S-8081-8B Add: Sport Pilot Instructor	Phase 1	This ACS represents a combination of 4 PTS and Sport Pilot Instructor (FAA-S-8081-29, FAA-S-8081-30, FAA-S-8081-31); the ACS will have 6 Sections (Ground Instructor, CFI-A, CFII, CFI-H, CFI-G, CFI-Sport Pilot. Cancel FAA-G-8082-7L and FAA-G-8082-13M once ACS is effective.
Airline Transport Pilot and Type Rating – Airplane Airman Certification Standards	FAA-S-8081-5F	Phase 1	Will need new edition of Test Guide (FAA-G-8082-1K) to remove ATP, ATA, ARA tests.
Airline Transport Pilot and Type Rating – Helicopter Airman Certification Standards	FAA-S-8081-20	Phase 1	Will need new edition of Test Guide (FAA-G-8082-1K) to remove ATH, ARH tests
Sport Pilot Airman Certification Standards	FAA-S-8081-29 FAA-S-8081-30 FAA-S-8081-31	Phase 2	ACS will be a combination of 3 PTS which could mean up to 14 sections depending on how aircraft categories are covered. Test Guide (FAA-G-8082-4D). Cancel Test Guide (FAA-G-8082-4D) once this ACS is effective. Sport Pilot Instructor to be integrated into Authorized Instructor ACS.
Private Pilot – Lighter-Than-Air (Balloon, Airship) Airman Certification Standards	FAA-S-8081-17	Phase 2	Will need new edition of Test Guide (FAA-G-8082-17N) to remove LTA tests.
Private Pilot – Glider Airman Certification Standards	FAA-S-8081-22	Phase 2	Will need new edition of Test Guide (FAA-G-8082-17N) to remove GLI tests.
Private Pilot – Powered Parachute and Weight-Shift Control Airman Certification Standards	FAA-S-8081-32	Phase 2	Will need new edition of Test Guide (FAA-G-8082-17N) to remove PPC and WSC tests.
Recreational Pilot Airman Certification Standards	FAA-S-8081-3A	Phase 3	Cancel Test Guide (FAA-G-8082-17N) once this ACS is effective.
Commercial Pilot – Lighter-Than-Air (Balloon, Airship) Airman Certification Standards	FAA-S-8081-18	Phase 3	Will need new edition of Test Guide (FAA-G-8082-5I) to remove LTA tests.
Commercial Pilot – Glider	FAA-S-8081-23A	Phase 3	Cancel Test Guide (FAA-G-8082-5) once ACS is effective.
Aircraft Dispatcher Airman Certification Standards	FAA-S-8081-10D	Phase 3	Will need new edition of Test Guide (FAA-G-8082-1L) to remove Dispatcher tests.
Flight Navigator Airman Certification Standards	None	Phase 3	Cancel Test Guide (FAA-G-8082-1) once ACS is effective.
Flight Engineer Airman Certification Standards	FAA-S-8081-21	Phase 3	Cancel Test Guide (FAA-G-8082-9H) once ACS is effective.
Aviation Mechanic – General Airman Certification Standards	FAA-S-8081-26	Phase 3	Note: FAA-S-8081-26A was released 09/2012 with an effective date of 11/01/12 and then cancelled pending guidance documents. Will FAA be releasing this new edition or will they instead release the ACS replacement?
Aviation Mechanic – Airframe Airman Certification Standards	FAA-S-8081-27	Phase 3	Note: FAA-S-8081-27A was released 09/2012 with an effective date of 11/01/12 and then cancelled pending guidance documents. Will FAA be releasing this new edition or will they instead release the ACS replacement?
Aviation Mechanic – Powerplant Airman Certification Standards	FAA-S-8081-28	Phase 3	Note: FAA-S-8081-28A was released 09/2012 with an effective date of 11/01/12 and then cancelled pending guidance documents. Will FAA be releasing this new edition or will they instead release the ACS replacement? Cancel Test guide (FAA-G-8082-3) once this ACS is effective.
Inspection Authorization Airman Certification Standards	None	Phase 1	Cancel Test Guides (8082-19 and 11) once this ACS is effective.
Parachute Rigger Airman Certification Standards	FAA-S-8081-25B	Phase 3	Cancel Test Guide (8082-15) once this ACS is effective.

Notes:
Test Guides and Test Matrix will need to be updated and/or cancelled in correspondence with the ACS effective dates.
Learning Statement Reference Memo should be cancelled; Test Guides and ACS will be source for LSCs.

APPENDIX O: AIRMAN CERTIFICATION SYSTEM QMS

The ATST WG recommends the following elements be addressed and integrated into an Airman Certification System Quality Management System (QMS).

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1. Standards (ACS)

The ACSWG should:

(A) Determine the nature of the airman certificate or rating to be converted from PTS to ACS:

(i) *Pilot certificate or rating*: Use the Private Pilot ACS as the baseline model for conversion to the ACS structure.

(a) *The specific knowledge, skills, and risk management tasks in each Area of Operation should be calibrated "up" or "down" in accordance with the level of pilot certificate or rating*.

(ii) *Instructor certificate or rating*: Use the Instructor ACS as the baseline model for conversion to the ACS structure.

(iii) *Other certificate or rating* (e.g., dispatcher, AMT): To the greatest possible extent, use the pilot certificate ACS as the structural model.

(B) Set up the appropriate worksheet template. (See Appendix P.)

(C) In consultation with appropriate internal stakeholders (e.g., FAA policy divisions) and external stakeholders, develop the ACS document:

(i) *Introduction:*

(a) Use template language to the greatest practicable extent for the actual introduction.

(b) List special emphasis topics to be moved into the Areas of Operation.

(c) Following the appropriate model ACS, list the necessary appendices.

(ii) *Areas of Operation:* Use Areas of Operation in existing PTS as the point of departure to develop each section of the new ACS, bearing in mind that it may be appropriate to split or, in other cases, combine certain Areas of Operation and/or tasks:

(a) *Knowledge*: Ensuring that all aeronautical knowledge topics listed in 14 CFR part 61 are addressed in the appropriate Area(s) of Operation in the ACS, define the knowledge required to support the skill area for the level of airman certificate covered by the target ACS. The ATST WG notes that the calibration of knowledge to a particular airman certificate or rating level is among those activities most likely to benefit from expert stakeholder input. While calibration is unavoidably somewhat subjective, the ATST WG further notes that the use of standardized rubrics and a comprehensive task chart (i.e., a document that displays the required level of performance for each Area or Operation and/or task) would be helpful in this regard.

(b) *Skills*: Except in cases where it is appropriate to separate or combine current (PTS) Area(s) of Operation and/or tasks, integrate the existing skills material into the ACS framework (i.e., modify stems and structure in accordance with standardized ACS formulations).

(c) *Risk Management*: Drawing from the special emphasis topics and sources such as the FAA Risk Management Handbook (FAA-H-8083-2), develop specific, practical, risk management tasks, skills, or behaviors appropriate to each Area of Operation. The goal is to translate concepts into practical actions that enhance safety.

(iii) *Appendices:* Revise PTS introductory material to align with ACS framework for appendices.

(D) Document the transition, to include:

(i) ACS disposition of PTS Areas of Operation and tasks through the tracking matrix template. (See Appendix P.)

(ii) Calibration of standard(s) to level of airman certificate or rating. (See Appendix P.)

(E) Ensure that there is adequate guidance material to support the knowledge, skills, and risk management tasks in each ACS Area of Operation, and list the appropriate references in the space provided on the ACS worksheet template.

(F) Code the tasks in each ACS Areas of Operation in accordance with the scheme described in Section 4.1.3 of this report.

(G) Review: Because comprehensive review of the ACS is critical to achieving the goal of a relevant, safety-oriented, and educationally-sound airman certification system, the QMS process for the ACS element of the airman certification system should include submission of the completed draft for review by:

(i) Internal stakeholders (e.g., FAA policy divisions and/or Offices of Primary Responsibility)

(ii) Expert stakeholders (outside SMEs)

(iii) Public via *Federal Register* with invitation for comment.

2. Guidance

Upon completion of the draft ACS document(s), the ACSWG should:

(A) Review FAA-H-8083-XX series handbooks to ensure that:

(i) Appropriate guidance exists, and that it correlates to the ACS Area(s) of Operation/Task(s)/Element(s).

(a) If guidance does not exist, make a written proposal to add as necessary.

(b) If guidance does not correctly align with the ACS, make a written proposal to amend as appropriate.

(ii) Documents listed in the reference section of the ACS are correct and current.

(B) Review any other document(s) referenced in the ACS (e.g., Advisory Circulars) to ensure that the content is complete, correct, and in alignment with the ACS.

(C) If changes to the ACS require additional references (e.g., changes to the ACS arise from material in a new AC not yet incorporated into the FAA-H-8083-XX series handbooks), list these documents in the appropriate ACS Area(s) of Operation/Task(s)/Element(s).

(D) If changes to the ACS require amendments to FAA internal guidance (e.g., Order 8900.1, Order 8900.2, or ASI/DPE training), list the areas requiring change and propose language to address the issue(s).

3. Test Question Development

Upon completion of the draft ACS document(s), and review of the guidance, the ACSWG should take the following steps with respect to the airman certification system's testing component:

(A) Review test questions for:

- (i) Validity
- (ii) Code (determines whether K, S, or R and type of question required)
- (iii) Public counterpart (i.e., "sample questions")
- (iv) Test map (distribution)

(B) Review the "test map" of suggested test question subject allocation for the relevant certificate or rating to determine the number and nature of questions to be allocated to each topic. *(NOTE: This step provides a system management tool that, used in combination with a review of the ACS, guidance, and statistical analysis of accident data, can help ensure that special emphasis items are adequately represented at the appropriate point(s) in the certification process without displacing other important subjects that should be sampled via the knowledge test.)*

(C) As necessary, draft new test questions, using test question development guidelines (see Appendix J) that align with the relevant ACS and associated guidance.

Examples:

1. What aircraft inspections are required for rental aircraft supplied by a flight school for flight instruction? (P.I.B.K1c.r)
(Reference: 91.409)
A) Annual condition inspection and 50-hour inspection.
B) Annual condition inspection and 100-hour inspection.
C) Biannual condition inspection and 100-hour inspection.

2. Upon encountering severe turbulence, which flight condition should the pilot attempt to maintain?
(Reference: AC 00-6A) (P.I.C.K3g.u) – *Handbook Recommendation*
A) Constant attitude and airspeed.
B) Constant angle of attack.
C) Level flight attitude.

(D) Review the FAA-CT-8080-XX series supplementary testing material to ensure that it is comprehensive and correct, and that it correlates to the relevant ACS and its associated guidance material.

(E) Submit the draft test question to the appropriate ACSWG test question subgroup for “boarding” (review) of content, construction, correctness, correlation to ACS/guidance, and coding.

(F) Add board-approved questions to the test question validation process.

APPENDIX P: JOB AIDS FOR ACS TRANSITION

Appendix P includes sample Job Aids for use in the transition from each Practical Test Standards (PTS) to the applicable Airman Certification Standards (ACS). These tools were used by the ATST WG to construct each ACS document and track changes in the existing PTS and/or applicable guidance document(s).

ACS Transition Job Aids

The following job aids are included in this appendix:

- PVT-COM-ATP IFR ACS Task Comparison Matrix: The Task Comparison Matrix was developed as a tool for the ATST WG to track overlapping tasks across PTS (and subsequently ACS) documents. This tool allowed the members to build the original worksheet and populate overlapping ACS tasks, as well as ensure that overlapping task elements are harmonized and appropriate to the certificate/rating.
- Sample Tracking Matrix Template: The Airline Transport Pilot (ATP) Tracking Matrix is designed to track the tasks in the corresponding PTS (FAA-S-8081-4E, ATP for Airplane, Helicopter, and Powered Lift) during the transition to the ACS. Each complete ACS document will have a related tracking matrix to address any questions that arise during the coordination process and ensure that all relevant and current content is incorporated in the ACS worksheet.
- Sample ACS Worksheet: The ATP ACS Worksheet was built using the content from the original PTS and content from overlapping ACS documents (if applicable) to precede the ATP ACS task template where the new task (including knowledge, skills, and risk management elements) is developed. The template also allows the drafter to add applicable references and recommend Handbook changes. The worksheet data is preserved, and as the document evolves, the current guidance and overlapping guidance is eventually deleted to allow the drafter to finalize the new ACS task in the context of the new ACS document.

NOTE: The PVT-COM-ATP-IFR ACS Task Comparison Matrix, Sample Tracking Matrix Template (ATP), and Sample ACS Worksheet (ATP) are each included as a stand-alone document in the original format used by the ATST WG when the members started converting the ATP PTS to an ACS document.

Private Pilot, Commercial Pilot, Airline Transport Pilot, Instrument Rating
ACS Task Comparison Matrix

PVT Task Ref.	Name of PVT ACS Task	COMM Task Ref.	Name of COMM PTS Task	ATP PTS Task Ref.	Name of ATP PTS Task	IFR Task Ref.	Name of IFR ACS Task
I.A.	Pilot Qualifications	I.A	Pilot Qualifications			I.A.	Pilot Qualifications
I.B.	Airworthiness Requirements	I.B.	Airworthiness Requirements				
I.C.	Weather Information	I.C.	Weather Information			I.B.	Weather Information
I.D.	Cross-Country Flight Planning	I.D.	Cross-Country Flight Planning			I.C.	Cross-Country Flight Planning
I.E.	National Airspace System	I.E.	National Airspace System				
				I.A.	Equipment Examination		
I.F.	Performance and Limitations	I.F.	Performance and Limitations	I.B.	Performance and Limitations		
I.G.	Operation of Systems	I.G.	Operation of Systems				
–	Water and Seaplane Characteristics (ASES) [SEPARATE ACS SECTION]	–	Water and Seaplane Characteristics (ASES) [SEPARATE ACS SECTION]	I.C.	Water and Seaplane Characteristics (ASES)		
–	Seaplane BASES, Maritime Rules, and Aids to Maritime Navigation (ASES) [SEPARATE ACS SECTION]	–	Seaplane BASES, Maritime Rules, and Aids to Maritime Navigation (ASES) [SEPARATE ACS SECTION]	I.D.	Seaplane BASES, Maritime Rules, and Aids to Maritime Navigation (ASES)		
I.H.	Human Factors	I.H.	Human Factors				

PVT Task Ref.	Name of PVT ACS Task	COMM Task Ref.	Name of COMM PTS Task	ATP PTS Task Ref.	Name of ATP PTS Task	IFR Task Ref.	Name of IFR ACS Task
						II.A.	Aircraft Systems Related to IFR Operations
II.A.	Preflight Assessment	II.A.	Preflight Assessment	II.A.	Preflight Inspection (ASEL and ASES)		
						II.B.	Aircraft Flight Instruments and Navigation Equipment
				II.B.	Powerplant Start		
II.B.	Cockpit Management	II.B.	Cockpit Management				
II.C.	Engine Starting	II.C.	Engine Starting				
						II.C.	Instrument Cockpit Check
II.D.	Taxiing	II.D.	Taxiing	II.C.	Taxiing		
–	Taxiing and Sailing (ASES) [SEPARATE ACS SECTION]	–	Taxiing and Sailing (ASES) [SEPARATE ACS SECTION]	II.D.	Sailing (AMES/ASES)		
–	Runway Incursion Avoidance (ASEL and ASES) [COMBINED/ABSORBED]	–	Runway Incursion Avoidance (ASEL and ASES) [COMBINED/ABSORBED]				
II.E.	Before Takeoff Check	II.E.	Before Takeoff Check				
III.A.	Radio Communications and ATC Light Signals	III.A.	Radio Communications and ATC Light Signals				
III.B.	Traffic Patterns	III.B.	Traffic Patterns				
–	Airport/Seaplane Base, Runway, and Taxiway Signs, Markings, and Lighting (ASEL and ASES) [COMBINED/ABSORBED]	–	Airport/Seaplane Base, Runway, and Taxiway Signs, Markings, and Lighting (ASEL and ASES) [COMBINED/ABSORBED]	II.E.	Seaplane Base/Water Landing Site Markings, and Lighting (ASEL and ASES)		
				II.F.	Pre-Takeoff Checks		
						III.A.	Air Traffic Control Clearances

PVT Task Ref.	Name of PVT ACS Task	COMM Task Ref.	Name of COMM PTS Task	ATP PTS Task Ref.	Name of ATP PTS Task	IFR Task Ref.	Name of IFR ACS Task
						III.B.	Compliance with Departure, En Route, and Arrival Procedures and Clearances
IV.A.	Normal Takeoff and Climb	IV.A.	Normal Takeoff and Climb	III.A.	Normal and Crosswind Takeoff (ASEL and ASES)		
IV.B.	Normal Approach and Landing	IV.B.	Normal Approach and Landing	VI.A.*	Normal and Crosswind Approaches and Landings		
IV.C.	Soft-Field Takeoff and Climb	IV.C.	Soft-Field Takeoff and Climb				
IV.D.	Soft-Field Approach and Landing	IV.D.	Soft-Field Approach and Landing				
IV.E.	Short-Field Takeoff and Maximum Performance Climb	IV.E.	Short-Field Takeoff and Maximum Performance Climb				
IV.F.	Short-Field Approach and Landing	IV.F.	Short-Field Approach and Landing				
–	Glassy Water Takeoff and Climb (ASES) [SEPARATE ACS SECTION]	–	Glassy Water Takeoff and Climb (ASES) [SEPARATE ACS SECTION]	III.B.	Glassy Water Takeoff and Climb (AMES/ASES)		
–	Glassy Water Approach and Landing (ASES) [SEPARATE ACS SECTION]	–	Glassy Water Approach and Landing (ASES) [SEPARATE ACS SECTION]	VI.F.*	Glassy Water Approach and Landing (AMES/ASES)		
–	Rough Water Takeoff and Climb (ASES) [SEPARATE ACS SECTION]	–	Rough Water Takeoff and Climb (ASES) [SEPARATE ACS SECTION]	III.C.	Rough Water Takeoff and Climb (AMES/ASES)		
				III.D.	Confined-Area Takeoff and Climb (AMES/ASES)		

PVT Task Ref.	Name of PVT ACS Task	COMM Task Ref.	Name of COMM PTS Task	ATP PTS Task Ref.	Name of ATP PTS Task	IFR Task Ref.	Name of IFR ACS Task
				III.E.	Instrument Takeoff		
				III.F.	Powerplant Failure during Takeoff		
				III.G.	Rejected Takeoff		
				III.H.	Departure Procedures		
–	Rough Water Approach and Landing (ASES) [SEPARATE ACS SECTION]	–	Rough Water Approach and Landing (ASES) [SEPARATE ACS SECTION]	VI.E.*	Rough Water Approach and Landing (AMES/ASES)		
IV.G.	Forward Slip to Landing						
		–	Power-Off 180° Accuracy Approach and Landing (ASEL and ASES) [COMBINED/ABSORBED]				
IV.H.	Go-Around/Rejected Landing	IV.G.	Go-Around/Rejected Landing				
V.A.	Steep Turns	V.A.	Steep Turns	IV.A.	Steep Turns		
				IV.B.	Approaches to Stalls and Stall Recovery		
				IV.C.	Powerplant Failure - Multiengine Airplane		
				IV.D.	Powerplant Failure - Single-Engine Airplane		
				IV.E.	Specific Flight Characteristics		
						IV.A.	Basic Instrument Flight Maneuvers (IA, IH, PL, AA, HA, PLA, PC)
				IV.F.	Recovery from Unusual Attitudes	IV.B.*	Recovery from Unusual Attitudes
				V.A.	Standard Terminal Arrival/Flight Management System Procedures		

PVT Task Ref.	Name of PVT ACS Task	COMM Task Ref.	Name of COMM PTS Task	ATP PTS Task Ref.	Name of ATP PTS Task	IFR Task Ref.	Name of IFR ACS Task
				V.B.	Holding	III.C.*	Holding Procedures
						V.A.	Intercepting and Tracking Navigational Systems and DME Arcs
				V.C.	Precision Approaches (PA)	VI.B.*	Precision Approaches (PA)
				V.D.	Nonprecision Approaches (NPA)	VI.A.	Nonprecision Approaches (NPA)
				V.E.	Circling Approach	VI.D.*	Circling Approach
				V.F.	Missed Approach	VI.C.	Missed Approach
				VI.B.	Landing from a Precision Approach		
				VI.C.	Approach and Landing with (Simulated) Powerplant Failure - Multiengine Airplane		
				VI.D.	Landing from a Circling Approach	VI.E.	Landing From a Straight-In or Circling Approach
				VI.G.	Confined-Area Approach and Landing (AMES/ASES)		
				VI.H.	Rejected Landing		
				VI.I.	Landing from a No Flap or a Nonstandard Flap Approach		
				VII.A.	Normal and Abnormal Procedures		
						VII.A.	Loss of Communications
						VII.B.	One Engine Inoperative During Straight-and-Level Flight and Turns (Multiengine Airplane)

PVT Task Ref.	Name of PVT ACS Task	COMM Task Ref.	Name of COMM PTS Task	ATP PTS Task Ref.	Name of ATP PTS Task	IFR Task Ref.	Name of IFR ACS Task
						VII.C.	One Engine Inoperative -- Instrument Approach (Multiengine Airplane)
						VII.D.	Approach with Loss of Primary Flight Instrument Indicators
						VIII.A.	Checking Instruments and Equipment
		–	Steep Spirals (ASEL and ASES) [COMBINED/ABSORBED]				
		V.B.	Chandelles				
		V.C.	Lazy Eights				
		VI.A.	Eights on Pylons				
V.B.	Ground Reference Maneuvers [NEW TASK]						
–	Rectangular Course [COMBINED/ABSORBED]						
–	S-Turns [COMBINED/ABSORBED]						
–	Turns Around a Point [COMBINED/ABSORBED]						
VI.A.	Pilotage and Dead Reckoning	VII.A.	Pilotage and Dead Reckoning				
VI.B.	Navigation Systems and Radar Services	VII.B.	Navigation Systems and Radar Services				
VI.C.	Diversion	VII.C.	Diversion				
VI.D.	Lost Procedures	VII.D.	Lost Procedures				
VII.A.	Maneuvering During Slow Flight	VIII.A.	Maneuvering During Slow Flight				

PVT Task Ref.	Name of PVT ACS Task	COMM Task Ref.	Name of COMM PTS Task	ATP PTS Task Ref.	Name of ATP PTS Task	IFR Task Ref.	Name of IFR ACS Task
VII.B.	Power-Off Stalls	VIII.B.	Power-Off Stalls				
VII.C.	Power-On Stalls	VIII.C.	Power-On Stalls				
		VIII. D.	Accelerated Stalls				
VII.D.	Spin Awareness	VIII.E.	Spin Awareness				
–	Straight-and-Level Flight [COMBINED/ABSORBED]						
–	Constant Airspeed Climbs [COMBINED/ABSORBED]						
–	Constant Airspeed Descents [COMBINED/ABSORBED]						
–	Turns to Headings [COMBINED/ABSORBED]						
–	Recovery from Unusual Flight Attitudes [COMBINED/ABSORBED]						
–	Radio Communications, Navigation Systems/Facilities, and Radar Services [COMBINED/ABSORBED]						
VIII.A.	Inadvertent IMC [NEW TASK]						
–	Emergency Descent (ASEL and ASES) [COMBINED/ABSORBED]	–	Emergency Descent (ASEL and ASES) [COMBINED/ABSORBED]	VIII.A.**	Emergency Procedures		
VIII.B.	Emergency Approach and Lading (Simulated)	IX.A.	Emergency Approach and Landing (Simulated)	VIII.A.**	Emergency Procedures		
VIII.C.	Systems and Equipment Malfunctions	IX.B.	Systems and Equipment Malfunctions	VIII.A.**	Emergency Procedures		

PVT Task Ref.	Name of PVT ACS Task	COMM Task Ref.	Name of COMM PTS Task	ATP PTS Task Ref.	Name of ATP PTS Task	IFR Task Ref.	Name of IFR ACS Task
VIII.D.	Emergency Equipment and Survival Gear	IX.C.	Emergency Equipment and Survival Gear	VIII.A.**	Emergency Procedures		
		X.A.	Supplemental Oxygen				
		X.B.	Pressurization				
IX.A.	Night Preparation						
X.A.	After Landing, Parking, and Securing	XI.A.	After Landing, Parking, and Securing	IX.A. and IX.F.***	After-landing Procedures and Parking and Securing		
–	Anchoring (ASES) [SEPARATE ACS SECTION]	–	Anchoring (ASES) [SEPARATE ACS SECTION]	IX.B.	Anchoring (AMES/ASES)		
–	Docking and Mooring (ASES) [SEPARATE ACS SECTION]	–	Docking and Mooring (ASES) [SEPARATE ACS SECTION]	IX.C.	Docking and Mooring (AMES/ASES)		
–	Ramping/Beaching (ASES) [SEPARATE ACS SECTION]	–	Ramping/Beaching (ASES) [SEPARATE ACS SECTION]	IX.D and IX.E.***	Beaching (AMES/ASES) and Ramping (AMES/ASES)		

PVT -COMM-IFR Overlap
PVT-COMM-ATP Overlap
PVT-COMM Overlap
IFR-ATP Overlap

* NOTE: Tasks within ATP PTS Areas of Operation & IFR ACS Areas of Operation may be slightly out of numerical order in order to align tasks with other ACS documents.
** NOTE: Single Emergency Procedures Task in ATP PTS - task repeated in Tracking Matrix to align with other ACS documents.
*** NOTE: Tasks are separated in ATP PTS - Combined in Tracking Matrix to align tasks with other ACS documents.

FAA-S-8081-4E, ATP for Airplane, Helicopter, and Powered Lift Change Tracking Matrix				
PTS Task Reference	**Name of PTS Task**	**ACS Task Reference**	**Name of ACS Task**	**Notes**
I.A.	Equipment Examination			
I.B.	Performance and Limitations			
I.C.	Water and Seaplane Characteristics (AMES/ASES)			
I.D.	Seaplane Bases, Maritime Rules, and Aids to Marine Navigation (AMES/ASES)			
II.A.	Preflight Inspection			
II.B.	Powerplant Start			
II.C.	Taxiing			
II.D.	Sailing (AMES/ASES)			
II.E.	Seaplane Base/Water Landing Site Markings and Lighting (AMES/ASES)			
II.F.	Pre-Takeoff Checks			
III.A.	Normal and Crosswind Takeoff			
III.B.	Glassy Water Takeoff and Climb (AMES/ASES)			
III.C.	Rough Water Takeoff and Climb (AMES/ASES)			
III.D.	Confined Area Takeoff and Climb (AMES/ASES)			
III.E	Instrument Takeoff			
III.F.	Powerplant Failure during Takeoff			
III.G.	Rejected Takeoff			

PTS Task Reference	Name of PTS Task	ACS Task Reference	Name of ACS Task	Notes
III.H	Departure Procedures			
IV.A.	Steep Turns			
IV.B.	Approaches to Stalls and Stall Recovery			
IV.C.	Powerplant Failure – Multiengine Airplane			
IV.D.	Powerplant Failure – Single-Engine Airplane			
IV.E.	Specific Flight Characteristics			
IV.F.	Recovery from Unusual Attitudes			
V.A.	Standard Terminal Arrival/Flight Management System Procedures			
V.B.	Holding			
V.C.	Precision Approaches (PA)			
V.D.	Nonprecision Approaches (NPA)			
V.E.	Circling Approach			
V.F.	Missed Approach			
VI.A.	Normal and Crosswind Approaches and Landings			
VI.B.	Landings from a Precision Approach			
VI.C.	Approach and Landing with (Simulated) Powerplant Failure—Multiengine Airplane			
VI.D.	Landing From a Circling Approach			
VI.E.	Rough Water Approach and Landing (AMES/ASES)			
VI.F.	Glassy Water Approach And Landing (AMES/ASES)			

PTS Task Reference	Name of PTS Task	ACS Task Reference	Name of ACS Task	Notes
VI.G.	Confined-Area Approach and Landing (AMES/ASES)			
VI.H.	Rejected Landing			
VI.I.	Landing from a No Flap or a Nonstandard Flap Approach			
VII.A.	Normal and Abnormal Procedures			
VIII.A.	Emergency Procedures			
IX.A.	After-Landing Procedures			
IX.B.	Anchoring			
IX.C.	Docking and Mooring (AMES/ASES)			
IX.D.	Beaching (AMES/ASES)			
IX.E.	Ramping (AMES/ASES)			
IX.F.	Parking and Securing			

Current ATP PTS

TASK: I. A. Equipment Examination

REFERENCES: AC 20-29, AC 20-117, AC 91-43, AC 91-51, AC 91-74, AC 120-60, AC 135-17, 14 CFR part 61; POH; AFM.

Objective: To determine that the applicant:

1. Exhibits satisfactory knowledge appropriate to the airplane; its systems and components; its normal, abnormal, and emergency procedures; and uses the correct terminology with regard to the following items—
   a. landing gear—extension/retraction system(s); indicators, float devices, brakes, antiskid, tires, nose-wheel steering, and shock absorbers.
   b. powerplant—controls and indications, induction system, carburetor and fuel injection, turbocharging, cooling, fire detection/protection, mounting points, turbine wheels, compressors, deicing, anti-icing, and other related components.
   c. propellers—type, controls, feathering/unfeathering, auto- feather, negative torque sensing, synchronizing, and synchrophasing.
   d. fuel system—capacity; drains; pumps; controls; indicators; cross-feeding; transferring; jettison; fuel grade, color and additives; fueling and defueling procedures; and fuel substitutions, if applicable.
   e. oil system—capacity, grade, quantities, and indicators.
   f. hydraulic system—capacity, pumps, pressure, reservoirs, grade, and regulators.
   g. electrical system—alternators, generators, battery, circuit breakers and protection devices, controls, indicators, and external and auxiliary power sources and ratings.
   h. environmental systems—heating, cooling, ventilation, oxygen and pressurization, controls, indicators, and regulating devices.
   i. avionics and communications—autopilot; flight director; Electronic Flight Instrument Systems (EFIS); Flight Management System(s) (FMS); Doppler Radar; Inertial Navigation Systems (INS); Global Positioning System/ Wide Area Augmentation System/Local Area Augmentation System (GPS/WAAS/LAAS); VOR, NDB, ILS, GLS, RNAV systems and components; traffic (MLS deleted) awareness/warning/avoidance systems, terrain awareness/warning/alert systems; other avionics or communications equipment, as appropriate; indicating devices; transponder; and emergency locator transmitter.
   j. ice protection—anti-ice, deice, pitot-static system protection, propeller, windshield, wing and tail surfaces.
   k. crewmember and passenger equipment—oxygen system, survival gear, emergency exits, evacuation procedures and crew duties, and quick donning oxygen mask for crewmembers and passengers.
   l. flight controls—ailerons, elevator(s), rudder(s), control tabs, balance tabs, stabilizer, flaps, spoilers, leading edge flaps/slats and trim systems.
   m. pitot-static system with associated instruments and the power source for the flight instruments.
2. Exhibits satisfactory knowledge of the contents of the POH or AFM with regard to the systems and components listed in paragraph 1 (above); the Minimum Equipment List (MEL) and/or configuration deviation list (CDL), if appropriate; and the operations specifications, if applicable.

Recommended ATP ACS Guidance

Area of Operation	**Preflight Preparation**
Task	***Equipment Examination***
Reference	
Airman Test Report	Pending
Objective	
Knowledge	The applicant demonstrates understanding of: 1.
Skills	The applicant demonstrates the ability to: 1.
Risk Management	The applicant applies risk identification, assessment, and mitigation principles to: 1.
Rationale for Changes	

Area of Operation	**Preflight Preparation**
Task	***Equipment Examination***
Sample Questions	
Recommendation for Handbook Revisions	

Current ATP PTS

TASK: I. B. Performance and Limitations

REFERENCE: 14 CFR parts 1, 61, 91; AFD; POH; AFM; AIM; AC 20-117, AC 91-51, AC 91-74, AC 91-79, AC 120-27; AC 120-60, AC 135-17 FAA-H-8083-1, FAA-H-8083-3, FAA-H-8083-23, FAA-H-8083-25.

Objective. To determine that the applicant:

1. Exhibits satisfactory knowledge of performance and limitations, including a thorough knowledge of the adverse effects of exceeding any limitation.
2. Demonstrates proficient use of (as appropriate to the airplane) performance charts, tables, graphs, or other data relating to items, such as—
   a. Departure airport, taxiway, and runway NOTAMs, runway usable lengths, HOT Spots, taxi restrictions, specific taxi procedures, as applicable, and signage/markings
   b. accelerate-stop distance.
   c. accelerate-go distance.
   d. takeoff performance—all engines and with engine(s) inoperative.
   e. climb performance including segmented climb performance with all engines operating—with one or more engine(s) inoperative, and with other engine malfunctions as may be appropriate.
   f. service ceiling—all engines, with engines(s) inoperative, including drift down, if appropriate.
   g. cruise performance.
   h. fuel consumption, range, and endurance.
   i. descent performance.
   j. Arrival airport, taxiway, and runway NOTAMs, runway usable lengths, HOT Spots, tax restrictions, specific tax procedures as applicable, and signage/markings.
   k. landing distance.
   l. land and hold short operations (LAHSO).
   m. go-around from rejected landings (landing climb).
   n. other performance data (appropriate to the airplane).
3. Describes (as appropriate to the airplane) the airspeeds used during specific phases of flight.
4. Describes the effects of meteorological conditions upon performance characteristics and correctly applies these factors to a specific chart, table, graph, or other performance data.
5. Computes the center-of-gravity location for a specific load condition (as specified by the examiner), including adding, removing, or shifting weight.
6. Determines if the computed center-of-gravity is within the forward and aft center-of-gravity limits, and that lateral fuel balance is within limits for takeoff and landing.
7. Demonstrates adequate knowledge of the adverse effects of airframe icing during pre-takeoff, takeoff, cruise and landing phases of flight and corrective actions.
8. Demonstrates adequate knowledge of procedures for wing contamination recognition and adverse effects of airframe icing during pre-takeoff, takeoff, cruise, and landing phases of flight. (Pilots applying for an aircraft type rating should have adequate knowledge of icing procedures and/or available information published by the manufacturer that is specific to that type of aircraft.)
9. Demonstrates good planning and knowledge of procedures in applying operational factors affecting airplane performance.
10. Demonstrates knowledge of the stabilized approach procedures and the decision criteria for go-around or rejected landings.

COMM Recommended ACS Guidance

Area of Operation	**I. Preflight Preparation**
Task	**F. *Performance and Limitations***
Objective	To determine the applicant exhibits satisfactory knowledge, skills and risk management associated with operating an aircraft safely within the parameters of the aircraft performance capabilities and limitations.
Knowledge	The applicant demonstrates understanding of: 1. Elements related to performance and limitations (takeoff and landing, crosswind and headwind, density altitude, glide performance, weight and balance, climb, cruise, descent) by explaining the use of charts, tables, and data to determine performance. 2. Factors affecting performance to include atmospheric conditions, pilot technique and aircraft condition, airport environment. 3. Effects of loading on performance 4. Effects of exceeding weight and balance limits. 5. Effects of weight and balance changes over the course of the flight. 6. Aerodynamics.

Area of Operation	**I. Preflight Preparation**
Task	**F. *Performance and Limitations***
Skills	The applicant demonstrates the ability to: 1. Given scenario, compute weight and balance, including practical techniques to resolve out-of-limits calculations. 2. Use aircraft manufacturer's approved performance charts, tables, and data to determine takeoff, climb, cruise, fuel consumption, descent and landing performance. 3. Evaluate takeoff and landing performance based on the values calculated. 4. Evaluate environmental conditions.
Risk Management	The applicant applies risk identification, assessment, and mitigation principles to: 1. Performance charts. 2. Exceeding limitations. 3. Variations in flight performance resulting in weight and balance changes during flight. 4. Applying published aircraft performance data to expected performance.
Rationale for Changes	Removed (ASEL and ASES) from name of task & removed AC 61-84 (obsolete) from Reference.

Recommended ATP ACS Guidance

Area of Operation	**Preflight Preparation**
Task	***Performance and Limitations***
Reference	
Airman Test Report	Pending
Objective	
Knowledge	The applicant demonstrates understanding of: 1.
Skills	The applicant demonstrates the ability to: 1.
Risk Management	The applicant applies risk identification, assessment, and mitigation principles to: 1.
Rationale for Changes	
Sample Questions	
Recommendation for Handbook Revisions	

Current ATP PTS

TASK: I. C. Water and Seaplane Characteristics (AMES/ASES)

REFERENCE: 14 CFR part 61; FAA-H-8083-3, FAA-H-8083-23.

Objective. To determine that the applicant exhibits knowledge of the elements related to water and seaplane characteristics by explaining:

1. The characteristics of a water surface as affected by features, such as—
   a. size and location
   b. direction and strength of the water current
   c. presence of floating and partially submerged debris.
   d. protected and unprotected areas
   e. effect of surface wind and method of determining its force
   f. operating near sandbars, islands, and shoals
   g. other pertinent characteristics deemed important by the examiner
2. Float and hull construction and their effect on seaplane/flying boat performance.
3. Causes of porpoising and skipping, and pilot action to prevent or correct these occurrences.

Recommended ATP ACS Guidance

Area of Operation	**Preflight Preparation**
Task	***Water and Seaplane Characteristics***
Reference	
Airman Test Report	Pending
Objective	
Knowledge	The applicant demonstrates understanding of: 1.
Skills	The applicant demonstrates the ability to: 1.
Risk Management	The applicant applies risk identification, assessment, and mitigation principles to: 1.
Rationale for Changes	
Sample Questions	
Recommendation for Handbook Revisions	

Current ATP PTS

TASK: I. D. Seaplane Bases, Maritime Rules, and Aids to Marine Navigation (AMES/ASES)

REFERENCE: AIM; FAA-H-8083-3, FAA-H-8083-23.

Objective. To determine that the applicant exhibits satisfactory knowledge of the elements related to seaplane bases, maritime rules, and aids to marine navigation by explaining:

1. How to identify and locate seaplane bases on charts or in directories.
2. Operating restrictions at seaplane bases.
3. Right-of-way, steering, and sailing rules pertinent to seaplane operation.
4. Purpose and identification of marine navigation aids, such as buoys, beacons, lights, and range markers.
5. Naval Vessel Protection Zones.
6. No Wake Zones.

Recommended ATP ACS Guidance

Area of Operation	**Preflight Preparation**
Task	***Seaplane Bases, Maritime Rules, and Aids to Marine Navigation***
Reference	
Airman Test Report	Pending
Objective	
Knowledge	The applicant demonstrates understanding of: 1.
Skills	The applicant demonstrates the ability to: 1.
Risk Management	The applicant applies risk identification, assessment, and mitigation principles to: 1.
Rationale for Changes	
Sample Questions	
Recommendation for Handbook Revisions	

Current ATP PTS

TASK: II. A. Preflight Inspection

REFERENCE: 14 CFR parts 61, 91; POH/AFM; AC 20-29, AC 20-117, AC 61-84, AC 91-43, AC-51, AC 91-74, AC 120-27, AC 120-60, AC 135-17.

NOTE: If a flight engineer (FE) is a required crewmember for a particular type airplane, the actual visual inspection may be waived. The actual visual inspection may be replaced by using an approved pictorial means that realistically portrays the location and detail of inspection items. On airplanes requiring an FE, an applicant must demonstrate satisfactory knowledge of the FE functions for the safe completion of the flight if the FE becomes ill or incapacitated during a flight.

Objective. To determine that the applicant:

1. Exhibits satisfactory knowledge of the preflight inspection procedures, while explaining briefly—
   a. the purpose of inspecting the items which must be checked.
   b. how to detect possible defects.
   c. the corrective action to take.
2. Exhibits satisfactory knowledge of the operational status of the airplane by locating and explaining the significance and importance of related documents, such as—
   a. airworthiness and registration certificates.
   b. operating limitations, handbooks, and manuals.
   c. minimum equipment list (MEL), if appropriate.
   d. weight and balance data.
   e. maintenance requirements, tests, and appropriate records applicable to the proposed flight or operation; and maintenance that may be performed by the pilot or other designated crewmember.
3. Uses the appropriate checklist or coordinates with crew to ensure completion of checklist items in a timely manner and as recommended by the manufacturer or approved method to inspect the airplane externally and internally.
4. Verifies the airplane is safe for flight by emphasizing (as appropriate) the need to look at and explain the purpose of inspecting items, such as—
   a. powerplant, including controls and indicators.
   b. fuel quantity, grade, type, contamination safeguards, and servicing procedures.
   c. oil quantity, grade, and type. d. hydraulic fluid quantity, grade, type, and servicing procedures.
   e. oxygen quantity, pressures, servicing procedures, and associated systems and equipment for crew and passengers.
   f. hull, landing gear, float devices, brakes, steering system, winglets, and canards.
   g. tires for condition, inflation, and correct mounting, where applicable.
   h. fire protection/detection systems for proper operation, servicing, pressures, and discharge indications.
   i. pneumatic system pressures and servicing.
   j. ground environmental systems for proper servicing and operation.
   k. auxiliary power unit (APU) for servicing and operation.
   l. flight control systems including trim, spoilers, and leading/trailing edge.
   m. anti-ice, deice systems, servicing, and operation.
   n. installed and auxiliary aircraft security equipment, as appropriate.
5. Coordinates with ground crew and ensures adequate clearance prior to moving any devices, such as door, hatches, and flight control surfaces.
6. Complies with the provisions of the appropriate operations specifications, if applicable, as they pertain to the particular airplane and operation.
7. Demonstrates proper operation of all applicable airplane systems.
8. Notes any discrepancies, determines if the airplane is airworthy and safe for flight, or takes the proper corrective action, and acknowledges limitations imposed by MEL/CDL items.
9. Checks the general area around the airplane for hazards to the safety of the airplane and personnel.
10. Ensures that the airplane and surfaces are free of ice, snow, and has satisfactory knowledge of deicing procedures, if icing conditions were present or ice was found.

COMM Recommended ACS Guidance

Area of Operation	**II. Preflight Procedures**
Task	**A. *Preflight Assessment***
Objective	To determine the applicant exhibits satisfactory knowledge, skills and risk management associated with preparing for safe flight accounting for pilot, aircraft, environment, and external factors.

Area of Operation	**II. Preflight Procedures**
Task	**A. *Preflight Assessment***
Knowledge	The applicant demonstrates understanding of: 1. Pilot self-assessment. 2. Determining an appropriate aircraft for the mission by considering sufficient load, range, equipment, and altitude capability. 3. Aircraft preflight inspection including which items must be inspected, the reasons for checking each item, and how to detect possible defects, and the associated regulations. 4. Environmental factors including weather and flight plan (terrain, route selection, obstructions). 5. External pressures.
Skills	The applicant demonstrates the ability to: 1. Use checklist to systematically identify and manage pilot-related risks and personal minimums associated with the flight. 2. Inspect the airplane with reference to an appropriate checklist. 3. Verify the airplane is airworthy and in condition for safe flight. 4. Assess the factors related to the environment (weather, airports, terrain, airspace).
Risk Management	The applicant applies risk identification, assessment, and mitigation principles to: 1. Environmental factors. 2. External pressures. 3. Aviation security concerns.
Rationale for Changes	Remove (ASEL and ASES) from name of task & change name of task to *Preflight Assessment* to capture risk management aspect of preflight planning.

Recommended ATP ACS Guidance

Area of Operation	**Preflight Preparation**
Task	***Preflight Assessment***
Reference	
Airman Test Report	Pending
Objective	
Knowledge	The applicant demonstrates understanding of: 1.
Skills	The applicant demonstrates the ability to: 1.
Risk Management	The applicant applies risk identification, assessment, and mitigation principles to: 1.
Rationale for Changes	

Area of Operation	**Preflight Preparation**
Task	***Preflight Assessment***
Sample Questions	
Recommendation for Handbook Revisions	

Current ATP PTS

TASK: II. B. Powerplant Start

REFERENCE: 14 CFR part 61; POH/AFM

Objective. To determine that the applicant:

1. Exhibits adequate knowledge of the correct powerplant start procedures including the use of an auxiliary power unit (APU) or external power source, starting under various atmospheric conditions, normal and abnormal starting limitations, and the proper action required in the event of a malfunction.
2. Ensures the ground safety procedures are followed during the before-start, start, and after-start phases.
3. Ensures the use of appropriate ground crew personnel during the start procedures.
4. Performs all items of the start procedures by systematically following the approved checklist procedure in a timely manner and as recommended by the manufacturer for the before-start, start, and after-start phases.
5. Demonstrates sound judgment and operating practices in those instances where specific instructions or checklist items are not published.

Recommended ATP ACS Guidance

Area of Operation	**Preflight Procedures**
Task	***Powerplant Start***
Reference	
Airman Test Report	Pending
Objective	
Knowledge	The applicant demonstrates understanding of: 1.
Skills	The applicant demonstrates the ability to: 1.
Risk Management	The applicant applies risk identification, assessment, and mitigation principles to: 1.
Rationale for Changes	
Sample Questions	
Recommendation for Handbook Revisions	

Current ATP PTS

TASK: II. C. Taxiing

REFERENCE: 14 CFR part 61; POH/AFM; AC 91-73, AC 120-57, AC 120-74

Objective. To determine that the applicant:

1. Exhibits adequate knowledge of safe taxi procedures (as appropriate to the airplane including push-back or powerback, as may be applicable).
2. Demonstrating and explaining procedures for holding the pilot's workload to a minimum during taxi operations .
3. Exhibiting taxi operation planning procedures, such as recording taxi instructions, reading back taxi clearances, and reviewing taxi routes on the airport diagram.
4. Demonstrating procedures to insure that clearance or instructions that are actually received are adhered to rather than the ones expected to be received.
5. Know, explain and discuss the hazards of low visibility operations.
6. Demonstrates proficiency by maintaining correct and positive airplane control. In airplanes equipped with float devices, this includes water taxiing, sailing, step taxiing, approaching a buoy, and docking.
7. Maintains proper spacing on other aircraft, obstructions, and persons.
8. Accomplishes the applicable checklist items or ensures all required checks as required by the appropriate checklist items are accomplished in a timely manner and as recommended by the manufacturer, and performs recommended procedures.
9. Maintains desired track and speed.
10. Complies with instructions issued by ATC (or the examiner simulating ATC).
11. Observes runway hold lines, localizer and glide slope critical areas, buoys, beacons, and other surface control and lighting.
12. Maintains constant vigilance and airplane control during taxi operation to prevent runway/waterway incursion.
13. Demonstrating and/or explaining procedural differences for night operations.
14. Demonstrating and explaining the use(s) of aircraft exterior lighting and differences for day and night operations.

COMM Recommended ACS Guidance

Area of Operation	**II. Preflight Procedures**
Task	**D. *Taxiing***
Objective	To determine the applicant exhibits satisfactory knowledge, skills and risk management associated with safe taxi operations, including runway incursion avoidance.
Knowledge	The applicant demonstrates understanding of: 1. Positioning aircraft controls for wind. 2. Airport markings (including hold short lines), signs, and lights. 3. Aircraft lighting. 4. Towered and non-towered airport operations. 5. Visual indicators for wind. 6. Airport information resources (A/FD, airport diagram). 7. Good cockpit discipline during taxi, including maintaining a sterile cockpit, proper speed, separation between other aircraft and vehicles, communication procedures. 8. Procedures for appropriate cockpit activities during taxiing including taxi route planning, briefing the location of HOT SPOTS, communicating and coordinating with ATC. 9. Rules for entering or crossing runways. 10. Procedures unique to night operations. 11. Hazards of low visibility operations.
Skills	The applicant demonstrates the ability to: 1. Perform a brake check immediately after the airplane begins moving. 2. Position the flight controls properly for the existing wind conditions. 3. Control direction and speed without excessive use of brakes. 4. Exhibit procedures for steering, maneuvering, maintaining taxiway, runway position, and situational awareness to avoid runway incursions. 5. Exhibit proper positioning of the aircraft relative to hold lines. 6. Exhibit procedures to ensure clearances/instructions are received, recorded, and read back correctly. 7. Exhibit situational awareness and taxi procedures in the event the aircraft is on a taxiway that is between parallel runways. 8. Use a taxi chart during taxi. 9. Comply with airport/taxiway markings, signals, ATC clearances and instructions. 10. Utilize procedures for eliminating pilot distractions to avoid other aircraft or vehicles and hazards.

Area of Operation	II. Preflight Procedures
Task	D. *Taxiing*
Risk Management	The applicant applies risk identification, assessment, and mitigation principles to: 1. Distractions during aircraft taxi. 2. Proper workload management. 3. Confirmation or expectation bias. 4. Recording taxi instructions/clearances 5. Resource management.
Rationale for Changes	Removed (ASEL) from name of task & absorbed Runway Markings, Signs and Lighting (Task III.C.) and Runway Incursion Avoidance (Task II.F.). Added A/FD, FAA-H-8083-25, AC 91-73, AC 150-5340-18 to References.

Recommended ATP ACS Guidance

Area of Operation	Preflight Procedures
Task	*Taxiing*
Reference	
Airman Test Report	Pending
Objective	
Knowledge	The applicant demonstrates understanding of: 1.
Skills	The applicant demonstrates the ability to: 1.
Risk Management	The applicant applies risk identification, assessment, and mitigation principles to: 1.
Rationale for Changes	
Sample Questions	
Recommendation for Handbook Revisions	

Current ATP PTS

TASK: II. D. Sailing (AMES/ASES)

REFERENCE: POH/AFM; AIM; FAA-H-8083-3, FAA-H-8083-23.

Objective. To determine that the applicant:

1. Exhibits knowledge of the elements related to sailing by explaining the techniques used in this procedure.
2. Recognizes the circumstance when sailing should be used.
3. Plans and follows the most favorable course considering wind, water current, obstructions, debris, and other vessels.
4. Uses flight controls, flaps, doors, and water rudders, as appropriate, to follow the desired course.

Recommended ATP ACS Guidance

Area of Operation	**Preflight Procedures**
Task	***Sailing***
Reference	
Airman Test Report	Pending
Objective	
Knowledge	The applicant demonstrates understanding of: 1.
Skills	The applicant demonstrates the ability to: 1.
Risk Management	The applicant applies risk identification, assessment, and mitigation principles to: 1.
Rationale for Changes	
Sample Questions	
Recommendation for Handbook Revisions	

Current ATP PTS

TASK: II. E. Seaplane Base/Water Landing Site Markings and Lighting (AMES/ASES) REFERENCE: AIM; FAA-H-8083-3, FAA-H-8083-23 Objective. To determine that the applicant: 1. Exhibits knowledge of the elements related to seaplane base/water landing site markings and lighting. 2. Identifies and interprets seaplane base/water landing site markings and lighting.

Recommended ATP ACS Guidance

Area of Operation	**Preflight Procedures**
Task	***Seaplane Base/Water Landing Site Markings and Lighting (AMES, ASES)***
Reference	
Airman Test Report	Pending
Objective	
Knowledge	The applicant demonstrates understanding of: 1.
Skills	The applicant demonstrates the ability to: 1.
Risk Management	The applicant applies risk identification, assessment, and mitigation principles to: 1.
Rationale for Changes	
Sample Questions	
Recommendation for Handbook Revisions	

Current ATP PTS

TASK: II. F. Pre-Takeoff Checks

REFERENCE: 14 CFR part 61; POH/AFM; AC 91-74, AC 120-60, AC 120-117.

Objective. To determine that the applicant:

1. Exhibits satisfactory knowledge of the pre-takeoff checks by stating the reason for checking the items outlined on the approved checklist and explaining how to detect possible malfunctions.
2. Divides attention properly inside and outside cockpit.
3. Ensures that all systems are within their normal operating range prior to beginning, during the performance of, and at the completion of those checks required by the approved checklist.
4. Explains, as may be requested by the examiner, any normal or abnormal system-operating characteristic or limitation; and the corrective action for a specific malfunction.
5. Determines if the airplane is safe for the proposed flight or requires maintenance.
6. Determines the airplane's takeoff performance, considering such factors as wind, density altitude, weight, temperature, pressure altitude, and runway/waterway condition and length.
7. Determines airspeeds/V-speeds and properly sets all instrument references, configures flight director and autopilot controls, and navigation and communications equipment to properly fly the aircraft in accordance with the ATC clearance.
8. Reviews procedures for emergency and abnormal situations, which may be encountered during takeoff, and states the corrective action required of the pilot in command and other concerned crewmembers.
9. Obtains and correctly interprets the takeoff and departure clearance as issued by ATC.

Recommended ATP ACS Guidance

Area of Operation	**Preflight Procedures**
Task	***Pre-Takeoff Checks***
Reference	
Airman Test Report	Pending
Objective	
Knowledge	The applicant demonstrates understanding of: 1.
Skills	The applicant demonstrates the ability to: 1.
Risk Management	The applicant applies risk identification, assessment, and mitigation principles to: 1.
Rationale for Changes	
Sample Questions	
Recommendation for Handbook Revisions	

Current ATP PTS

TASK: III. A. Normal and Crosswind Takeoff

REFERENCE: 14 CFR part 61; POH/AFM; FAA-H-8083-3; AC 20-117, AC 91-54, AC 91-74.

NOTE: VMC maneuver

Objective. To determine that the applicant:

1. Exhibits knowledge of normal and crosswind takeoffs and climbs including (as appropriate to the airplane) airspeeds, configurations, and emergency/abnormal procedures.
2. Notes any surface conditions, obstructions, aircraft cleared for LAHSO, or other hazards that might hinder a safe takeoff.
3. Verifies and correctly applies correction for the existing wind component to the takeoff performance.
4. Coordinates with crew (if crew served airplane) to ensure completion or completes required checks prior to starting takeoff to verify the expected powerplant performance. Performs or ensures all required pre-takeoff checks as required by the appropriate checklist items are accomplished in a timely manner and as recommended by the manufacturer.
5. Aligns the airplane on the runway centerline or clear of obstacles and vessels on waterways as appropriate.
6. Applies the controls correctly to maintain longitudinal alignment on the centerline of the runway, if appropriate, prior to initiating and during the takeoff.
7. Adjusts the powerplant controls as recommended by the FAA-approved guidance for the existing conditions.
8. Monitors powerplant controls, settings, and instruments during takeoff to ensure all predetermined parameters are maintained.
9. Adjusts the controls to attain the desired pitch attitude at the predetermined airspeed/V-speed to attain the desired performance for the particular takeoff segment.
10. Performs the required pitch changes and, as appropriate, performs or calls for and verifies the accomplishment of, gear and flap retractions, power adjustments, and other required pilot-related activities at the required airspeed/V speeds within the tolerances established in the POH or AFM.
11. Uses the applicable noise abatement and wake turbulence avoidance procedures, as required.
12. Accomplishes, or calls for and verifies the accomplishment of, the appropriate checklist items in a timely manner and as recommended by the manufacturer.
13. Maintains the appropriate climb segment airspeed/V speeds.
14. Maintains the desired heading, ±5°, and the desired airspeed (V-speed), ±5 knots (of the appropriate V-speed range).

COMM Recommended ACS Guidance

Area of Operation	**IV. Takeoffs, Landings, and Go-Arounds**
Task	**A. *Normal Takeoff and Climb***
Objective	To determine the applicant exhibits satisfactory knowledge, skills and risk management associated with a normal takeoff, climb operations, and rejected takeoff procedures. NOTE: If a crosswind condition does not exist, the applicant’s knowledge of crosswind elements shall be evaluated through oral testing.
Knowledge	The applicant demonstrates understanding of: 1. Takeoff distance. 2. Takeoff power. 3. Wind conditions and effects. 4. Minimum safe altitude. 5. Density altitude. 6. Headwind, tailwind, crosswind component. 7. Application of V_X or V_Y. 8. Emergency procedures during takeoff and climb.

Area of Operation	**IV. Takeoffs, Landings, and Go-Arounds**
Task	**A. *Normal Takeoff and Climb***
Skills	The applicant demonstrates the ability to: 1. Verify ATC clearance and no aircraft is on final before entering the runway. 2. Ensure the aircraft is on the correct takeoff runway. 3. Ascertain wind direction with or without visible wind direction indicators. 4. Calculate if crosswind component is above his or her ability or that of the aircraft's capability. 5. Position the flight controls for the existing wind conditions. 6. Clear the area; taxi into the takeoff position and align the airplane on the runway center. 7. Confirm takeoff power, and proper engine instrument indications prior to rotation. 8. Rotate and lift off at the recommended airspeed and accelerates to V_Y. 9. Establish a pitch attitude and trim condition that will maintain V_Y $\pm$5 knots. 10. Retract the landing gear and flaps in accordance with manufacturer guidance. 11. Maintain takeoff power and V_Y $\pm$5 knots to a safe maneuvering altitude. 12. Maintain directional control and proper wind-drift correction throughout the takeoff and climb. 13. Comply with noise abatement and published departure procedures. 14. Complete the appropriate checklist. 15. Use proper emergency procedures during takeoff and climb, according to the manufacturer.
Risk Management	The applicant applies risk identification, assessment, and mitigation principles to: 1. Selection of runway based on wind, pilot capability, and aircraft limitations. 2. Determining if crosswind component exceeds pilot ability or aircraft capability. 3. Windshear. 4. Tailwinds. 5. Wake turbulence. 6. Go/no go decision making. 7. Task management. 8. Low altitude maneuvering. 9. Obstacle and wire strike avoidance. 10. Minimum safe altitude for climb. 11. Situational awareness of obstacles on departure path. 12. Recognition of need for rejected takeoff. 13. Handling engine failure during takeoff and climb.
Rationale for Changes	Changed name of task to *Normal Takeoff and Climb* because there are three kinds of approaches and landings (normal, short-field, soft-field) & removed ASES reference (FAA-H-8083-23).

Recommended ATP ACS Guidance

Area of Operation	**Takeoff and Departure Phase**
Task	***Normal and Crosswind Takeoff***
Reference	
Airman Test Report	Pending
Objective	
Knowledge	The applicant demonstrates understanding of: 1.
Skills	The applicant demonstrates the ability to: 1.

Area of Operation	**Takeoff and Departure Phase**
Task	***Normal and Crosswind Takeoff***
Risk Management	The applicant applies risk identification, assessment, and mitigation principles to: 1.
Rationale for Changes	
Sample Questions	
Recommendation for Handbook Revisions	

Current ATP PTS

TASK: III. B. Glassy Water Takeoff and Climb (AMES/ASES)

REFERENCE: POH/AFM; FAA-H-8083-3, FAA-H-8083-23.

NOTE If a glassy water condition does not exist, the applicant's satisfactory knowledge of glassy water elements must be evaluated through oral testing. The applicant's skill must be evaluated by simulating the Task.

Objective. To determine that the applicant:

1. Exhibits knowledge of the elements related to a glassy water takeoff and climb.
2. Positions the flight controls and flaps for the existing conditions.
3. Clears the area, notes any surface hazards and/or vessels prior to selecting a takeoff path.
4. Retracts the water rudders, if applicable.
5. Advances the throttles to takeoff power.
6. Avoids excessive water spray on the propellers.
7. Establishes and maintains an appropriate planing attitude, directional control, and corrects for porpoising, skipping, and increases in water drag.
8. Utilizes appropriate techniques to lift seaplane from the water surface.
9. Establishes proper attitude/airspeed, lifts off and accelerates to best single-engine climb speed or VY, whichever is greater, ±5 knots during the climb.
10. Reduces the flaps after a positive rate of climb is established and at a safe altitude.
11. Maintains takeoff power to a safe maneuvering altitude, then sets climb power.
12. Maintains directional control and proper wind-drift correction throughout takeoff and climb.
13. Uses noise abatement procedures, as required.
14. Completes appropriate checklists or ensures all required checks as required by the appropriate checklist items are accomplished in a timely manner and as recommended by the manufacturer.

Recommended ATP ACS Guidance

Area of Operation	**Takeoff and Departure Phase**
Task	***Glassy Water Takeoff and Climb***
Reference	
Airman Test Report	Pending
Objective	
Knowledge	The applicant demonstrates understanding of: 1.
Skills	The applicant demonstrates the ability to: 1.
Risk Management	The applicant applies risk identification, assessment, and mitigation principles to: 1.
Rationale for Changes	
Sample Questions	

Area of Operation	**Takeoff and Departure Phase**
Task	***Glassy Water Takeoff and Climb***
Recommendation for Handbook Revisions	

Current ATP PTS

TASK: III. C. Rough Water Takeoff and Climb (AMES/ASES)

REFERENCE: POH/AFM; FAA-H-8083-3, FAA-H-8083-23.

NOTE: If a rough water condition does not exist, the applicant's satisfactory knowledge of rough water elements must be evaluated through oral testing. The applicant's skill must be evaluated by simulating the Task.

Objective. To determine that the applicant:

1. Exhibits knowledge of the elements related to rough water takeoff and climb.
2. Positions the flight controls and flaps for the existing conditions.
3. Clears the area, selects the proper takeoff path, considering wind, swells, surface hazards and/or vessels.
4. Retracts the water rudders, if applicable.
5. Advances the throttles to takeoff power.
6. Avoids excessive water spray on the propellers.
7. Establishes and maintains an appropriate planing/lift-off attitude, directional control, and corrects for porpoising, skipping, or excessive bouncing.
8. Establishes and maintains proper attitude to lift-off at minimum airspeed and accelerates to best single-engine climb speed or VY, whichever is greater, ±5 knots before leaving ground effect.
9. Retracts the flaps after a positive rate of climb is established and at a safe altitude.
10. Maintains takeoff power to a safe maneuvering altitude, then sets climb power.
11. Maintains directional control and proper wind-drift correction throughout takeoff and climb.
12. Uses noise abatement procedures, as required.
13. Completes appropriate checklists or coordinates with crew to ensure completion of checklist items in a timely manner and as recommended by the manufacturer.

Recommended ATP ACS Guidance

Area of Operation	**Takeoff and Departure Phase**
Task	***Rough Water Takeoff and Climb***
Reference	
Airman Test Report	Pending
Objective	
Knowledge	The applicant demonstrates understanding of: 1.
Skills	The applicant demonstrates the ability to: 1.
Risk Management	The applicant applies risk identification, assessment, and mitigation principles to: 1.
Rationale for Changes	
Sample Questions	

Area of Operation	**Takeoff and Departure Phase**
Task	***Rough Water Takeoff and Climb***
Recommendation for Handbook Revisions	

Current ATP PTS

TASK: III. D. Confined Area Takeoff and Climb (AMES/ASES)

REFERENCE: POH/AFM; FAA-H-8083-3, FAA-H-8083-23.

NOTE: This Task simulates a takeoff from a small pond, which would require a takeoff and spiral climb; or a straight-ahead takeoff and climb from a narrow waterway with obstructions at either end. The examiner must evaluate both takeoff situations for this Task. In multiengine seaplanes with VX values within 5 knots of VMC, the use of VY or the manufacturer's recommendation may be more appropriate for this demonstration.

Objective. To determine that the applicant:

1. Exhibits knowledge of the elements related to a confined area takeoff and climb.
2. Positions the flight controls and flaps for the existing conditions.
3. Clears the area, notes any surface hazards, vessels, and/or obstructions prior to selecting a takeoff path.
4. Selects a takeoff path that will allow maximum safe utilization of wind, water, and low terrain.
5. Advances the throttles to takeoff power.
6. Ensures that the water rudders are retracted when no longer needed.
7. Maintains the most efficient alignment and planing angle, without skidding, porpoising, and skipping.
8. Lifts off at recommended airspeed and accelerates to manufacturer’s recommended climb airspeed.
9. Climbs at manufacturer’s recommended configuration and airspeed, or in their absence at VX, +5/-0 knots until the obstacle is cleared.
10. After clearing all obstacles, accelerates to and maintains VY, ±5 knots, retracts flaps and maintains safe bank angles while turning and/or providing best terrain clearance.
11. Maintains takeoff power to a safe altitude, and then sets climb power.
12. Uses noise abatement procedures, as required.
13. Completes appropriate checklists or coordinates with crew to ensure completion of checklist items in a timely manner and as recommended by the manufacturer.

Recommended ATP ACS Guidance

Area of Operation	**Takeoff and Departure Phase**
Task	***Confined-Area Takeoff and Climb***
Reference	
Airman Test Report	Pending
Objective	
Knowledge	The applicant demonstrates understanding of: 1.
Skills	The applicant demonstrates the ability to: 1.
Risk Management	The applicant applies risk identification, assessment, and mitigation principles to: 1.
Rationale for Changes	
Sample Questions	

Area of Operation	**Takeoff and Departure Phase**
Task	***Confined-Area Takeoff and Climb***
Recommendation for Handbook Revisions	

Current ATP PTS

TASK: III. E. Instrument Takeoff

REFERENCE: 14 CFR part 61; POH/AFM; AIM; FAA-H-8083-15, FAA-H-8261-1; AC 20-117, AC 91-74, AC 135-17.

Objective. To determine that the applicant:

1. Exhibits knowledge of an instrument takeoff with instrument meteorological conditions (IMC) simulated at or before reaching an altitude of 100 feet AGL. If accomplished in a flight simulator, visibility should be no greater than one quarter (1/4) mile, or as specified by operator specifications, whichever is lower.
2. Takes into account, prior to beginning the takeoff, operational factors which could affect the maneuver, such as Takeoff Warning Inhibit Systems or other airplane characteristics, runway length, surface conditions, wind, wake turbulence, icing conditions, obstructions, and other related factors that could adversely affect safety.
3. Coordinates with crew, if a crew served airplane, or completes the appropriate checklist items in a timely manner and as recommended by the manufacturer in a single pilot airplane, to ensure that the airplane systems applicable to the instrument takeoff are operating properly.
4. Sets the applicable avionics and flight instruments to the desired setting prior to initiating the takeoff.
5. Applies the controls correctly to maintain longitudinal alignment on the centerline of the runway, if appropriate, prior to initiating and during the takeoff.
6. Transitions smoothly and accurately from visual meteorological conditions (VMC) to actual or simulated instrument meteorological conditions (IMC).
7. Maintains the appropriate climb attitude.
8. Complies with the appropriate airspeeds/V-speeds and climb segment airspeeds.
9. Maintains desired heading within ±5° and desired airspeeds within ±5 knots.
10. Complies with ATC clearances and instructions issued by ATC (or the examiner simulating ATC).
11. Acknowledges and makes appropriate callouts to coordinate with the crew, if in a crew served airplane.

Recommended ATP ACS Guidance

Area of Operation	**Takeoff and Departure Phase**
Task	***Instrument Takeoff***
Reference	
Airman Test Report	Pending
Objective	
Knowledge	The applicant demonstrates understanding of: 1.
Skills	The applicant demonstrates the ability to: 1.
Risk Management	The applicant applies risk identification, assessment, and mitigation principles to: 1.
Rationale for Changes	
Sample Questions	

Area of Operation	**Takeoff and Departure Phase**
Task	***Instrument Takeoff***
Recommendation for Handbook Revisions	

Current ATP PTS

TASK: III. F. Powerplant Failure during Takeoff

REFERENCE 14 CFR part 61; POH/AFM; FAA-H-8083-3, FSB Report.

Objective. To determine that the applicant:

1. Exhibits satisfactory knowledge of the procedures used during powerplant failure on takeoff, the appropriate reference airspeeds, and the specific pilot actions required.
2. Takes into account, prior to beginning the takeoff, operational factors which could affect the maneuver, such as Takeoff Warning Inhibit Systems or other airplane characteristics, runway length, surface conditions, wind, wake turbulence, visibility, precipitation, obstructions, and other related factors that could adversely affect safety.
3. Completes required checks prior to starting takeoff to verify the expected powerplant performance. Performs all required pre-takeoff checks as required by the appropriate checklist items or coordinates with crew to ensure completion of checklist items in a timely manner and as recommended by the manufacturer.
4. Aligns the airplane on the runway/waterway.
5. Applies the controls correctly to maintain longitudinal alignment on the centerline of the runway, if appropriate, prior to initiating and during the takeoff.
6. Adjusts the powerplant controls as recommended by the FAA-approved guidance for the existing conditions.
7. Single-engine airplanes—establishes a power-off descent approximately straight-ahead, if the powerplant failure occurs after becoming airborne and before reaching an altitude where a safe turn can be made.
8. Continues the takeoff (in a 14 CFR part 25 or 14 CFR section 23.3(d) commuter multiengine airplane) if the (simulated) powerplant failure occurs at a point where the airplane can continue to a specified airspeed and altitude at the end of the runway commensurate with the airplane's performance capabilities and operating limitations.
9. Maintains (in a multiengine airplane), after a simulated powerplant failure and after a climb has been established, the desired heading within ±5°, desired airspeed within ±5 knots, and, if appropriate for the airplane, establishes a bank of approximately 5°, or as recommended by the manufacturer, toward the operating powerplant.
10. Maintains the airplane alignment with the heading appropriate for climb performance and terrain clearance when powerplant failure occurs.
11. Acknowledges and makes appropriate callouts to crew, if in crew served aircraft.

Recommended ATP ACS Guidance

Area of Operation	**Takeoff and Departure Phase**
Task	***Powerplant Failure during Takeoff***
Reference	
Airman Test Report	Pending
Objective	
Knowledge	The applicant demonstrates understanding of: 1.
Skills	The applicant demonstrates the ability to: 1.
Risk Management	The applicant applies risk identification, assessment, and mitigation principles to: 1.
Rationale for Changes	
Sample Questions	

Area of Operation	**Takeoff and Departure Phase**
Task	***Powerplant Failure during Takeoff***
Recommendation for Handbook Revisions	

Current ATP PTS

TASK: III. G. Rejected Takeoff

REFERENCE 14 CFR part 61; FAA-H-8083-3; AC 120-62; POH/AFM.

Objective. To determine that the applicant understands when to reject or continue the takeoff and:

1. Exhibits satisfactory knowledge of the technique and procedure for accomplishing a rejected takeoff after powerplant/system(s) failure/warnings, including related safety factors.
2. Takes into account, prior to beginning the takeoff, operational actors, which could affect the maneuver, such as Takeoff Warning Inhibit Systems or other airplane characteristics, runway length, surface conditions, wind, visibility, precipitation, obstructions, and aircraft cleared for LAHSO that could affect takeoff performance and could adversely affect safety.
3. Aligns the airplane on the runway centerline or clear of obstacles and vessels on waterways.
4. Performs all required pre-takeoff checks as required by the appropriate checklist items or coordinates with crew to ensure completion of checklist items in a timely manner and as recommended by the manufacturer.
5. Adjusts the powerplant controls as recommended by the FAA-approved guidance for the existing conditions.
6. Applies the controls correctly to maintain longitudinal alignment on the centerline of the runway.
7. Aborts the takeoff if, in a single-engine airplane the powerplant failure occurs prior to becoming airborne, or in a multiengine airplane, the powerplant failure occurs at a point during the takeoff where the abort procedure can be initiated and the airplane can be safely stopped on the remaining runway/stopway. If a flight simulator is not used, the powerplant failure must be simulated before reaching 50 percent of VMC.
8. Reduces the power smoothly and promptly, if appropriate to the airplane, when powerplant failure is recognized.
9. Uses spoilers, prop reverse, thrust reverse, wheel brakes, and other drag/braking devices, as appropriate, maintaining positive control in such a manner as to bring the airplane to a safe stop.
10. Accomplishes the appropriate powerplant failure or other procedures and/or checklists or coordinates with crew to ensure completion of checklist items in a timely manner and as recommended by the manufacturer, as set forth in the POH or AFM.

Recommended ATP ACS Guidance

Area of Operation	**Takeoff and Departure Phase**
Task	***Rejected Takeoff***
Reference	
Airman Test Report	Pending
Objective	
Knowledge	The applicant demonstrates understanding of: 1.
Skills	The applicant demonstrates the ability to: 1.
Risk Management	The applicant applies risk identification, assessment, and mitigation principles to: 1.
Rationale for Changes	
Sample Questions	

Area of Operation	**Takeoff and Departure Phase**
Task	***Rejected Takeoff***
Recommendation for Handbook Revisions	

Current ATP PTS

TASK: III. H. Departure Procedures

REFERENCE 14 CFR part 61; AC 90-100; POH/AFM; AIM; FAA-H-8261-1, FAA-H-8083-15.

Objective. To determine that the applicant:

1. In actual or simulated instrument conditions, exhibits satisfactory knowledge of DPs, En Route Low and High Altitude Charts, FMSP, and related pilot/controller responsibilities.
2. Uses the current and appropriate navigation publications for the proposed flight.
3. Selects, configures, and uses the appropriate communications frequencies, navigation and systems displays; selects and identifies the navigation aids and routes necessary to properly fly the assigned ATC clearance.
4. Coordinates with crew in crew served aircraft to ensure performance of, or performs the appropriate checklist items in a timely manner and as recommended by the manufacturer.
5. Establishes communications with ATC, using proper phraseology and advises ATC when unable to comply with a clearance or restriction.
6. Complies, in a timely manner, with all instructions and airspace restrictions.
7. Exhibits adequate knowledge of two-way radio communications failure procedures.
8. Intercepts, in a timely manner, all courses, radials, and bearings appropriate to the procedure, route, clearance, or as directed by the examiner.
9. Maintains the appropriate airspeed within ±10 knots, headings within ±10°, altitude within ±100 feet; and accurately tracks a course, radial, or bearing.
10. Conducts the departure phase to a point where, in the opinion of the examiner, the transition to the en route environment is complete.

Recommended ATP ACS Guidance

Area of Operation	**Takeoff and Departure Phase**
Task	***Departure Procedures***
Reference	
Airman Test Report	Pending
Objective	
Knowledge	The applicant demonstrates understanding of: 1.
Skills	The applicant demonstrates the ability to: 1.
Risk Management	The applicant applies risk identification, assessment, and mitigation principles to: 1.
Rationale for Changes	
Sample Questions	

Area of Operation	**Takeoff and Departure Phase**
Task	***Departure Procedures***
Recommendation for Handbook Revisions	

APPENDIX Q: PTS-TO-ACS REFERENCES MATRIX

Appendix Q includes a matrix documenting references to the Practical Test Standards (PTS) in current FAA guidance documents including Order 8900.1, Flight Standards Information Management System, Order 8900.2, General Aviation Airman Designee Handbook, and other associated guidance documents.

The FAA will need to coordinate revisions to existing guidance documents to facilitate the transition to the Airman Certification Standards (ACS) concept. The attached matrix was developed to track the changes required to align current FAA guidance material (other than the FAA-H-8083-XX series handbooks and FAA-CT-8080-XX series computer testing supplements) with the ACS.

PTS-to-ACS REFERENCES MATRIX
(CHANGES REQUIRED TO ALIGN CURRENT FAA GUIDANCE (OTHER THAN HANDBOOKS) WITH ACS)

Document Number	Date	Title	Notes
8900.1, V1 C1 S3	12/19/2011	Handbook Organization, Use, and Revision: Acronyms and Abbreviations	Terminology Change (PTS to ACS)
8900.1, V11 C10 S1	8/2/2010	Approval and Authorized Use under 14 CFR Parts 61 and 141	Terminology Change (PTS to ACS)
8900.1, V13 C3 S1	9/30/2008	Duties and Responsibilities of the FAA Specialist	Further Review Suggested
8900.1, V13 C3 S4	9/30/2008	Aircraft Dispatcher Practical Test	Further Review Suggested
8900.1, V13 C5 S1	6/7/2010	Appoint/Renew a General Aviation Designee	Further Review Suggested
8900.1, V15 C13 S1	12/3/2010	General	Terminology Change (PTS to ACS)
8900.1, V15 C15 S2	12/3/2010	WINGS–Pilot Proficiency Program	Terminology Change (PTS to ACS)
8900.1, V3 C21 S1	9/13/2007	Advanced Qualification Program: Scope, Concepts and Definitions	Further Review Suggested
8900.1, V3 C21 S4	8/31/2009	Advanced Qualification Program: The Advanced Qualification Program Approval Process	Terminology Change (PTS to ACS)
8900.1, V3 C32 S5	9/13/2007	Flight Manuals for 14 CFR Parts 121/135	Terminology Change (PTS to ACS)
8900.1, V3 C53 S2	9/13/2007	Approve Training Course Outlines for a Part 141 Pilot School	Terminology Change (PTS to ACS)
8900.1, V3 C54 S1	8/19/2011	Part 142 Training Centers: Training Center and Training Center Program Manager Overview	Terminology Change (PTS to ACS)
8900.1, V5 C1 S3	9/13/2007	Phases of Certification	Terminology Change (PTS to ACS)
8900.1, V5 C12 S4	9/13/2007	Background	Terminology Change (PTS to ACS)
8900.1, V5 C2 S10	9/13/2007	Conduct a Part 125 Pilot Competency or Instrument Proficiency Check	Terminology Change (PTS to ACS)
8900.1, V5 C2 S18	9/13/2007	Conduct an Airline Transport Pilot Certification, Including Additional Category/Class Ratings	Terminology Change (PTS to ACS)
8900.1, V5 C2 S19	10/19/2012	Conduct a Pilot Type Rating Certification	Terminology Change (PTS to ACS)
8900.1, V5 C2 S3	8/31/2012	Flight Reviews and Competency Checks	Terminology Change (PTS to ACS)
8900.1, V5 C2 S4	5/11/2009	Integrated Airman Certification and/or Rating Application Process	Terminology Change (PTS to ACS)
8900.1, V5 C2 S5	7/3/2012	Miscellaneous Part 61 Certification Information	Terminology Change (PTS to ACS)
8900.1, V5 C2 S6	4/20/2011	Issue a Student Pilot Certificate	Terminology Change (PTS to ACS)
8900.1, V5 C2 S8	9/13/2007	Conduct a Commercial Pilot Certification, Including Additional Category/Class Ratings	Terminology Change (PTS to ACS)
8900.1, V5 C2 S9	9/13/2007	Conduct an Instrument Rating Certification	Further Review Suggested
8900.1, V5 C9 S5	9/13/2007	Issue an FAA Industry Training Standards (FITS) Acceptance When Requested by a Flight School, Training Center, or Other Training Provider	Terminology Change (PTS to ACS)
8900.1, V6 C1 S5	9/13/2007	Surveillance of a Certificated Flight Instructor	Terminology Change (PTS to ACS)
AT JTA 4.1.202 (OP)	6/26/2008	Conduct a Flight Standardization Board (FSB) Evaluation	Terminology Change (PTS to ACS)
GA JTA 2.1.6 (OP)		Inspect a Designated Pilot Examiner (DPE)	Terminology Change (PTS to ACS)
N 8900.190	6/11/2012	Review of TCAS II Guidance & Training for 14 CFR Parts 91 Subpart K, and 135	Notice – does not require revision.
N 8900.194	7/13/2012	Reexamination of Airmen Tested by Designated Pilot Examiner Edward Lane	Notice – does not require revision.
8900.1, V13 C1 S1	7/13/2010	General	Terminology Change (PTS to ACS)
8900.1, V13 C2 S2	9/30/2008	FAA's Management of an ADE Program	Terminology Change (PTS to ACS)
8900.1, V13 C3 S2	9/30/2008	Duties and Responsibilities of the Designee	Terminology Change (PTS to ACS)
8900.1, V13 C3 S3	9/30/2008	Designated Aircraft Dispatcher Examiner (DADE) Training	Terminology Change (PTS to ACS)

PTS-to-ACS REFERENCES MATRIX
(CHANGES REQUIRED TO ALIGN CURRENT FAA GUIDANCE (OTHER THAN HANDBOOKS) WITH ACS)

Document Number	Date	Title	Notes
8900.1, V13 C5 S2	6/7/2010	Oversight of General Aviation Designee	Terminology Change (PTS to ACS)
8900.1, V13 C5 S4	6/22/2011	Designee Focal Points	Terminology Change (PTS to ACS)
8900.1, V13 C6 S1	4/15/2012	Inspect a Designated Pilot Examiner	Terminology Change (PTS to ACS)
8900.1, V13 C8 S1	4/15/2012	Inspect a Technical Personnel Examiner	Terminology Change (PTS to ACS)
8900.1, V15 C13 S2	12/3/2010	Scheduling and Conducting Workshops	Terminology Change (PTS to ACS)
8900.1, V3 C12 S2	9/13/2007	Balloons	Terminology Change (PTS to ACS)
8900.1, V3 C20 S3	1/8/2009	Approve a Check Airman for Title 14 CFR Part 125 Operations (Pilot, Flight Engineer, or Navigator)	Terminology Change (PTS to ACS)
8900.1, V3 C54 S2	8/19/2011	Part 142 Training Centers: Training, Qualification, and Designation of Training Center Instructors and Evaluators	Terminology Change (PTS to ACS)
8900.1, V3 C54 S6	8/19/2011	Part 142 Training Centers: Evaluate Training Programs, Curriculums, Flight Training Equipment, and Recordkeeping Requirements	Further Review Suggested
8900.1, V5 C1 S2	10/30/2008	Aviation Safety Inspector (Operations) Qualifications and Status	Terminology Change (PTS to ACS)
8900.1, V5 C1 S4	9/13/2007	Considerations for the Practical Test	Further Review Suggested
8900.1, V5 C1 S5	9/13/2007	Issuance of Temporary Certificates	Terminology Change (PTS to ACS)
8900.1, V5 C10 S1	1/10/2013	Qualify an Applicant as Chief Pilot for Rotorcraft External-Load Operations	Terminology Change (PTS to ACS)
8900.1, V5 C12 S1	2/15/2013	Conduct a Chief/Assistant Chief Instructor Practical Test for Title 14 CFR Part 141 Pilot School	Terminology Change (PTS to ACS)
8900.1, V5 C12 S2	9/13/2007	Conduct a Stage Test for a Title 14 CFR Part 141 Pilot School	Terminology Change (PTS to ACS)
8900.1, V5 C13 S1	9/30/2011	Approval or Renewal of Manufacturer’s Required Training Programs	Terminology Change (PTS to ACS)
8900.1, V5 C2 S11	9/13/2007	Conduct a Title 14 CFR Part 61 Flight Instructor Initial/Reinstatement/Renewal Certification and Additional Category/Class Ratings	Terminology Change (PTS to ACS)
8900.1, V5 C2 S12	9/13/2007	Administer a Practical Test for a Title 14 CFR Part 61 Initial, Renewal, or Reinstatement for a Flight Instructor with a Sport Pilot Rating	Terminology Change (PTS to ACS)
8900.1, V5 C2 S20	9/13/2007	Conduct of Pilot-in-Command Proficiency Checks for Aircraft Requiring More Than One Pilot as Required by Title 14 CFR Section 61.58	Terminology Change (PTS to ACS)
8900.1, V5 C2 S7	9/13/2007	Conduct a Private Pilot Certification, Including Additional Category/Class Ratings	Terminology Change (PTS to ACS)
8900.1, V5 C3 S5	9/13/2007	Oral and Flight Test Events in Helicopters for ATP Applicants Engaged in Operations under Title 14 CFR Part 121, 135, or 91 Subpart K	Terminology Change (PTS to ACS)
8900.1, V5 C7,S1	12/12/2011	Conduct a Reexamination Test of an Airman Under Title 49 of the United States Code	Terminology Change (PTS to ACS)
8900.1, V5 C9,S2	5/16/2011	Issue a Letter of Authorization for Pilot in Command of Surplus Military Turbine- or Piston-Powered Airplanes	Terminology Change (PTS to ACS)
8900.1, V6 C7 S1	9/13/2007	Conduct Facility Inspection of a Part 141 Pilot School	Terminology Change (PTS to ACS)
8900.2 w/CHG 1	8/16/2010	General Aviation Airman Designee Handbook	In-depth review.
AC 65-30A	11/9/2001	Overview of the Aviation Maintenance Profession	Confirm if still active.
AC 65-5B	7/25/1988	Parachute Rigger Senior/Master Certification Guide	Confirm if still active.

PTS-to-ACS REFERENCES MATRIX
(CHANGES REQUIRED TO ALIGN CURRENT FAA GUIDANCE (OTHER THAN HANDBOOKS) WITH ACS)

Document Number	Date	Title	Notes
AT JTA 2.4.23 (OP)		Surveillance of a 14 CFR Part 142 Evaluator	Terminology Change (PTS to ACS)
AT JTA 2.4.5 (OP)		Conduct a Knowledge Test, Practical Test, Stage Check or End-of-Course Test to Students of a Pilot School or Provisional Pilot School under 14 CFR § 141.83	Terminology Change (PTS to ACS)
AT JTA 2.5.15 (OP		Re-examine or Re-inspect an Airman, Air Agency or Operator under 49 USC Section 44709	Terminology Change (PTS to ACS)
AT JTA 3.1.18 (OP)	7/25/2005	Issue a Certificate or Rating for a Flight Engineer under 14 CFR Part 63	Terminology Change (PTS to ACS)
AT JTA 3.1.65 (OP)	7/25/2005	Conduct Inspector Flight Check in Accordance with Order 4040.9	Terminology Change (PTS to ACS)
AT JTA 4.8.16 (OP)	7/25/2005	Inspector Currency Flying in Accordance with Order 4040.9	Terminology Change (PTS to ACS)
GA JTA 2.4.23 (OP)	No date	Surveillance of a 14 CFR Part 142 Evaluator	Terminology Change (PTS to ACS)
GA JTA 2.4.5 (OP)		Conduct a Knowledge Test, Practical Test, Stage Check or End-of-Course Test to Students of a Pilot School or Provisional Pilot School Under 14 CFR § 141.83	Terminology Change (PTS to ACS)
GA JTA 2.5.15 (OP)		Reexamine or Reinspect an Airman, Air Agency, or Operator Under 49 USC Section 44709	Terminology Change (PTS to ACS)
GA JTA 3.1.13 (OP)		Issue Additional Aircraft Ratings Under 14 CFR § 61.63	Terminology Change (PTS to ACS)
GA JTA 3.1.65 (OP)		Conduct Inspector Flight Check in Accordance With Order 4040.9	Terminology Change (PTS to ACS)
GA JTA 3.4.1 (OP)		Approve a Training Program or Training Course Outline (TCO) for a 14 CFR Part 141 Air Agency/Applicant	Terminology Change (PTS to ACS)
GA JTA 3.4.21 (OP)		Evaluate a Special Curricula for a Pilot School or Provisional Pilot School under 14 CFR § 141.57	Terminology Change (PTS to ACS)
GA JTA 3.4.38 (OP)		Evaluate a Contractor Training Program for a 14 CFR Part 141 Air Agency/Applicant	Terminology Change (PTS to ACS)
GA JTA 4.8.16 (OP)		Inspector Currency Flying in Accordance with Order 4040.9	Terminology Change (PTS to ACS)
N 8900.204	1/11/2013	English Proficiency (Date – 01/11/2013)	Notice – does not require revision.
N 8900.205	1/11/2013	Enhanced Stall and Stick Pusher Training (Date – 01/11/2013)	Notice – does not require revision.
SAI 4.3.3 (OP)	9/30/2012	Advanced Qualification Program (AQP) – OP 09/30/2012	Terminology Change (PTS to ACS)

APPENDIX R: ACS CODE SYSTEM

This appendix describes the Airman Certification Standards (ACS) Code System proposed by the ATST WG. To achieve the intended and desired results, the ATST WG views a coding methodology that aligns standards, guidance material, and test questions as an essential component of the ACS concept.

The recommended ACS code system consists of up to five-elements. For example:

PA.X.A.K1.a:

PA	XI	A	K1	a
Applicable ACS	Area of Operation	Task	Task Element	Level of Learning*
In this PA ACS example: PA = private pilot airplane	*In this PA ACS example*: X = night operation	*In this PA ACS example*: A = night preparation	*In this PA ACS example:* K1 = Knowledge task element 1 (physiological aspects of night flying as it relates to vision)	*In this PA ACS example:* a = rote
Additional ACS identifiers: IR = instrument rating AI = authorized instructor CA = commercial pilot airplane (*others to be determined*)	*Select as appropriate.*	*Select as appropriate.*	*Select as appropriate.* *Task element codes:* K = Knowledge S = Skill R = Risk management	*Select as appropriate.* *Level of learning codes:* a = rote b = understanding c = application d = correlation

* *Level of Learning* codes help guide question development. For example, an "a" (rote) code would suggest a question that requires the applicant to define, recall, list, name, match, label

A transparent, intuitive coding scheme anchored in the ACS will contribute to:

- ***Better safety education and training.*** ACS-based codes provide a means to ensure that test questions are relevant to safe operations, and that the associated guidance clearly reflects the material to be trained and tested.
- ***Better feedback to stakeholders.*** By linking airman test report results to a specific Area of Operation/Task/Task Element, ACS-based codes would accomplish the FAA's goal of focusing on the deficient knowledge, and not the specific missed test question. Remedial instruction and re-testing would be specific, targeted, and based on specified learning criteria.

- ***Better testing and test management*.** In addition to providing much better guidance to test writers (because each question will correlate to a specific ACS task/element), the ACS-based coding system will facilitate test construction and management using the proposed test maps discussed in Section 6.1.3 of this report. (See Appendix I: Sample Test Maps.)
- ***Better use of resources*.** Management of the entire airman certification system (standards, guidance, testing) becomes a much less work- and resource-intensive process for the FAA. Updates can be made objectively and consistently, and the process will also be transparent to all parties with (i.e., no guesswork required on how to re-code when there are changes to the ACS.

APPENDIX S: AIRMAN CERTIFICATION SYSTEM WORKING GROUP GUIDELINES

This appendix includes the proposed Airman Certification System Working Group (ACSWG) Guidelines (Procedures Guide), based on documentation pertaining to the FAA's existing Operations Specifications Working Group (OSWG), which also involves an agency-industry partnership. The OSWG was established to address timely promulgation of operational authorizations and associated guidance.

I. INTRODUCTION AND BACKGROUND

In September 2011, the FAA chartered the Airman Testing Standards and Training Aviation Rulemaking Committee (ARC) to make recommendations for more effective certification training and testing. The ARC submitted its report and nine recommendations to the FAA on April 13, 2012.

To benefit from industry expertise in implementing the ARC recommendations, the FAA turned to the Aviation Rulemaking Advisory Committee (ARAC) in August 2012. ARAC, a formal standing committee of aviation associations and industry, assigned this work to a newly-formed Airman Testing Standards and Training Working Group (ATST WG) consisting of aviation education and training professionals representing all major segments of this community.

In September 2013, the ARAC submitted the ATST WG's report on implementing the ARC's recommendations. This report recommended that the FAA adopt its proposals for an integrated, holistic certification system that clearly aligns testing with certification standards and guidance.

Among these proposals is a recommendation for the FAA to establish a joint FAA/Aviation Industry ACSWG that will allow the FAA to capitalize on the expertise of the aviation industry and improve the quality of communication between the FAA and Aviation Industry on the safety-critical airman certification system.

This document describes the purpose, membership, and procedures of the ACSWG, to include guidelines for developing, reviewing, and submitting proposed updates, corrections, or other changes to elements of the airman certification system (i.e., standards, guidance, and testing).

The ACSWG will review and update as necessary the contents of this document annually.

II. PURPOSE

The FAA and the Aviation Industry jointly seek to improve airman training and testing by establishing an integrated, holistic airman certification system that clearly aligns testing with certification standards, guidance, and reference materials, and maintains that alignment.

A. The purpose of the ACSWG is to provide a proactive and cooperative process that achieves this goal by improving the quality of FAA/Aviation Industry communication and allowing the FAA to benefit from the Aviation Industry's expertise on the knowledge and skills needed for safe operation in today's National Airspace System (NAS).

B. Specifically, the ACSWG is intended to provide a means for the Aviation Industry to provide expert assistance and industry views to the FAA's Flight Standards Service (AFS) on the development, modification, and continued alignment of the major components of the airman certification system:

- The Airman Certification Standards (ACS) for airman certificates and ratings (i.e. converted/transitions FAA-S-8081-XX series documents);
- Associated training guidance material (e.g., FAA-H-8083-XX series handbooks);
- Test management (e.g., test question development, test question boarding, test composition/test "mapping," and FAA-CT-8080-XX series figures); and
- Reference materials, to include AFS directives and ASI guidance; FAA Orders, Advisory Circulars (AC), and other documents pertaining to the airman certification system.

III. MEMBERSHIP

The FAA Flight Standard Service (AFS) will appoint all members of the ACSWG. All ACSWG members will have the right to vote on all ACSWG matters.

A. Qualifications for ACSWG Members:

(1) Individual ACSWG members must have education, work experience, aviation credentials, and industry involvement in order to be recognized as experts by the FAA.

(2) From the group of qualified Aviation Industry individuals, the FAA will select members who will collectively represent all major sectors of the industry. These sectors include flight instructors, designated pilot examiners, the aviation academic community, industry advocacy associations, and training and test preparation providers involved with aviation training and testing in 14 CFR Part 61, 65, 141, 142, 147, 121, and 135 environments.

(3) From the group of qualified FAA individuals, the agency will select members from headquarters policy divisions with functions relevant to the content of airman certification system components.

B. Leadership: The ACSWG leadership will consist of the following positions:

(1) FAA Chair. He or she will serve a term as decided by the FAA.

(2) Industry Co-Chair: He or she will serve a term of one year, after which the industry Vice-Chair will normally succeed as Co-Chair. If the Vice-Chair cannot fulfill this responsibility, the ACSWG will elect a new Chair by majority vote. This vote will occur at the last quarterly meeting each year. The term of the new Industry Chair begins after the first quarterly meeting each year. The Industry Vice-Chair will act as Chair in his/her absence. In the event that the Industry Chair cannot fulfill his/her position for a complete term, the Industry Vice-Chair will act as chair for the remainder of the term and a new Vice-Chair will be elected.

(3) Industry Vice-Chair: He or she will serve a term of one year and will succeed as the Industry Co-Chair. The ACSWG will elect a new industry Vice-Chair by majority vote. This vote will occur at the last quarterly meeting each year. The term of the new Industry Vice-Chair begins after the first quarterly meeting each year.

C. Membership: The ACSWG membership will consist of up to 18 members as follows:

(1) Twelve (12) members from the Aviation Industry who meet the membership criteria and qualifications listed above.

(2) Six (6) members who are assigned to FAA Headquarters policy divisions (e.g., AFS-200, AFS-300, AFS-400, AFS-600, AFS-800, other).

D. Term of Office and Mid-Term Appointments:

(1) One-third of the initial members will serve a one-year term, one-third of the initial members will serve a two-year term, and one-third of the initial members will serve a three-year term for the purpose of establishing the ACSWG and its processes. If reappointed, a member may serve thereafter in accordance with the provisions listed below.

(2) Each member may serve a maximum of two (2) consecutive three (3)-year terms on the ACSWG. After two consecutive three-year terms, a member is eligible for reappointment only after being off the ACSWG for a minimum of one two-year term.

(3) A mid-term vacancy of an appointed ACSWG member will be filled for the balance of the un-expired term. The FAA will be the designated appointing authority. The completion of an un-expired portion of a term will not be considered a full term.

E. Member Confidentiality and Conflicts of Interest:

(1) At the time of appointment, and at least once each year, each ACSWG Member must sign a “Commitment to Serve” agreement stating that, if selected, the member will not disclose any confidential information discussed by the ACSWG.

(2) Each ACSWG member must further agree that during service as a member, he or she will disclose fully and promptly to the ACSWG, in writing, any existing or potential conflict of interest of a personal, professional, business or financial nature that the member may have.

(3) After full disclosure, the ACSWG will determine whether the affected member may continue with ACSWG activities relating to involving the disclosed conflict. Breach of either the Commitment to Serve or obligation to disclose a conflict of interest may constitute sufficient cause for a Member’s removal from the ACSWG.

F. Removal of Members: An ACSWG member or officer may be removed for any of the following reasons:

(1) Failure to perform the duties of a Member, including participation in conference calls and other ACSWG activities between regularly scheduled meetings.

(2) Violation of ACSWG policies or rules.

(3) Failure to attend two (2) out of three (3) consecutive regularly scheduled ACSWG meetings without good cause, as determined by the ACSWG.

(4) Actions not in the best interest of ACSWG.

(5) Other cause or whenever required by the best interests of the ACSWG.

Removal will occur upon an affirmative vote of seven (7) ACSWG members at any meeting for which notice has been given and the question of such removal is an item of business.

IV. GENERAL PROCEDURES FOR ACSWG ACTIVITIES

This section describes general procedures and guidelines for the ACSWG's participation in developing, reviewing, and submitting proposed updates, corrections, or other changes to any elements of the airman certification system (e.g., standards, guidance, and testing).

A. General Procedures: To propose changes to any component of the airman certification system, the Aviation Industry or FAA proponent develops a draft document that includes:

(1) Description of the issue

(2) Reason for the concern

(3) Recommendation for ACSWG action

(4) Justification for the recommendation (to include data from appropriate users and FAA AFS divisions.

B. ACSWG Subgroups: The ACSWG will accomplish its work through subgroups consisting of an industry lead, appropriate ACSWG members, and the appropriate FAA (AFS) personnel.

ACSWG subgroups will be formed for two purposes.

(1) The first is to address the full set of airman certification system components (standards, guidance, testing) for a specific certificate or rating or, as appropriate, for "families" of airman certificates/ratings (e.g., pilot; instructor, aviation maintenance technician, dispatcher). The purpose of this holistic approach is to ensure that standards, guidance, and testing are aligned and maintained in alignment.

For each certificate or rating, the assigned subgroup will:

- Develop new ACS as required and periodically review existing ACS(s)
- Review and, as necessary, realign FAA-H-8083-XX series handbooks and guidance documents with the ACS
- Develop proposed knowledge test questions aligned with the ACS and guidance.
- Note any conforming changes needed to FAA internal guidance documents (e.g., Order 8900.1, Order 8900.2, advisory circulars, ASI/DE training)
- Review existing form tests, realign and/or correlate test maps to ACS
- Review test items (questions) currently in use and assign ACS codes
- Review the public data to ensure it accurately reflects the current tests.

In addition, the subgroup responsible for a given certificate or rating will review both internal (FAA) and external requests to add, delete, or modify content in any component of the airman certification system. The responsible subgroup will make recommendations to the appropriate FAA policy division(s) on whether, how, and to what extent the content should be modified, taking care to ensure that changes to any component of the airman certification system are appropriately incorporated in other components.

Once approved by the full ACSWG, the FAA will make ACSWG subgroup airman certification system proposals and work products except proposed test questions available for public review and comment via the FAA website and, as appropriate, announce such availability via *Federal Register* notice. In general, such documents should be available for public review and comment for at least two weeks. The FAA will also circulate the draft documents for internal coordination.

The assigned ACSWG subgroup will have responsibility to disposition both internal and external comments and develop a consensus position before making a final recommendation to the FAA.

(2) The second type of ACSWG subgroup is established to meet the requirement for security of knowledge test questions. The ACSWG will form multiple subgroups to review ("board") discrete sets of test questions to include assigning the ACS codes. This procedure will ensure that no single individual or organization represented on the ACSWG has direct knowledge of more than a third of the total test question data bank.

Additional security procedures, adapted from standard industry protocols, include the following:

- Each ACSWG member or subject matter expert (SME) must sign a Statement of Non-Disclosure agreeing to abide by all security procedures established to protect the test from compromise.
- Disclosure of any information about test items to anyone outside the ACSWG constitutes a breach of security and grounds for immediate removal from the ACSWG.
- Security procedures include the following:
    - During test question development meetings, individual use of personal communication devices is strictly prohibited.
    - Any written drafts or copies of items or notes relating to test question development will be destroyed (shredded or burned) by AFS personnel.
    - Copies of written items cannot be kept after any meeting. During ACSWG meetings, answer key(s) or any test portion(s) will be removed from the test review room at the completion of each day's meeting and retained in a secure area.
    - For test question development work performed via internet, technological security must be maintained at all times. This requirement includes keeping password information in a secure location, and never leaving computers unattended if performing test question development work.

C. Types of Meetings: ACSWG subgroups may use formal (face-to-face) meetings, telephone conferences, web meetings, or other means to seek coordination and consensus. Early coordination and interface involving the ACSWG subgroup lead, the ACSWG leadership, and the relevant AFS headquarters policy division representatives are essential to making the process successful.

D. Reports: By December 31 of each year, the ACSWG Industry Chair will provide a letter summarizing the preceding year's successes and challenges of the ACSWG to the FAA Flight Standards Service Director.

V. ACSWG QUARTERLY MEETINGS

The ACSWG will hold quarterly face-to-face meetings. Such meetings will typically be held the second Tuesday and Wednesday of the month in which the meeting takes place, although meetings may be extended as necessary to accomplish the necessary work. During the initial meeting, the ACSWG will establish its quarterly meeting schedule as necessary to align with the established schedule for introduction of new knowledge test questions and refreshed form tests in February, June, and October of each year,

Meetings will generally occur in Washington, DC or Oklahoma City. The proposed agenda for each meeting will be sent to the ACSWG members two weeks prior to the meeting with a request for any additional agenda items. The agenda should allow for time to modify the "final" agenda.

At each quarterly ACSWG meeting, participants should complete a sign-in sheet listing the name, company represented, address, telephone and fax numbers, and electronic mail address. Suggested format for preprinted "sign-in" sheet:

FAA/Industry Airman Certification System Working Group ACSWG 200X-X Attendees

Company and Address:	Company/FAA Representative:	Telephone and FAX Numbers:	E-mail address And Other information:

The ACSWG leadership shall ensure that the minutes for each quarterly meeting are distributed within 30 days of adjournment.

VI. ACSWG PROCEDURES GUIDE APPENDICES:

[Appendix A] to this document lists the names and contact information for current industry participants on the ACSWG.

[Appendix B] lists the names and addresses of current FAA AFS headquarters participants on the ACSWG.

APPENDIX T: ESTABLISHMENT OF ARAC ATST WG

Appendix T includes the *Federal Register* Notice establishing and tasking the Aviation Rulemaking Advisory Committee Airman Testing Standards and Training Working Group (ATST WG).[17]

Notice—Aviation Rulemaking Advisory Committee (ARAC); New Task Assignment for the ARAC: Establishment of Airman Testing Standards and Training Working Group

Summary: The FAA assigned the ARAC a new task arising from recommendations of the Airman Testing Standards and Training Aviation Rulemaking Committee (ARC). The ARC recommended ways to ensure that the FAA's airman testing and training materials better support reduction of fatal general aviation accidents. The new task is to integrate 14 CFR part 61 aeronautical knowledge and flight proficiency requirements for the private pilot and flight instructor certificates and the instrument rating into a single Airman Certification Standards document for each type of certificate and rating; to develop a detailed proposal to realign FAA training handbooks with the Airman Certification Standards documents; and to propose knowledge test item bank questions consistent with the integrated Airman Certification Standards documents and the principles set forth in the ARC's recommendations. This action item informs the public of the new ARAC's task and solicits membership for the new Airman Testing Standards and Training Working Group.

[17] 77 FR 56251 (September 12, 2012).

ADDRESSES: Submit completed loan applications to: U.S. Small Business Administration, Processing and Disbursement Center, 14925 Kingsport Road, Fort Worth, TX 76155.

FOR FURTHER INFORMATION CONTACT: A. Escobar, Office of Disaster Assistance, U.S. Small Business Administration, 409 3rd Street SW., Suite 6050, Washington, DC 20416.

SUPPLEMENTARY INFORMATION: The notice of the Presidential disaster declaration for the State of Louisiana, dated 08/31/2012 is hereby amended to include the following areas as adversely affected by the disaster:

Primary Parishes: (Physical Damage and Economic Injury Loans): Saint Charles.

All Contiguous Parishes have previously been declared.

All other information in the original declaration remains unchanged.

(Catalog of Federal Domestic Assistance Numbers 59002 and 59008)

James E. Rivera,

Associate Administrator for Disaster Assistance.

[FR Doc. 2012–22374 Filed 9–11–12; 8:45 am]

BILLING CODE 8025–01–P

DEPARTMENT OF STATE

[PUBLIC NOTICE 8020]

Culturally Significant Objects Imported for Exhibition Determinations: ''The Body Beautiful in Ancient Greece''

SUMMARY: Notice is hereby given of the following determinations: Pursuant to the authority vested in me by the Act of October 19, 1965 (79 Stat. 985; 22 U.S.C. 2459), Executive Order 12047 of March 27, 1978, the Foreign Affairs Reform and Restructuring Act of 1998 (112 Stat. 2681, *et seq.;* 22 U.S.C. 6501 note, *et seq.*), Delegation of Authority No. 234 of October 1, 1999, and Delegation of Authority No. 236–3 of August 28, 2000 (and, as appropriate, Delegation of Authority No. 257 of April 15, 2003), I hereby determine that the objects to be included in the exhibition ''The Body Beautiful in Ancient Greece,'' imported from abroad for temporary exhibition within the United States, are of cultural significance. The objects are imported pursuant to a loan agreement with the foreign owner or custodian. I also determine that the exhibition or display of the exhibit objects at the Portland Art Museum, Portland, Oregon, from on or about October 6, 2012, until on or about January 6, 2013, the Dallas Museum of Art, Dallas, Texas, from on or about May 5, 2013, until on or about October 6, 2013, and at possible additional exhibitions or venues yet to be determined, is in the national interest. I have ordered that Public Notice of these Determinations be published in the **Federal Register**.

FOR FURTHER INFORMATION CONTACT: For further information, including a list of the exhibit objects, contact Paul W. Manning, Attorney-Adviser, Office of the Legal Adviser, U.S. Department of State (telephone: 202–632–6469). The mailing address is U.S. Department of State, SA–5, L/PD, Fifth Floor (Suite 5H03), Washington, DC 20522–0505.

Dated: September 6, 2012.

J. Adam Ereli,

Principal Deputy Assistant Secretary, Bureau of Educational and Cultural Affairs, Department of State.

[FR Doc. 2012–22445 Filed 9–11–12; 8:45 am]

BILLING CODE 4710–05–P

DEPARTMENT OF STATE

[Public Notice 8019]

Culturally Significant Objects Imported for Exhibition Determinations: ''Picasso Black and White''

SUMMARY: Notice is hereby given of the following determinations: Pursuant to the authority vested in me by the Act of October 19, 1965 (79 Stat. 985; 22 U.S.C. 2459), Executive Order 12047 of March 27, 1978, the Foreign Affairs Reform and Restructuring Act of 1998 (112 Stat. 2681, *et seq.;* 22 U.S.C. 6501 note, *et seq.*), Delegation of Authority No. 234 of October 1, 1999, and Delegation of Authority No. 236–3 of August 28, 2000 (and, as appropriate, Delegation of Authority No. 257 of April 15, 2003), I hereby determine that the objects to be included in the exhibition ''Picasso Black and White,'' imported from abroad for temporary exhibition within the United States, are of cultural significance. The objects are imported pursuant to loan agreements with the foreign owners or custodians. I also determine that the exhibition or display of the exhibit objects at the Solomon R. Guggenheim Museum, New York, New York, from on or about October 5, 2012, until on or about January 23, 2013, and at possible additional exhibitions or venues yet to be determined, is in the national interest. I have ordered that Public Notice of these Determinations be published in the **Federal Register**.

FOR FURTHER INFORMATION CONTACT: For further information, including a list of the exhibit objects, contact Paul W. Manning, Attorney-Adviser, Office of the Legal Adviser, U.S. Department of State (telephone: 202–632–6469). The mailing address is U.S. Department of State, SA–5, L/PD, Fifth Floor (Suite 5H03), Washington, DC 20522–0505.

Dated: September 5, 2012.

J. Adam Ereli,

Principal Deputy Assistant Secretary, Bureau of Educational and Cultural Affairs, Department of State.

[FR Doc. 2012–22447 Filed 9–11–12; 8:45 am]

BILLING CODE 4710–05–P

DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

Aviation Rulemaking Advisory Committee (ARAC); New Task Assignment for the ARAC: Establishment of Airman Testing Standards and Training Working Group

AGENCY: Federal Aviation Administration (FAA), DOT.

ACTION: Notice

SUMMARY: The FAA assigned the ARAC a new task arising from recommendations of the Airman Testing Standards and Training Aviation Rulemaking Committee (ARC). The ARC recommended ways to ensure that the FAA's airman testing and training materials better support reduction of fatal general aviation accidents. The new task is to integrate 14 CFR part 61 aeronautical knowledge and flight proficiency requirements for the private pilot and flight instructor certificates and the instrument rating into a single Airman Certification Standards document for each type of certificate and rating; to develop a detailed proposal to realign FAA training handbooks with the Airman Certification Standards documents; and to propose knowledge test item bank questions consistent with the integrated Airman Certification Standards documents and the principles set forth in the ARC's recommendations.

This action item informs the public of the new ARAC's task and solicits membership for the new Airman Testing Standards and Training Working Group (Working Group).

FOR FURTHER INFORMATION CONTACT: Van L. Kerns, Manager, Regulatory Support Division, FAA Flight Standards Service, AFS 600, FAA Mike Monroney Aeronautical Center P.O. Box 25082 Oklahoma City, OK 73125; telephone (405) 954–4431, email *van.l.kerns@faa.gov.*

SUPPLEMENTARY INFORMATION:

Background

The FAA established ARAC to provide advice and recommendations to the FAA Administrator on the FAA's rulemaking activities. ARAC's objectives are to improve the development of the FAA's regulations by providing information, advice, and recommendations related to aviation issues.

On September 21, 2011, the FAA chartered the ARC for the U.S. aviation community to develop recommendations for more effective training and testing in the areas of aeronautical knowledge and flight proficiency required for safer operation in today's National Airspace System (NAS).

The FAA's charge to the ARC was to help ensure that FAA's technical information related to existing standards for airman knowledge and skill tests, computer testing supplements, knowledge test guides, practical test standards and training handbooks incorporates the most current, relevant, and effective approaches to training and testing. The FAA specifically tasked the ARC with providing recommendations on a process for ongoing stakeholder participation in developing the content of these materials, and methodologies for developing better test item bank questions. The FAA also asked the ARC to develop a prioritized list of certificates and ratings to update.

This new task is the FAA's response to several of the ARC's recommendations. Establishment of the ARAC's Working Group creates a process by which the stakeholders' real world aviation education and training expertise can contribute to the development of materials and methodologies. In accordance with the ARC's recommended certificate and rating priorities, the Working Group will address the private pilot, flight instructor, and instrument rating training and testing materials by developing an integrated Airman Certification Standards document for each one.

By aligning the aeronautical knowledge testing standards required by 14 CFR part 61 with the flight proficiency standards set out in the existing Practical Test Standards (PTS), the integrated Airman Certification Standard will enhance the relevance, reliability, validity, and effectiveness of aeronautical knowledge testing and training materials and thus support the FAA's goal of reducing fatal general aviation accidents. The FAA is also tasking the ARAC's Working Group to develop a detailed proposal to realign and, as appropriate, streamline and consolidate existing FAA guidance material (e.g., handbooks) with each integrated Airman Certification Standards documents; and to propose methodologies to ensure that knowledge test item bank questions are consistent with both the Airman Certification Standards documents and the test question development principles set forth in the ARC's recommendations.

In August 2012, the ARAC's Executive Committee discussed the proposed actions for this tasking. This notice advises the public that the FAA has assigned, and the Executive Committee has accepted, a new task to develop the items listed below. The FAA has specifically tasked the ARAC's Working Group to support the FAA's goal to enhance general aviation safety and reduce the fatal general aviation accident rate by providing:

(1) An integrated Airman Certification Standards document that aligns the aeronautical knowledge testing standards required by 14 CFR part 61 with the flight proficiency standards (''Areas of Operation'') set out in 14 CFR part 61 and the existing Practical Test Standards (PTS) for (a) the private pilot and (b) flight instructor certificates and (c) the instrument rating. To accomplish this task, the Working Group should follow the ARC's recommendations to integrate appropriate elements of aeronautical knowledge and risk management into each Area of Operation in the current Practical Test Standards documents.

(2) A recommendation on priorities for revision of additional certificates and ratings, along with ways to ensure expert review of any revisions to these documents.

(3) A detailed proposal to realign and, as appropriate, streamline and consolidate existing FAA guidance material (e.g., the handbooks listed below) with the integrated Airman Certification Standards documents developed in accordance with item (1). The Working Group will also develop and recommend a process for review and revision of these materials.

(4) Proposed knowledge test item bank questions that are consistent with both the newly developed Airman Certification Standards documents and the test question development principles set forth in the ARC's recommendations. The Working Group will also recommend options that provide for expert outside review (''boarding'') of proposed questions while safeguarding the integrity of the testing process.

The Working Group is expected to develop a report containing each of the listed elements. Any disagreements should be documented, including the rationale for each position and the reasons for the disagreement.

In developing this report, the Working Group shall familiarize itself with:

1. A Report to the FAA from the Airman Testing Standards and Training Aviation Rulemaking Committee: Recommendations to Enhance Airman Knowledge Test Content and Its Processes and Methodologies for Training and Testing (*www.faa.gov/aircraft/draft_docs/arc*).

2. Aeronautical knowledge standards set forth in 14 CFR part 61, Certification: Pilots, Flight Instructors, and Ground Instructors.

3. Flight proficiency standards set forth in 14 CFR part 61, Certification: Pilots, Flight Instructors, and Ground Instructors.

4. FAA Airman Knowledge Test Guide (FAA–G–8082–17E).

5. Current Practical Test Standards documents for Private Pilot Airplane (FAA–S–8081–14B); Flight Instructor Airplane (FAA–S–8081–6C); and Instrument Rating for Airplane, Helicopter, and Powered Lift (FAA–S–8081–4E).

6. Current FAA guidance materials, to include the Pilot's Handbook of Aeronautical Knowledge (FAA–H–8083–25A); the Airplane Flying Handbook (FAA–H–8083–3A); the Aviation Instructor's Handbook (FAA–H–8083–9A); the Instrument Flying Handbook (FAA–H–8083–15A); and the Instrument Procedures Handbook (FAA–H–8083–1A).

Schedule

The recommendations must be forwarded to the ARAC Executive Committee for review and approval no later than September 30, 2013.

ARAC Acceptance of New Task

The ARAC's Executive Committee has accepted the task and assigned it to the newly-established ARAC Working Group. The Working Group serves as staff to ARAC and assists in the analysis of the assigned new task. ARAC must review and approve the Working Group's recommendations. If ARAC accepts the Working Group's recommendations, it will send them to the FAA in the form of a written report.

Working Group Activity

The Working Group must comply with the procedures adopted by ARAC. As part of the procedures, the Working Group must:

1. Recommend a work plan for completion of the task, including the rationale supporting such a plan, for

consideration at the next ARAC Executive Committee meeting held following publication of this notice.

2. Provide a status report at each meeting of the ARAC Executive Committee.

3. Draft the recommendations report and required analyses and/or any other related materials or documents.

4. Present the final recommendations to the ARAC Executive Committee for review and approval.

Participation in the ARAC Working Group

The Working Group will be comprised of aviation professionals with experience and expertise in airman training and testing, and technical experts having an interest in the assigned new task. The FAA would like a wide range of members to ensure that all aspects of airman testing and training, including best practices, are considered in the development of its recommendations.

If you wish to become a member of the Working Group, please write the person listed under the caption FOR FURTHER INFORMATION CONTACT expressing such desire. Describe your interest in the new task and state the expertise you would bring to the Working Group. We must receive all requests by October 2, 2012.

The ARAC Executive Committee and the FAA will review the requests and advise you whether your request is approved.

If you are chosen for membership on the Working Group, you must actively participate by attending all meetings and providing written comments when requested to do so. You must devote the resources necessary to support the Working Group in meeting any assigned deadlines. You must keep your management chain, and those you may represent, advised of the Working Group's activities and decisions to ensure the proposed technical solutions do not conflict with your sponsoring organization's position, when the subject is presented to ARAC for approval. Once the Working Group has begun deliberations, members will not be added or substituted without the approval of the FAA and the Working Group chair.

The Secretary of Transportation determined the formation and use of ARAC is necessary and in the public interest in connection with the performance of duties imposed on the FAA by law. ARAC meetings are open to the public. However, ARAC Working Group's meetings are not open to the public, except to the extent individuals with an interest and expertise are selected to attend. The FAA will make no public announcement of the Working Group's meetings.

Issued in Washington, DC, on September 5, 2012.

Lirio Liu,

Acting Director, Office of Rulemaking.

[FR Doc. 2012–22451 Filed 9–11–12; 8:45 am]

BILLING CODE 4910–13–P

DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

60th Meeting: RTCA Special Committee 135, Environmental Conditions and Test Procedures for Airborne Equipment

AGENCY: Federal Aviation Administration (FAA), U.S. Department of Transportation (DOT)

ACTION: Meeting Notice of RTCA Special Committee 135, Environmental Conditions and Test Procedures for Airborne Equipment

SUMMARY: The FAA is issuing this notice to advise the public of the sixtieth meeting of the RTCA Special Committee 135, Environmental Conditions and Test Procedures for Airborne Equipment

DATES: The meeting will be held November 8, 2012 from 9 a.m.—5 p.m.

ADDRESSES: The meeting will be held at FAA Aircraft Certification Office, 2601 Meacham Blvd., Ft. Worth, TX 76137. Foreign Nationals will need to complete a Foreign National Authorization Form. Send a completed form to host/point of contact: Daniele Jordan at the following email address: *Danielle.Jordan@faa.gov.*

FOR FURTHER INFORMATION CONTACT: The RTCA Secretariat, 1150 18th Street, NW., Suite 910, Washington, DC, 20036, or by telephone at (202) 330–0652/(202) 833–9339, fax at (202) 833–9434, or Web site at *http://www.rtca.org.*

SUPPLEMENTARY INFORMATION: Pursuant to section 10(a) (2) of the Federal Advisory Committee Act (Pub. L. No. 92–463, 5 U.S.C., App.), notice is hereby given for a meeting of Special Committee 135. The agenda will include the following:

November 8, 2012

- Chairmen's Opening Remarks, Introductions.
- Introduce FAA Representative
- Approval of Summary from the Fifty-Ninth Meeting
- Presentation on the rotorcraft DO–160 environmental qualification of equipment
- Review open proposal's for User's Guide's
- Review Working Group activities
  - Section 4
  - Section 5
  - Section 8
  - Section 16
  - Section 20
  - Section 21
- RTCA Workspace Discussion
- New/Unfinished Business
  - Errata Sheet
  - Schedule for Users Guide
- Establish Date for Next SC–135 Meeting
- Closing/Adjourn

Attendance is open to the interested public but limited to space availability. With the approval of the chairman, members of the public may present oral statements at the meeting. Persons wishing to present statements or obtain information should contact the person listed in the FOR FURTHER INFORMATION CONTACT section. Members of the public may present a written statement to the committee at any time.

Issued in Washington, DC, on September 7, 2012.

David Sicard,

Manager, Business Operations Group, Federal Aviation Administration.

[FR Doc. 2012–22466 Filed 9–11–12; 8:45 am]

BILLING CODE 4910–13–P

DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

Ninth Meeting: RTCA Special Committee 225, Rechargeable Lithium Battery and Battery Systems—Small and Medium Size

AGENCY: Federal Aviation Administration (FAA), U.S. Department of Transportation (DOT).

ACTION: Meeting Notice of RTCA Special Committee 225, Rechargeable Lithium Battery and Battery Systems—Small and Medium Size.

SUMMARY: The FAA is issuing this notice to advise the public of the ninth meeting of the RTCA Special Committee 225, Rechargeable Lithium Battery and Battery Systems—Small and Medium Size.

DATES: The meeting will be held October 9–11, 2012, from 9 a.m.–5 p.m.

ADDRESSES: The meeting will be held at RTCA, Inc., 1150 18th Street NW., Suite 910, Washington, DC 20036.

FOR FURTHER INFORMATION CONTACT: The RTCA Secretariat, 1150 18th Street NW., Suite 910, Washington, DC 20036, or by telephone at (202) 330–0652/(202) 833–9339, fax at (202) 833–9434, or Web site at *http://www.rtca.org.*

APPENDIX U: ARAC ATST WG MEMBERS + FAA PARTICIPANTS

Name	Organization
Industry Members	
David Oord, Co-Chair	Aircraft Owners and Pilots Association
Jason Blair, Co-Chair	National Association of Flight Instructors
Eric Crump	Polk State College
Jeremy Desruisseaux	Jeppesen
Kate Fraser	General Aviation Manufacturers Association
John King	King Schools, Inc.
Dr. Janeen Kochan	Aviation Research, Training, and Services, Inc.
Kent Lovelace	University of North Dakota
John “Mac” McWhinney	King Schools, Inc.
Kurt Reesman	Liberty University & Aircraft Owners and Pilots Association Air Safety Institute
Hans Reigle	University Aviation Association
Roger Sharp	Redbird Skyport & ProFlight Academy
Jackie Spanitz	Aviation Supplies & Academics, Inc.
Doug Stewart	Society of Aviation and Flight Educators
Batson Michael Wilson	AnywhereEducation Inc.
FAA Participants	
Susan Parson, FAA Representative	FAA – AFS-003
Robyn LaPorte	FAA – AFS-210
Leisha Bell	FAA – AFS-270
Kevin Kelly	FAA – AFS-470
Van Kerns	FAA – AFS-600
Eric Baird	FAA – AFS-630
Jim Viola	FAA – AFS-800
Jeff Smith	FAA – AFS-810
Sabrina Jawed	FAA – AGC
Barbara Adams	FAA – AIR-280

Co-Chair Biographies

David J. Oord
Manager, Regulatory Affairs
Aircraft Owners and Pilots Association

Co-chair of the ARAC ATSTWG, David Oord is the Manager of Regulatory Affairs for the Aircraft Owners and Pilots Association (AOPA). Mr. Oord oversees policy and regulations affecting airman certification, aircraft certification, aeromedical certification, and environmental issues. An active pilot, he holds a commercial pilot certificate - both single and multi-engine airplane land and instrument ratings. Mr. Oord obtained a Bachelor of Business Administration in Aviation Management from the University of North Dakota and a Master of Business Administration from Boise State University. Prior to his work for AOPA, he worked in airport management, operations, security and firefighting at Westchester County airport (HPN) and government affairs for the Experimental Aircraft Association (EAA). Mr. Oord serves on ASTM F37 Light-Sport Aircraft Executive subcommittee, chairs ASTM F37.1 Terminology subcommittee, co-chaired the loss of control working groups of the General Aviation Joint Steering Committee (GAJSC), and co-chaired the FAA/Industry Light-Sport Joint Safety Committee (LS-JSC).

With a membership base of nearly 400,000 pilots and aviation enthusiasts in the United States, AOPA is the largest, most influential aviation association in the world. AOPA has achieved its prominent position through effective advocacy, enlightened leadership, technical competence, and hard work. Providing member services that range from representation at the federal, state, and local levels to legal services, advice, and other assistance, AOPA has built a service organization that far exceeds any other in the aviation community.

Jason Blair
Designated Pilot Examiner

Co-Chair of the ARAC ATST WG, Jason Blair is an active FAA Designated Pilot Examiner and CFI who consults on aviation training and regulatory efforts for general aviation companies. He has and continues to serve on a number of FAA/Industry aviation committees, has previously served as the Executive Director of the National Association of Flight Instructors, and has owned an FBO that provided maintenance and flight training. Mr. Blair is an active CFI with over 2,500 hours of instruction given.

Industry Member Biographies

Eric Crump
Aerospace Program Director
Polk State College

Eric Crump administers and actively instructs in a collegiate aviation program in central Florida. Polk State College is widely known for its innovative approach to pilot training through flight simulation and its thorough incorporation of human factors principles in both its academic and flight curricula. Mr. Crump has extensive aviation experience in the Part 61/141 aviation training industry as well as in Part 135 air charter operations. He was Chief Ground Instructor at Middle Tennessee State University, his alma mater, before beginning a professional piloting career in Atlanta, Georgia. Mr. Crump most recently served as Aviation Content Manager and Part 141 Chief Instructor of Gleim Publications, an international pilot training materials provider. He holds current pilot and flight instructor privileges from the FAA and actively serves on various industry boards and in various aviation-related associations.

Jeremy R. Desruisseaux
Portfolio Manager Flight Education
Jeppesen

Jeremy Desruisseaux is the business development manager for flight training for Jeppesen. Mr. Desruisseaux currently oversees the development of online pilot certification programs and advanced pilot training products and services. He has more than 16 years of experience as a Certificated Flight Instructor, and he has provided more than 4,800-hours of dual instruction in multiple single- and multi-engine aircraft. He has been instrumental in the global development and administration of some of the world’s largest flight training organizations and OEM affiliated flight training programs, including Diamond Aircraft (Diamond Flight Centers) and Pan Am International Flight Academy.

Kathryn Fraser
Manager, Operations
General Aviation Manufacturers Association

Kathryn Fraser is the Manager of Operations at the General Aviation Manufacturers Association (GAMA), where she provides regulatory staff support for the Association’s work in operations, safety, security and certification. Ms. Fraser also acts as a staff liaison to GAMA committees related to operations and safety and continually works with both member companies and government agencies on these issues. She is also in charge of the GA Air Safety Investigators Workshop (GA-ASI), annually held in Wichita, KS. Ms. Fraser graduated from Kansas State University at Salina with a Bachelor's degree in Aeronautical Technology. She is a commercial rated pilot in both single engine and multi-engine land airplanes and was a flight instructor in the University's flight department prior to joining GAMA.

GAMA represents over 80 of the world’s leading manufacturers, general aviation airplanes and rotorcraft, engines, avionics, components, and related services. In addition to building nearly all of the general aviation airplanes flying worldwide today, GAMA member companies also operate fleets of airplanes, fixed-based operations, pilot/technician training centers, and maintenance facilities worldwide.

John King
Co-Chairman
King Schools, Inc.

John King, along with his wife and business partner, Martha, owns King Schools. He has been learning about and teaching flying full time since 1975. He considers aviation one of humankind's greatest achievements and those who fly to be very special people. Having through the magic of video and the Internet taught hundreds of thousands of pilots through the decades, he feels his greatest privilege has been to have played a role in the lives of so many pilots. Mr. King considers himself fortunate to have also accumulated some 12,000 flight hours. He holds an Airline Transport Pilot certificate with Single & Multiengine Land and Sea Airplane and Rotorcraft Helicopter ratings, and the following type ratings: Falcon 10, Citation 500, Citation 510S, Eclipse 500S, and LR-JET. Mr. King has Commercial Privileges for Rotorcraft Gyroplane, Glider, and Lighter-than-Air Airship and Free Balloon. He has Sport Pilot endorsements for Powered Parachute Land and Weight-Shift Control Land. He also holds a Flight Instructor certificate with ratings for Airplane Single & Multi-Engine, Rotorcraft Helicopter & Gyroplane, Instrument Airplane and Helicopter, Glider, and Lighter-than-Air and with Sport endorsements for Powered Parachute and Weight-Shift Control. He is also an Advanced and Instrument Ground Instructor.

Dr. Janeen A. Kochan
President/Human Factors Researcher/Instructor/Pilot
Aviation Research, Training, and Services, Inc.

Dr. Janeen Kochan, a former Boeing 767 captain and Crew Resource Management instructor for a major U.S. airline, presently flies as a corporate pilot. She provides pilot training and conducts FAA pilot certification tests throughout the world. She has over 18,000 hours of flying time in a variety of aircraft and has type ratings in the B-767/757, DC-8, DC-9, YS-11, CV-LB-30, and numerous corporate jets. In addition, she holds current and active Airframe and Powerplant, Inspector Authorization, Flight Instructor, and FAA Designated Pilot Examiner privileges. In addition to providing training and evaluation services to the aviation industry, Dr. Kochan serves as a Courtesy Instructor of Medical Education at the University of Central Florida College of Medicine and is a Visiting Research Professor and an Aviation Expert in Residence for the Drexel University School of Biomedical Engineering, Science and Health Systems. She is an Adjunct Assistant Professor for Embry-Riddle Aeronautical University – Worldwide and Polk State College. Dr. Kochan holds a PhD in Applied Experimental and Human Factors Psychology from the University of Central Florida in Orlando and an M.S. in Industrial and Systems Engineering from the Ohio State University. Her BA degree was also earned from the Ohio State University in pre-medicine and psychology.

Kent Lovelace
Professor and Chair, Department of Aviation
University of North Dakota

Kent Lovelace holds the rank of Full Professor and is Chairman of the Aviation Department at the University of North Dakota (UND) in Grand Forks, overseeing the academic program of 1,500 students enrolled as aviation majors in various undergraduate and graduate degree programs. Prof. Lovelace holds an Airline Transport Pilot Certificate with a Cessna Citation Type Rating and a CFI Certificate with all of the fixed wing ratings. He has accumulated over 4,000 hours of flying experience, with 3,400+ hours of dual given. Prof. Lovelace has developed or co-developed and taught many of UND's aviation flight courses and has co-authored several publications for pilot certification courses as well as other aviation-related flight courses. He has given numerous presentations at local, regional and national aviation conferences. He has a Bachelor's Degree in Business Administration along with a Master's degree in Education from University of North Dakota. In addition to his academic responsibilities, Prof. Lovelace is in his tenth year as a Director on the National Business Aviation Association's Certified Aviation Managers Governing Board and recently stepped down as a Director of the National Intercollegiate Flying Association's Board of Directors after serving for 27 years. He is active with the University Aviation Association and Aviation Accreditation Board International though various committees.

John "Mac" McWhinney
Senior Course Developer
King Schools, Inc.

John "Mac" McWhinney, a retired U.S. Navy Captain, served as a pilot and officer fulfilling numerous leadership, management, and administrative positions in U.S. Navy aircraft squadrons, air wings, and command staffs. Captain McWhinney commanded a Navy Light Attack squadron, Carrier Air Wing, and a Combat Stores ship. He has logged over 8,000 total flight hours and 1,000 arrested landings on U.S. Navy aircraft carriers. In civil aviation, he holds a CE-500 type rating on an ATP certificate. He also holds a Flight Instructor certificate with Airplane Single Engine and Instrument ratings as well as a Ground Instructor certificate with an Advanced Instrument rating. Under a Part 135 certificate, Mr. McWhinney flew single-pilot air ambulance operations on Cessna 400 series aircraft and as SIC in Lear 20 series aircraft and was designated as the training pilot for the Cessna 400 series aircraft.

Mr. McWhinney has over 20 years of experience at his current employment developing and maintaining pilot and aviation mechanic training courses and supervising development teams working on them. He held positions as department manager, vice president, and senior vice president. His current situation is part-time allowing involvement in many activities including flight instruction. Mr. McWhinney has participated with the committee that developed the FAA/Industry Training Standards (FITS), the General Aviation Joint Steering Committee (GAJSC) Subgroup on Personal/Sport Aviation, and the Airman Testing Standards and Training Aviation Rulemaking Committee (ARC). Mr. McWhinney holds a BS in Math/Physics Education from Purdue University.

Kurt Reesman
Associate Professor/Lecturer/Instructor/Pilot
Liberty University and Aircraft Owners and Pilots Association Air Safety Institute

Kurt Reesman, a retired U.S. Air Force Instructor and Evaluator pilot, is currently an Associate Professor and Flight Instructor in the Liberty University School of Aeronautics. In addition, he travels with the Aircraft Owners and Pilots Association Air Safety Institute as a Flight Instructor Refresher Course Instructor and Safety Seminar Presenter. Mr. Reesman is also a FAASTeam Representative with the Richmond Flight Service District Office. He provides academic and flight training instruction at Liberty University, and nationwide with AOPA. He has over 4,000 hours of flying time in the U.S. Air Force's T-37, T-38, RF-4C and F-15E, as well as the Royal Saudi Air Force F-15S. He served as an instructor and evaluator pilot in the T-37, F-15E and the F-15S. His civilian flight, and instructor time includes experience in various Cessna and Piper single-engine and multi-engine aircraft. Currently he holds current and active Flight Instructor privileges. Mr. Reesman holds a Master of Aeronautical Science, Operations concentration, from Embry-Riddle Aeronautical University and a BA in Psychology and Religious Studies from Western Kentucky University.

Hans Reigle
Assistant Professor/Assistant Director of Aviation Program at Delaware State University
University Aviation Association

Professor Hans Reigle currently represents the University Aviation Association (UAA) on the ATST WG. With over 11,000 flight hours, his flight experience includes: Captain on the Airbus 320 at United Airlines, United States Air Force Instructor Pilot on the Lockheed C-5 Galaxy, U.S. Army Instructor Pilot in the UH-1 Huey helicopter, Flight Engineer on the Boeing 727 and First Officer on the Boeing 777. He has extensive CRM, Part 121 and glass cockpit experience in addition to over 1,000 hours of general aviation aircraft experience. He currently holds CFI and CFII ratings for Single and Multiengine Airplanes and Helicopters. Additionally, he holds Airline Transport Pilot type ratings in the Boeing 777 and Airbus 319/320 aircraft with a Flight Engineer Turbojet Powered certificate. Prof. Reigle is currently an Assistant Professor and is the Assistant Director of the aviation program at Delaware State University in Dover, Delaware where he specializes in Crew Resource Management and International Air Transportation studies.

The UAA is the voice of collegiate aviation to the industry, government and the general public. Through the collective expertise of its members, this nonprofit organization plays a pivotal role in the advancement of degree-granting aviation programs that represent all segments of aviation. The UAA has more than 525 members, including 105 accredited colleges and universities.

Roger Sharp
General Manager, Operations
Redbird Skyport and ProFlight Academy

Roger Sharp is currently the General Manager for Flight Operations at Redbird Skyport and ProFlight Academy. He holds five ATP category and class ratings and has been actively instructing for over 30 years. He is a Designated Pilot Examiner for Airplanes (Land & Sea) and Helicopters. Prior to joining Redbird he was Program Manager and Regional Manager for Cessna's Pilot Center Program. Prior to Cessna he spent 20 years in the USAF, and was a Command Pilot, Stan-Eval Examiner, and Master Instructor. He holds undergraduate degrees in Biology and Chemistry, and graduate degree in Education.

Jackie Spanitz
Director of Curriculum Development
Aviation Supplies & Academics, Inc.

Jackie Spanitz is Director of Curriculum Development for Aviation Supplies & Academics, Inc. (ASA). She oversees new and existing product development, ranging from textbooks and flight computers to software products, and digital and mobile solutions, and integration of these products into new and existing curricula. She has worked directly with the training and testing associated with airman certification for 20 years, including the FAA Knowledge and Practical Exams. Ms. Spanitz holds a Bachelor of Science in aviation technology from Western Michigan University, a Masters in Aeronautics Science from Embry Riddle Aeronautical University, and Instructor and Commercial Pilot certificates. She is the author of *Guide to the Flight Review, Private Pilot Syllabus, Instrument Rating Syllabus,* and *Commercial Pilot Syllabus*, is the technical editor for ASA's Test Prep and FAR/AIM series, and has written for numerous aviation publications.

ASA has been providing trusted aviation training products for more than 65 years to flight instructors, aviation maintenance technicians, air traffic controllers, career aviators, and students. ASA's pilot supplies, software, and publications are supported with integrity, consistency, superior quality, and the best customer service in the industry from the corporate headquarters in Newcastle, Washington. ASA’s nearly 100 authors consist of subject matter experts from around the globe and represent a wide-range of disciplines and organizations including pilot and maintenance colleges and universities, air traffic controllers, manufacturers, engineers, government agencies, airlines, and corporate flight departments.

Doug Stewart
Executive Director/Co-founder
Society of Aviation and Flight Educators (SAFE)

Doug Stewart is the Executive Director and co-founder of the Society of Aviation and Flight Educators (SAFE) as well as a full time flight instructor and designated pilot examiner. He is the 2004 National CFI of the Year. Doug has provided more than 10,500 hours of dual instruction, specializing in IFR training, complex and technically advanced aircraft, as well as tailwheel training. He authored “*The Vintage Instructor*” column for *Vintage Airplane* magazine for many years, and is a frequent contributor to the “*FAA Safety Brief.*”

SAFE is a member-centric, professional organization for aviation educators. SAFE facilitates the professional development of aviation educators; it seeks improved learning materials for all aviation students, and a safer aviation environment. SAFE seeks to create a safer aviation environment through enhanced education. SAFE provides aviation educators with mentoring, support, and professional accreditation. By providing quality educational materials and other resources, we seek a reduction in aviation accidents, increased professionalism among aviation educators, and lifelong learning by everyone involved in aviation.

Batson Michael Wilson
President/CEO
AnywhereEducation Inc.

Baton Wilson is the President/CEO of AnyhereEducation Inc., the world's largest provider of online and mobile aviation training with over 500,000 unique users in 100 countries since 1999. He holds an ATP (multi-engine land), Commercial (single engine land and sea & rotorcraft-helicopter). Mr. Wilson has over 5,600 hours of flight time (including 1,200 hours of helicopter time), and he has been actively instructing for 14 years. He also holds a CFI, CFII, MEI, AGI and IGI. Mr. Wilson previously served as a Part 141 Chief Flight Instructor.

FAA Participant Biographies

Susan Parson
Editor, FAA Safety Briefing *Magazine*
Special Technical Assistant
Flight Standards Service

Susan Parson is the FAA Representative for the ATST WG. She holds an ATP certificate, as well as ground and flight instructor certificates with instrument, single engine, and multi-engine land ratings. She has repeatedly earned Master Flight Instructor and Master Ground Instructor designations from NAFI and Master Instructors LLC. An active general aviation pilot, Ms. Parson continues to instruct on weekends for her Leesburg-based C182 flying club and the Civil Air Patrol, in which she has held safety and stan/eval positions at the Wing and Region levels. As editor of *FAA Safety Briefing* magazine and in her Flight Standards role, which included work on the General Aviation Joint Steering Committee, Ms. Parson has authored over 80 GA safety articles and several online training documents and courses. These include *Conducting an Effective Flight Review*, *Instrument Proficiency Check Guidance*, the *General Aviation Pilot's Guide to Preflight Weather Planning, Weather Self-Briefings, and Weather Decision Making*, and *Best Practices for Mentoring in Flight Instruction*. In her various CAP roles, she has created a number of advanced avionics training courses and modules, and she is the primary author of the Civil Air Patrol's online National Check Pilot Standardization Course.

Ms. Parson has been with the Federal Aviation Administration since May 2004, serving in the General Aviation and Commercial Division of the FAA Flight Standards Service from May 2004 until June 2009, when she took a position as special technical assistant to the director of the FAA Flight Standards Service.

Robyn LaPorte
Aviation Safety Inspector, Air Carrier and Part 142 Training Center Branch (AFS-210)
Flight Standards Service

Robyn LaPorte is assigned to the Air Carrier and Part 142 Training Center Branch in the Air Transportation Division. Ms. LaPorte currently supports stall and upset prevention and recovery training guidance development, the A350 Flight Standardization Board, the Commercial Aviation Safety Team, and follow-on work to the Pilot Certification and Qualification Requirements for Air Carrier Operations final rule.

Ms. LaPorte holds an airline transport pilot certificate with multiengine airplane land rating and type ratings on the A320 and SF-340. She also holds a single engine commercial certificate and flight instructor certificate with instrument and multiengine land ratings. Prior to becoming an aviation safety inspector, Ms. LaPorte was a pilot in part 121 operations for over ten years flying the Avro RJ 85, SF-340, and A319/321. Ms. LaPorte also instructed systems integration and procedures training for the A320 series aircraft. After graduating from college, Ms. LaPorte built her flight time by flight instructing and flying part 135, traffic patrol, sightseeing flights, and aerial surveys.

Leisha Bell
Management and Program Analyst, Policy Integration Branch (AFS-270)
Federal Aviation Administration

Leisha Bell is a Management and Program Analyst for the Policy Integration Branch of the Air Transportation Division of the Federal Aviation Administration. She is a member of multiple FAA rulemaking teams, including the Pilot Certification and Qualification Requirements for Air Carrier Operations. Ms. Bell was an integral part of drafting this rule and the associated FAA policy. In addition to this work, Ms. Bell is responsible for reviewing Air Transportation Division responses to NTSB safety recommendations, drafting reports to Congress, and responses to Congressional inquiries.

Before joining the FAA, Ms. Bell was the Director of Regulatory Affairs for the Aircraft Owners and Pilots Association. Ms. Bell holds a BS from the University of Connecticut and an MBA from Loyola University Maryland. She holds an airline transport pilot certificate and flight instructor certificate with multiengine and instrument instructor ratings.

Eric Baird
Manager, Airman Testing Standards Branch (AFS-630)
Flight Standards Service

Eric Baird holds a Commercial Pilot certificate with single and multi-engine land as well as rotorcraft, helicopter ratings. He also holds a flight instructor certificate. In addition, he holds an Aircraft Mechanic Certificate with Inspection Authorization and a Master Parachute Rigger certificate.

Since 1991, Mr. Baird’s work focus has been on FAA designees. He has been an instructor and manager of the Designee Standardization Branch, AFS-640; he started the Designee Quality Assurance Branch, AFS-650. He served as the FAA Designee Steering Group chairman and program manager for the development of the Designee Management System that is scheduled to go live in early FY 2014. He accepted the position of Manager of the Airman Testing Standards Branch, AFS-630, in June, 2013. Mr. Baird has a BS in Aviation Administration and an MS in Aerospace Administration from Southeastern Oklahoma State University. He also provides leadership in community; having served in various positions on the board of directors of Deaconess Hospital, Butterfield Memorial Foundation, both located in Oklahoma City as well as Central Christian College, located in McPherson, Kansas.

James Viola
Manager, General Aviation and Commercial Division (AFS-800)
Flight Standards Service

James Viola is the FAA Division Manager of the General Aviation and Commercial Division, Flight Standards, AFS-800. In part, this division is responsible for regulations and policy general aviation (GA) airmen, flight instructors, GA air agencies (pilot schools), commercial operations, and public aircraft operations. The division is the focal point for the aviation community at the national level on matters pertaining to GA affairs and certain aspects of sport aviation. The division is also the FAA focal point for GA safety outreach and education through the FAA Safety Team (FAASTeam), the International Helicopter Safety Team (IHST) and the *FAA Safety Briefing* magazine.

In his personal time, Mr. Viola is also the Program Director for the International Helicopter Safety Team and the Director of the Pilot Familiarization Program for The International Grumman American Pilots Association, as well as the working group Chairman for General Aviation of the International Society of Air safety Investigators. He holds Airline Transport and Flight Instructor Certificates for airplanes and helicopters; and is qualified in a variety of helicopters including the Robinson R-22, R-44: the Hughes 269/300, the Sikorsky UH-60 Black Hawk; the Bell UH-1 Huey, OH-58 Jet Ranger, and AH-1 Cobra; the McDonald Douglas 500 series; and the Boeing MH-47 Chinook. Mr. Viola has also flown more than 30 single and multi-engine airplanes. He holds a Master of Science in International Relations from Auburn University, Montgomery, AL. Prior to his current position, Mr. Viola was a General Aviation Safety Inspector at the DC FSDO for both airplanes and helicopters. He was responsible for Title 14 of the Code of Federal Regulations Parts 61, 91, 133, 135, and 137. He administered CFI practical flight tests to both airplane and helicopter flight instructor candidates, was a National Resource Inspector for Robinson Helicopters, and attended the FAA Night Vision Course adding the FAA qualification to his 1000+ hours of Military Night Vision Goggle experience.

Jeffrey Smith
Manager, Airman Training and Certification Branch (AFS-810)
Flight Standards Service

Jeffrey Smith has worked for the past six years as an Aviation Safety Inspector, General Aviation Operations, with the Federal Aviation Administration. He is the manager for the Airman Training and Certification Branch (AFS-810), having served in this branch for over three years. AFS-810 is primarily responsible for the certification standards of pilot schools, pilots, flight instructors, and ground instructors under 14 CFR parts 61 and 141. Prior to his positions in AFS-810, Mr. Smith served as an Assistant Principal Operations Inspector in the South Florida Flight Standards District Office (FSDO), with primary oversight and surveillance of persons operating under 14 CFR parts 61 and 141. Additional oversight duties involved entities operating under 14 CFR parts 91, 133, 135, 137 and 142.

Mr. Smith currently serves in the Fredericksburg, VA Civil Air Patrol squadron. He is a pilot, instructor and check pilot for the CAP, as well as the aerospace-education officer for the squadron.

Barbara Adams
Analyst, Air Carrier Training Programs and Voluntary Safety Programs Branch (AFS-280)
Flight Standards Service

Barbara Adams has worked in various areas of the Federal Aviation Administration over the past 7 years. Some of the areas she has been involved with include the FAA Aviation Safety Hotline, FAA and National Transportation Safety Board safety recommendation programs, air carrier national policy, experimental aircraft airworthiness national policy, and most recently served as the Team Lead for the Pilot Certification and Qualification Requirements for Air Carrier Operations rulemaking project, which revised the requirements for obtaining an ATP certificate in the airplane category.

Prior to coming to the FAA, Barbara served as an aviation technical specialist for AOPA. She also served as a pilot for Independence Air/Atlantic Coast Airlines, and was a flight instructor for several years. She has a BBA in Aviation Management and a MS in Aviation from the University of North Dakota.

APPENDIX V: ABBREVIATIONS + ACRONYMS

Abbreviation/ Acronym	Definition
14 CFR	Title 14 of the Code of Federal Regulations
AC	Advisory Circular
ACS	Airman Certification Standards
ACSWG	ACS Working Group
ADF	Automatic Direction Finder
AFS	FAA Flight Standards Service
AFS-200	FAA Air Transportation Division
AFS-400	FAA Flight Technologies and Procedures Division
AFS-600	FAA Regulatory Support Division
AFS-630	FAA AFS Regulatory Support Division Airman Testing Standards Branch
AFS-800	General Aviation and Commercial Division
AGC	Office of the Chief Counsel
AKT	Airman Knowledge Testing
AMT	Aviation Maintenance Technician
AOPA	Aircraft Owners and Pilots Association
ARAC	Aviation Rulemaking Advisory Committee
ARC	Aviation Rulemaking Committee
ASI	Aviation Safety Inspector
ATP	Airline Transport Pilot
ATST WG	Airman Testing Standards and Training Working Group
CAM	Certified Aviation Manager
CFI	Certified Flight Instructors
COM	Commercial Pilot
DPE	Designated Pilot Examiner
FAA	Federal Aviation Administration
FAAST	FAA Safety Team
FOI	Fundamentals of Instructing
GA	General Aviation
GAMA	General Aviation Manufacturers Association
InFO	Information for Operators
KTS	Knowledge Test Standards
LSC	Learning Statement Codes
NAFI	National Association of Flight Instructors
NAS	National Airspace System
NDB	Non-Directional Beacon
ODA	Organization Designation Authorization
OPR	FAA Office of Primary Responsibility
PTS	Practical Test Standards
QMS	Quality Management System
RNAV	Area Navigation
SAFE	Society of Aviation and Flight Educators
SAFO	Safety Alert for Operators
SBT	Scenario-Based Training

Abbreviation/ Acronym	Definition
SME	Subject Matter Expert
SMKC	Subject Matter Knowledge Codes
SMS	Safety Management System
SPANS	Safety Program Airmen Notification System
UAA	University Aviation Association