

FAA-S-ACS-25

# Airman Certification Standards

Flight Instructor - Airplane

**Gleim**<sup>®</sup>  
AVIATION

## Foreword

The Flight Instructor for Airplane Category Airman Certification Standards (ACS) has been published to communicate the aeronautical knowledge, risk management, and flight proficiency standards for the Flight Instructor Certificate in the airplane category.

Material in FAA-S-ACS-25 supersedes FAA-S-8081-6D, Flight Instructor Practical Test Standards for Airplane, dated June 2012.

The FAA-G-ACS-2, ACS Companion Guide for Pilots, to provide guidance considered relevant and useful to the community.

The number of appendices in the ACS was reduced and much of the non-regulatory material was moved to the Airman Certification Standards Companion Guide for Pilots. Applicants, instructors, and evaluators should consult this [companion guide](#) to familiarize themselves with ACS procedures.



"Onward and upward!"

## Revision History

Document ID	Date
FAA-S-8081-6D CFI PTS + <i>Changes 1-6</i>	June 2012
FAA-S-ACS-25 CFI ACS	November 2023

# Table of Contents

## Introduction

Airman Certification Standards Concept.....	9
---	---

## Area of Operation I. Fundamentals of Instructing

Task A. Effects of Human Behavior and Communication on the Learning Process .....	10
Task B. Learning Process .....	11
Task C. Course Development, Lesson Plans, and Classroom Training Techniques .....	12
Task D. Student Evaluation, Assessment, and Testing .....	13
Task E. Elements of Effective Teaching in a Professional Environment.....	14
Task F. Elements of Effective Teaching that Include Risk Management and Accident Prevention .....	15

## Area of Operation II. Technical Subject Areas

Task A. Human Factors.....	17
Task B. Visual Scanning and Collision Avoidance.....	18
Task C. Runway Incursion Avoidance .....	18
Task D. Principles of Flight.....	19
Task E. Aircraft Flight Controls and Operation of Systems.....	20
Task F. Performance and Limitations .....	20
Task G. National Airspace System .....	21
Task H. Navigation Systems and Radar Services.....	22
Task I. Navigation and Cross-Country Flight Planning.....	23
Task J. 14 CFR and Publications .....	24
Task K. Endorsements and Logbook Entries.....	24
Task L. Water and Seaplane Characteristics, Seaplane Bases, Maritime Rules, and Aids to Marine Navigation (ASES, AMES) .....	25
Task M. Night Operations.....	26
Task N. High Altitude Operations - Supplemental Oxygen.....	27
Task O. High Altitude Operations - Pressurization.....	28
Task P. One Engine Inoperative (OEI) Performance (AMEL, AMES) .....	28

## Area of Operation III. Preflight Preparation

Task A. Pilot Qualifications .....	30
Task B. Airworthiness Requirements.....	30
Task C. Weather Information .....	31

## Area of Operation IV. Preflight Lesson on a Maneuver to be Performed in Flight

Task A. Maneuver Lesson.....	33
------------------------------	----

## Area of Operation V. Preflight Procedures

Task A. Preflight Assessment.....	34
-----------------------------------	----

Task B. Flight Deck Management .....	34
Task C. Engine Starting .....	35
Task D. Taxiing, Airport Signs, and Lighting (ASEL, AMEL) .....	36
Task E. Taxiing and Sailing (ASES, AMES) .....	37
Task F. Before Takeoff Check .....	38

### Area of Operation VI. Airport and Seaplane Base Operations

Task A. Communications, Light Signals, and Runway Lighting Systems .....	39
Task B. Traffic Patterns .....	39

### Area of Operation VII. Takeoffs, Landings, and Go-Arounds

Task A. Normal Takeoff and Climb .....	40
Task B. Normal Approach and Landing .....	42
Task C. Soft-Field Takeoff and Climb (ASEL) .....	43
Task D. Soft-Field Approach and Landing (ASEL) .....	45
Task E. Short-Field Takeoff and Maximum Performance Climb (ASEL, AMEL) .....	46
Task F. Short-Field Approach and Landing (ASEL, AMEL) .....	48
Task G. Confined Area Takeoff and Maximum Performance Climb (ASES, AMES) .....	49
Task H. Confined Area Approach and Landing (ASES, AMES) .....	50
Task I. Glassy Water Takeoff and Climb (ASES, AMES) .....	52
Task J. Glassy Water Approach and Landing (ASES, AMES) .....	53
Task K. Rough Water Takeoff and Climb (ASES, AMES) .....	54
Task L. Rough Water Approach and Landing (ASES, AMES) .....	55
Task M. Slip to a Landing (ASEL, ASES) .....	57
Task N. Go-Around/Rejected Landing .....	58
Task O. Power-Off 180° Accuracy Approach and Landing (ASEL, ASES) .....	59

### Area of Operation VIII. Fundamentals of Flight

Task A. Straight-and-Level Flight .....	61
Task B. Level Turns .....	61
Task C. Straight Climbs and Climbing Turns .....	62
Task D. Straight Descents and Descending Turns .....	56

### Area of Operation IX. Performance and Ground Reference Maneuvers

Task A. Steep Turns .....	64
Task B. Steep Spiral (ASEL, ASES) .....	65
Task C. Chandelles (ASEL, ASES) .....	65
Task D. Lazy Eights (ASEL, ASES) .....	67
Task E. Ground Reference Maneuvers .....	68
Task F. Eights on Pylons (ASEL, ASES) .....	69

## Area of Operation X. Slow flight, Stalls, and Spins

Task A. Maneuvering During Slow Flight .....	70
Task B. Demonstration of Flight Characteristics at Various Configurations and Airspeeds (ASEL and ASES) .....	71
Task C. Power-Off Stalls .....	73
Task D. Power-On Stalls .....	74
Task E. Accelerated Stalls .....	75
Task F. Cross-Controlled Stall Demonstration (ASEL, ASES) .....	76
Task G. Elevator Trim Stall Demonstration (ASEL, ASES) .....	77
Task H. Secondary Stall Demonstration (ASEL, ASES) .....	78
Task I. Spin Awareness and Spins .....	79

## Area of Operation XI. Basic Instrument Maneuvers

Task A. Straight-and-Level Flight .....	81
Task B. Constant Airspeed Climbs .....	81
Task C. Constant Airspeed Descents .....	82
Task D. Turns to Headings .....	83
Task E. Recovery from Unusual Flight Attitudes .....	84

## Area of Operation XII. Emergency Operations

Task A. Emergency Descent .....	86
Task B. Emergency Approach and Landing (Simulated) (ASEL, ASES) .....	87
Task C. Systems and Equipment Malfunctions .....	88
Task D. Emergency Equipment and Survival Gear .....	89
Task E. Engine Failure During Takeoff Before VMC (Simulated) (AMEL, AMES) .....	89
Task F. Engine Failure After Liftoff (Simulated) (AMEL, AMES) .....	90
Task G. Approach and Landing with an Inoperative Engine (Simulated)(AMEL, AMES) .....	91

## Area of Operation XIII. Multiengine Operations

Task A. Maneuvering with One Engine Inoperative (AMEL, AMES) .....	93
Task B. VMC Demonstration (AMEL, AMES) .....	94
Task C. Demonstration of Effects of Various Airspeeds and Configurations during Engine Inoperative Performance (AMEL and AMES) .....	95

## Area of Operation XIV. Postflight Procedures

Task A. After Landing, Parking, and Securing (ASEL, AMEL) .....	97
Task B. Seaplane Post-Landing Procedures (ASES, AMES) .....	97

## Appendix 1: Practical Test Roles, Responsibilities, and Outcomes

Eligibility Requirements for a Flight Instructor Certificate .....	99
Use of the ACS During a Practical Test .....	99
Instructor Responsibilities .....	100
Evaluator Responsibilities .....	100

Possible Outcomes of the Test .....	101
Additional Rating Task Table.....	102
Addition of an Airplane Single-Engine Rating to an Existing Flight Instructor Certificate.....	103
Addition of an Airplane Multiengine Rating to an Existing Flight Instructor Certificate .....	104
Flight Instructor Renewal/Reinstatement.....	105

## Appendix 2: Safety of Flight

General .....	106
Stall and Spin Awareness.....	106
Use of Checklists .....	106
Positive Exchange of Flight Controls .....	106
Use of Distractions .....	106
Aeronautical Decision-Making, Risk Management, Crew Resource Management, and Single-Pilot Resource Management .....	106
Multiengine Considerations .....	107
Single-Engine Considerations .....	107

## Appendix 3: Aircraft, Equipment, and Operational Requirements & Limitations

Aircraft Requirements & Limitations.....	108
Equipment Requirements & Limitations .....	108
Use of Flight Simulation Training Devices (FSTD).....	108
Credit for Pilot Time in an FSTD .....	108
Use of Aviation Training Devices (ATD).....	108
Credit for Pilot Time in an ATD .....	108
Operational Requirements, Limitations, & Task Information.....	109

## Introduction

### ACS Concept

The goal of the airman certification process is to ensure the applicant possesses the **knowledge**, ability to manage **risks**, and **skill** consistent with the privileges of the certificate or rating being exercised, in order to act as pilot-in-command (PIC).

Safe operations in today's National Airspace System (NAS) require the integration of aeronautical knowledge, risk management, and flight proficiency standards. To accomplish these goals, the FAA drew upon the expertise of organizations and individuals across the aviation and training community to develop the ACS.

The ACS integrates the **elements of knowledge**, **risk management**, and **skill required** for each airman certificate or rating. It thus forms a more comprehensive standard for what an applicant must know, consider, and do to demonstrate proficiency to pass the tests required for issuance of the applicable airman certificate or rating.

## Area of Operation I. Fundamentals of Instructing

**Note:** The evaluator must select Task E, Task F, and at least one other Task for initial flight instructor applicants. During a practical test for an added flight instructor rating or flight instructor reinstatement, the evaluator has discretion to evaluate the applicant on Fundamentals of Instructing.

### Task A. Effects of Human Behavior and Communication on the Learning Process

References: FAA-H-8083-2, FAA-H-8083-9, FAA-H-8083-25

**Objective:** To determine the applicant understands human behavior and effective communication, can apply that knowledge, manage associated risks, demonstrate appropriate skills, and provide effective instruction.

**Knowledge:** The applicant understands and explains:

- FI.I.A.K1 Elements of human behavior, including:
  - FI.I.A.K1a a. Definitions of human behavior
  - FI.I.A.K1b b. Instructor and learner relationship
  - FI.I.A.K1c c. Motivation
  - FI.I.A.K1d d. Human needs
  - FI.I.A.K1e e. Defense mechanisms
- FI.I.A.K2 Learner emotional reactions, including:
  - FI.I.A.K2a a. Anxiety and stress
  - FI.I.A.K2b b. Impatience
  - FI.I.A.K2c c. Worry or lack of interest
  - FI.I.A.K2d d. Physical discomfort, illness, fatigue, and dehydration
  - FI.I.A.K2e e. Apathy due to inadequate instruction
- FI.I.A.K3 Teaching the adult learner.
- FI.I.A.K4 Effective communication, including:
  - FI.I.A.K4a a. Basic elements of communication
  - FI.I.A.K4b b. Barriers to effective communication
  - FI.I.A.K4c c. Developing communication skills

#### Risk

**Management:** The applicant is able to identify, assess, and mitigate risk associated with:

- FI.I.A.R1 Recognizing and accommodating human behavior.
- FI.I.A.R2 Barriers to communication.

**Skills:** The applicant exhibits the skill to:

- FI.I.A.S1 Give examples of how human behavior affects motivation and learning.
- FI.I.A.S2 Describe what the instructor can do to deal with:
  - FI.I.A.S2a a. Serious abnormal emotional behavior

- FI.I.A.S2b*            b. Defense mechanisms
- FI.I.A.S3*            Use effective communication in ground and flight instruction.

## **Task B. Learning Process**

*References: FAA-H-8083-2, FAA-H-8083-9, FAA-H-8083-25*

**Objective:** To determine the applicant understands the learning process, can apply that knowledge, manage associated risks, demonstrate appropriate skills, and provide effective instruction.

**Knowledge:** The applicant understands and explains:

- FI.I.B.K1*            Definitions of learning.
- FI.I.B.K2*            Learning theory as it applies to ground and flight instruction, including:
  - FI.I.B.K2a*            a. Behaviorism
  - FI.I.B.K2b*            b. Cognitive Theory
- FI.I.B.K3*            Perceptions and insight.
- FI.I.B.K4*            Acquiring knowledge.
- FI.I.B.K5*            Laws of learning.
- FI.I.B.K6*            Domains of learning, including:
  - FI.I.B.K6a*            a. Cognitive
  - FI.I.B.K6b*            b. Affective
  - FI.I.B.K6c*            c. Psychomotor
- FI.I.B.K7*            Characteristics of learning.
- FI.I.B.K8*            Scenario-based training (SBT).
- FI.I.B.K9*            Acquiring skill knowledge, including:
  - FI.I.B.K9a*            a. Stages
  - FI.I.B.K9b*            b. Knowledge of results
  - FI.I.B.K9c*            c. How to develop skills
  - FI.I.B.K9d*            d. Learning plateaus
- FI.I.B.K10*            Types of practice.
- FI.I.B.K11*            Evaluation versus critique.
- FI.I.B.K12*            Distractions, interruptions, fixation, and inattention.
- FI.I.B.K13*            Errors.
- FI.I.B.K14*            Memory, including:
  - FI.I.B.K14a*            a. Sensory
  - FI.I.B.K14b*            b. Short-Term Memory (STM) and Long-Term Memory (LTM)
  - FI.I.B.K14c*            c. How usage affects memory
  - FI.I.B.K14d*            d. Forgetting

*FI.I.B.K15* Retention of learning.

*FI.I.B.K16* Transfer of learning.

### **Risk**

**Management:** The applicant is able to identify, assess, and mitigate risk associated with:

*FI.I.B.R1* Inadequate or incomplete instruction.

*FI.I.B.R2* Lack of learner motivation.

*FI.I.B.R3* Recognizing and correcting learner errors.

**Skills:** The applicant exhibits the skill to:

*FI.I.B.S1* Apply educational theories to ground and flight instruction.

*FI.I.B.S2* Recognize and correct conditions that undermine the learning process.

*FI.I.B.S3* Plan for and use techniques, including realistic distractions that teach flight students how to manage a workload.

## **Task C. Course Development, Lesson Plans, and Classroom Training Techniques**

*References: FAA-H-8083-2, FAA-H-8083-9, FAA-H-8083-25*

**Objective:** To determine the applicant understands the teaching process, can apply that knowledge, manage associated risks, demonstrate appropriate skills, and provide effective instruction.

**Knowledge:** The applicant understands and explains:

*FI.I.C.K1* Teaching, including:

*FI.I.C.K1a* a. Process

*FI.I.C.K1b* b. Essential skills

*FI.I.C.K2* Course of training.

*FI.I.C.K3* Preparation of a lesson, including:

*FI.I.C.K3a* a. Training objectives and completion standards

*FI.I.C.K3b* b. Performance-based objectives

*FI.I.C.K3c* c. Importance of Airman Certification Standards (ACS) in aviation training curricula

*FI.I.C.K3d* d. Decision-based objectives

*FI.I.C.K4* Organization of material.

*FI.I.C.K5* Training delivery methods, including:

*FI.I.C.K5a* a. Lecture

*FI.I.C.K5b* b. Discussion

*FI.I.C.K5c* c. Guided discussion

*FI.I.C.K5d* d. Cooperative or group learning

*FI.I.C.K5e* e. Demonstration-performance

*FI.I.C.K5f* f. Drill and practice

- FI.I.C.K6* Electronic learning (e-Learning).
- FI.I.C.K7* Instructional aids and training technologies, including:
  - FI.I.C.K7a* a. Characteristics of effective instructional aids
  - FI.I.C.K7b* b. Reasons for use
  - FI.I.C.K7c* c. Guidelines for use
  - FI.I.C.K7d* d. Types
- FI.I.C.K8* Integrated flight instruction.
- FI.I.C.K9* Problem-based instruction.
- FI.I.C.K10* Planning instructional activity, including:
  - FI.I.C.K10a* a. Blocks of learning
  - FI.I.C.K10b* b. Training syllabus
  - FI.I.C.K10c* c. Lesson plans

**Risk**

**Management:** The applicant is able to identify, assess, and mitigate risk associated with:

- FI.I.C.R1* Selection of teaching method.

**Skills:**

The applicant exhibits the skill to:

- FI.I.C.S1* Prepare an instructional lesson plan using teaching methods and materials appropriate for Task and learner characteristics, including:
  - FI.I.C.S1a* a. Aeronautical knowledge ground lesson applicable for a classroom
  - FI.I.C.S1b* b. Maneuver introduction and ground lesson

**Task D. Student Evaluation, Assessment, and Testing**

*References: FAA-H-8083-2, FAA-H-8083-9, FAA-H-8083-25*

**Objective:** To determine the applicant understands evaluation and testing, can apply that knowledge, manage associated risks, demonstrate appropriate skills, and provide effective instruction.

**Knowledge:** The applicant understands and explains:

- FI.I.D.K1* Purpose and characteristics of effective assessment.
- FI.I.D.K2* Traditional assessments.
- FI.I.D.K3* Authentic assessments, including:
  - FI.I.D.K3a* a. Learner-centered assessment
  - FI.I.D.K3b* b. Maneuver or procedure grades
  - FI.I.D.K3c* c. Assessing risk management skills
- FI.I.D.K4* Choosing an effective assessment method.
- FI.I.D.K5* Purposes and types of critiques.
- FI.I.D.K6* Oral assessment, including:

- FI.I.D.K6a* a. Characteristics of effective questions
- FI.I.D.K6b* b. Types of questions to avoid
- FI.I.D.K6c* c. Answering learner questions
- FI.I.D.K7* Assessment of piloting ability.

**Risk**

**Management:** The applicant is able to identify, assess, and mitigate risk associated with:

- FI.I.D.R1* Delivering an assessment.

**Skills:** The applicant exhibits the skill to:

- FI.I.D.S1* Use appropriate methods and techniques to assess learner performance in ground or flight training.

## **Task E. Elements of Effective Teaching in a Professional Environment**

*References: FAA-H-8083-2, FAA-H-8083-9, FAA-H-8083-25*

**Objective:** To determine the applicant understands effects of instructor behavior on effective teaching, can apply that knowledge, manage associated risks, demonstrate appropriate skills, and provide effective instruction.

**Knowledge:** The applicant demonstrates understanding of:

- FI.I.E.K1* Aviation instructor responsibilities, including:
  - FI.I.E.K1a* a. Helping learners
  - FI.I.E.K1b* b. Providing adequate instruction
  - FI.I.E.K1c* c. Training to established standards of performance
  - FI.I.E.K1d* d. Emphasizing the positive
  - FI.I.E.K1e* e. Minimizing learner frustrations
- FI.I.E.K2* Flight instructor responsibilities, including supervision and surveillance during training.
- FI.I.E.K3* Flight instructor qualifications and professionalism.
- FI.I.E.K4* Professional development.
- FI.I.E.K5* Instructor ethics and conduct.

**Risk**

**Management:** The applicant is able to identify, assess, and mitigate risk associated with:

- FI.I.E.R1* Fulfilling instructor responsibilities.
- FI.I.E.R2* Exhibiting professionalism.

**Skills:** The applicant exhibits the skill to:

- FI.I.E.S1* Deliver ground or flight instruction on an evaluator-assigned Task in a manner consistent with instructor responsibilities and professional characteristics as stated in K1 through K5.

## **Task F. Elements of Effective Teaching that Include Risk Management and Accident Prevention**

References: FAA-H-8083-2, FAA-H-8083-9, FAA-H-8083-25

**Objective:** To determine the applicant understands teaching practical risk management, can apply that knowledge, manage associated risks, demonstrate appropriate skills, and provide effective instruction.

**Knowledge:** The applicant understands and explains:

- FI.I.F.K1* Teaching risk identification, assessment, and mitigation.
- FI.I.F.K2* Teaching risk management tools, including:
  - FI.I.F.K2a* a. Pilot/Aircraft/enVironment/External Pressures (PAVE) checklist
  - FI.I.F.K2b* b. Flight Risk Assessment Tools (FRATs)
- FI.I.F.K3* When and how to introduce risk management.
- FI.I.F.K4* Risk management teaching techniques by phase of instruction.
- FI.I.F.K5* Managing risk during flight instruction, including:
  - FI.I.F.K5a* a. Common flight instruction risks
  - FI.I.F.K5b* b. Best practices
  - FI.I.F.K5c* c. Special considerations while teaching takeoffs and landings
- FI.I.F.K6* Aeronautical Decision-Making (ADM) to include using Crew Resource Management (CRM) or Single-Pilot Resource Management (SRM), as appropriate.

### **Risk**

**Management:** The applicant is able to identify, assess, and mitigate risk associated with:

- FI.I.F.R1* Hazards associated with providing flight instruction.
- FI.I.F.R2* Obstacles to maintaining situational awareness during flight instruction.
- FI.I.F.R3* Recognizing and managing hazards arising from human behavior, including hazardous attitudes.

**Skills:** The applicant exhibits the skill to:

- FI.I.F.S1* Use scenario-based training (SBT) to demonstrate, teach, and assess risk management and Aeronautical Decision-Making (ADM) skills in the context of a Task specified by the evaluator.
- FI.I.F.S2* Identify, assess, and mitigate risks commonly associated with flight instruction by maintaining:
  - FI.I.F.S2a* a. Awareness and oversight of the learner's actions, with timely and appropriate supervision, intervention, or mitigation as needed
  - FI.I.F.S2b* b. Awareness of the learner's cognitive/physiological state, with timely action to mitigate anxiety, fatigue, or other obstruction to learning
  - FI.I.F.S2c* c. Overall situational awareness of the aircraft's dynamic state, its position in space, and vigilance for unexpected events or changing circumstances that occur in the environment
- FI.I.F.S3* Model and teach safety practices, including maintaining:
  - FI.I.F.S3a* a. Collision avoidance while simultaneously providing instruction
  - FI.I.F.S3b* b. Avoidance of unnecessary distractions
  - FI.I.F.S3c* c. Coordinated flight

*Fl.I.F.S3d*

d. Awareness of who is manipulating controls through positive exchange of flight controls

*Fl.I.F.S3e*

e. Continuous awareness of the aircraft's dynamic state and position in the NAS

## Area of Operation II. Technical Subject Areas

**Note:** The evaluator must select Tasks C, K, and at least one other Task from this Area of Operation. The evaluator must also select Task P for multiengine applicants.

### Task A. Human Factors

References: AIM; FAA-H-8083-2, FAA-H-8083-3, FAA-H-8083-9, FAA-H-8083-25

**Objective:** To determine the applicant understands personal health, flight physiology, aeromedical and human factors, can apply that knowledge, manage associated risks, demonstrate appropriate skills, and provide effective instruction.

**Knowledge:** The applicant demonstrates instructional knowledge by describing and explaining:

- AI.II.A.K1* Symptoms, recognition, causes, effects, and corrective actions associated with aeromedical and physiological issues, including:
  - AI.II.A.K1a* a. Hypoxia
  - AI.II.A.K1b* b. Hyperventilation
  - AI.II.A.K1c* c. Middle ear and sinus problems
  - AI.II.A.K1d* d. Spatial disorientation
  - AI.II.A.K1e* e. Motion sickness
  - AI.II.A.K1f* f. Carbon monoxide poisoning
  - AI.II.A.K1g* g. Stress
  - AI.II.A.K1h* h. Fatigue
  - AI.II.A.K1i* i. Dehydration and nutrition
  - AI.II.A.K1j* j. Hypothermia
  - AI.II.A.K1k* k. Optical illusions
  - AI.II.A.K1l* l. Dissolved nitrogen in the bloodstream after scuba dives
- AI.II.A.K2* Regulations regarding use of alcohol and drugs.
- AI.II.A.K3* Effects of alcohol, drugs, and over-the-counter medications.
- AI.II.A.K4* Aeronautical Decision-Making (ADM) to include using Crew Resource Management (CRM) or Single-Pilot Resource Management (SRM), as appropriate.

#### Risk

**Management:** The applicant explains and teaches how to identify and manage risk associated with:

- AI.II.A.R1* Aeromedical and physiological issues.
- AI.II.A.R2* Hazardous attitudes.
- AI.II.A.R3* Distractions, task prioritization, loss of situational awareness, or disorientation.
- AI.II.A.R4* Confirmation and expectation bias.

**Skills:** The applicant demonstrates and simultaneously explains how to:

- AI.II.A.S1* Associate the symptoms and effects for at least three of the conditions listed in K1a through K1l with the cause(s) and corrective action(s).

*AI.II.A.S2* Perform self-assessment, including fitness for flight and personal minimums, for actual flight or a scenario given by the evaluator.

## **Task B. Visual Scanning and Collision Avoidance**

*References: AC 90-48; AIM; FAA-H-8083-2, FAA-H-8083-3, FAA-H-8083-9, FAA-H-8083-25*

**Objective:** To determine the applicant understands visual scanning and collision avoidance, can apply that knowledge, manage associated risks, demonstrate pilot-in-command skills, and provide effective instruction.

**Knowledge:** The applicant demonstrates instructional knowledge by describing and explaining:

- AI.II.B.K1* Environmental conditions that degrade vision.
- AI.II.B.K2* Vestibular and visual illusions.
- AI.II.B.K3* “See and Avoid” responsibilities.
- AI.II.B.K4* Visual scanning procedure and the importance of peripheral vision.
- AI.II.B.K5* Aircraft blind spots and clearing procedures.
- AI.II.B.K6* Visual cues of an impending mid-air collision.
- AI.II.B.K7* Situations that create the greatest collision risk.
- AI.II.B.K8* Division of attention inside and outside the aircraft.

### **Risk**

**Management:** The applicant explains and teaches how to identify and manage risk associated with:

- AI.II.B.R1* Distractions to visual scanning.
- AI.II.B.R2* Relaxed intermediate focal distance.
- AI.II.B.R3* High volume operational environments.
- AI.II.B.R4* Collision reaction time.
- AI.II.B.R5* Use of a safety pilot.

**Skills:** The applicant demonstrates and simultaneously explains how to:

- AI.II.B.S1* Effectively scan using short regularly spaced eye movements.
- AI.II.B.S2* Scan around physical obstructions.
- AI.II.B.S3* Use appropriate visual scanning techniques.
- AI.II.B.S4* Use electronic traffic alert systems, if available.

## **Task C. Runway Incursion Avoidance**

*References: AC 91-73; AIM; Chart Supplements; FAA-H-8083-2, FAA-H-8083-3, FAA-H-8083-9, FAA-H-8083-25*

**Objective:** To determine the applicant understands runway incursion avoidance, can apply that knowledge, manage associated risks, demonstrate appropriate skills, and provide effective instruction.

**Knowledge:** The applicant demonstrates instructional knowledge by describing and explaining:

- AI.II.C.K1* Runway incursion definition.

- AI.II.C.K2* Taxi instructions/clearances.
- AI.II.C.K3* The importance of recording taxi instructions and reviewing taxi routes on the airport diagram.
- AI.II.C.K4* Airport markings, signs, and lights including the importance of hold lines associated with runways.
- AI.II.C.K5* Appropriate flight deck activities during taxiing, including taxi route planning, briefing the location of Hot Spots, communicating and coordinating with ATC.
- AI.II.C.K6* Communication and operational procedures at uncontrolled airports.

**Risk**

**Management:** The applicant explains and teaches how to identify and manage risk associated with:

- AI.II.C.R1* Distractions, task prioritization, loss of situational awareness, or disorientation.
- AI.II.C.R2* Confirmation or expectation bias as related to taxi instructions.
- AI.II.C.R3* Entering or crossing runways.
- AI.II.C.R4* Night taxi operations.
- AI.II.C.R5* Low visibility taxi operations.
- AI.II.C.R6* Runway incursion after landing.
- AI.II.C.R7* Operating on taxiways between parallel runways.

**Skills:** The applicant demonstrates how to:

- AI.II.C.S1* Deliver instruction on the elements and techniques for runway incursion avoidance.

**Task D. Principles of Flight**

*References: FAA-H-8083-2, FAA-H-8083-3, FAA-H-8083-9, FAA-H-8083-23, FAA-H-8083-25; POH/AFM*

**Objective:** To determine the applicant understands aerodynamics appropriate to the desired instructor certificate, can apply that knowledge, manage associated risks, demonstrate appropriate skills, and provide effective instruction.

**Knowledge:** The applicant demonstrates instructional knowledge by describing and explaining:

- AI.II.D.K1* Airfoil design characteristics.
- AI.II.D.K2* Airplane stability, maneuverability and controllability.
- AI.II.D.K3* Turning tendency (e.g., torque, p-factor, spiraling slipstream, and gyroscopic precession).
- AI.II.D.K4* Forces acting on an airplane.
- AI.II.D.K5* Load factors in airplane design.
- AI.II.D.K6* Wingtip vortices and appropriate precautions.

**Risk**

**Management:** The applicant explains and teaches how to identify and manage risk associated with:

- AI.II.D.R1* The basic aerodynamic principles of flight.

**Skills:** The applicant demonstrates how to:

- AI.II.D.S1* Deliver instruction on principles of flight, including at least three of the elements listed in K1 through K6.

## Task E. Aircraft Flight Controls and Operation of Systems

References: FAA-H-8083-2, FAA-H-8083-3, FAA-H-8083-9, FAA-H-8083-23, FAA-H-8083-25; POH/AFM

**Objective:** To determine the applicant understands flight controls and systems on the airplane provided for the flight test, can apply that knowledge, manage associated risks, demonstrate appropriate skills, and provide effective instruction.

**Note:** If K1 is selected, the evaluator must assess the applicant's knowledge of all sub elements.

**Knowledge:** The applicant demonstrates instructional knowledge by describing and explaining:

- AI.II.E.K1 Airplane systems, including:
  - AI.II.E.K1a a. Primary flight controls
  - AI.II.E.K1b b. Secondary flight controls
  - AI.II.E.K1c c. Powerplant and propeller
  - AI.II.E.K1d d. Landing gear
  - AI.II.E.K1e e. Fuel, oil, and hydraulic
  - AI.II.E.K1f f. Electrical
  - AI.II.E.K1g g. Avionics
  - AI.II.E.K1h h. Pitot-static, vacuum/pressure, and associated flight instruments
  - AI.II.E.K1i i. Environmental
  - AI.II.E.K1j j. Deicing and anti-icing AI.II.E.K1k
  - k. Water rudders (ASES, AMES)
  - AI.II.E.K1l l. Oxygen system
- AI.II.E.K2 Indications of and procedures for managing system abnormalities or failures.

### Risk

**Management:** The applicant explains and teaches how to identify and manage risk associated with:

- AI.II.E.R1 Detection of system malfunctions or failures.
- AI.II.E.R2 Management of a system failure.
- AI.II.E.R3 Monitoring and management of automated systems.
- AI.II.E.R4 Providing instruction in unfamiliar aircraft or operating with unfamiliar flight display systems and avionics.

**Skills:** The applicant demonstrates and simultaneously explains how to:

- AI.II.E.S1 Operate at least three of the systems listed in K1a through K1l appropriately.

## Task F. Performance and Limitations

References: FAA-H-8083-1, FAA-H-8083-2, FAA-H-8083-3, FAA-H-8083-9, FAA-H-8083-25; POH/AFM

**Objective:** To determine the applicant understands aircraft performance and limitations, can apply that knowledge, manage associated risks, demonstrate appropriate skills, and provide effective instruction.

- Knowledge:** The applicant demonstrates instructional knowledge by describing and explaining:
- AI.II.F.K1* Elements related to performance and limitations by explaining the use of charts, tables, and data to determine performance.
  - AI.II.F.K2* Factors affecting performance, including:
    - AI.II.F.K2a* a. Atmospheric conditions
    - AI.II.F.K2b* b. Pilot technique
    - AI.II.F.K2c* c. Airplane configuration
    - AI.II.F.K2d* d. Airport environment
    - AI.II.F.K2e* e. Loading and weight and balance
  - AI.II.F.K3* Weight and balance terms, including: basic empty weight, maximum gross weight, arm, moment, reference datum, center of gravity (CG) and CG limits, and useful load.
  - AI.II.F.K4* Methods for computing CG.
  - AI.II.F.K5* Aerodynamics.

**Risk**

**Management:** The applicant explains and teaches how to identify and manage risk associated with:

- AI.II.F.R1* Use of performance charts, tables, and data.
- AI.II.F.R2* Airplane limitations.
- AI.II.F.R3* Possible differences between calculated performance and actual performance.
- AI.II.F.R4* Exceeding weight limits.
- AI.II.F.R5* Operating outside of CG limits.
- AI.II.F.R6* Shifting, adding, and removing weight.

**Skills:** The applicant demonstrates and simultaneously explains how to:

- AI.II.F.S1* Use the appropriate airplane performance charts, tables, and data.
- AI.II.F.S2* Compute the weight and balance, correct out-of-center of gravity loading errors and determine if the weight and balance remains within limits during all phases of flight.

**Task G. National Airspace System**

**References:** 14 CFR parts 71, 91, 93; AIM; FAA-H-8083-2, FAA-H-8083-3, FAA-H-8083-9, FAA-H-8083-25; VFR Navigation Charts

**Objective:** To determine the applicant understands the National Airspace System, can apply that knowledge, manage associated risks, demonstrate appropriate skills, and provide effective instruction.

**Knowledge:** The applicant demonstrates instructional knowledge by describing and explaining:

- AI.II.G.K1* Airspace classes and associated requirements and limitations.
- AI.II.G.K2* Chart symbols.
- AI.II.G.K3* Special use airspace (SUA), special flight rules areas (SFRA), temporary flight restrictions (TFR), and other airspace areas.

- AI.II.G.K4 Currency of publications.
- AI.II.G.K5 Special visual flight rules (VFR) requirements.

**Risk**

**Management:** The applicant explains and teaches how to identify and manage risk associated with:

- AI.II.G.R1 Various classes and types of airspace.

**Skills:** The applicant demonstrates and simultaneously explains how to:

- AI.II.G.S1 Identify and comply with the requirements for basic VFR weather minimums and flying in particular classes of airspace.
- AI.II.G.S2 Correctly identify airspace and operate in accordance with associated communication and equipment requirements.
- AI.II.G.S3 Identify the requirements for operating in SUA or within a TFR. Identify and comply with special air traffic rules (SATR) and SFRA operations, if applicable.

### **Task H. Navigation Systems and Radar Services**

*References: AC 91-78; AIM; FAA-H-8083-2, FAA-H-8083-3, FAA-H-8083-9, FAA-H-8083-25*

**Objective:** To determine the applicant understands navigation systems and radar services, can apply that knowledge, manage associated risks, demonstrate appropriate skills, and provide effective instruction.

**Note:** *The evaluator should reference the manufacturer's equipment supplement(s) as necessary for appropriate limitations, procedures, etc.*

**Knowledge:** The applicant demonstrates instructional knowledge by describing and explaining:

- AI.II.H.K1 Ground-based navigation (identification, orientation, course determination, equipment, tests, regulations, interference, appropriate use of navigation data, and signal integrity).
- AI.II.H.K2 Satellite-based navigation (e.g., equipment, regulations, authorized use of databases, and Receiver Autonomous Integrity Monitoring (RAIM)).
- AI.II.H.K3 Radar assistance to visual flight rules (VFR) aircraft (e.g., operations, equipment, available services, traffic advisories).
- AI.II.H.K4 Transponder (Mode(s) A, C, and S) and Automatic Dependent Surveillance-Broadcast (ADS-B).

**Risk**

**Management:** The applicant explains and teaches how to identify and manage risk associated with:

- AI.II.H.R1 Management of automated navigation and autoflight systems.
- AI.II.H.R2 Distractions, task prioritization, loss of situational awareness, or disorientation.
- AI.II.H.R3 Limitations of the navigation system in use.
- AI.II.H.R4 Loss of a navigation signal.
- AI.II.H.R5 Use of an electronic flight bag (EFB), if used.

**Skills:** The applicant demonstrates and simultaneously explains how to:

- AI.II.H.S1 Use an airborne electronic navigation system.
- AI.II.H.S2 Determine the airplane's position using the navigation system.

- AI.II.H.S3 Intercept and track a given course, radial, or bearing.
- AI.II.H.S4 Recognize and describe the indication of station or waypoint passage.
- AI.II.H.S5 Use proper communication procedures when utilizing radar services.

## **Task I. Navigation and Cross-Country Flight Planning**

*References: 14 CFR part 91; AIM; Chart Supplements; FAA-H-8083-2, FAA-H-8083-3, FAA-H-8083-9, FAA-H-8083-25, NOTAMs; VFR Navigation Charts*

**Objective:** To determine the applicant understands navigation and cross-country flight planning, can apply that knowledge, manage associated risks, demonstrate appropriate skills, and provide effective instruction.

**Note:** *Preparation, presentation, and explanation of a computer-generated flight plan is an acceptable option.*

**Knowledge:** The applicant demonstrates instructional knowledge by describing and explaining:

- AI.II.I.K1 Route planning, including consideration of different classes and special use airspace (SUA) and selection of appropriate and available navigation/communication systems and facilities.
- AI.II.I.K2 Altitude selection accounting for terrain and obstacles, glide distance of airplane, visual flight rules (VFR) cruising altitudes, and effect of wind.
- AI.II.I.K3 Plotting a course.
- AI.II.I.K4 Power setting selection.
- AI.II.I.K5 Calculating:
  - AI.II.I.K5a a. Time, climb and descent rates, course, distance, heading, true airspeed, and groundspeed
  - AI.II.I.K5b b. Estimated time of arrival, including conversion to universal coordinated time (UTC) AI.II.I.K5c
  - c. Fuel requirements, including reserve
- AI.II.I.K6 Elements of a VFR flight plan.
- AI.II.I.K7 Correlate weather information to make a go/no-go decision.
- AI.II.I.K8 Procedures for activating and closing a VFR flight plan.
- AI.II.I.K9 Magnetic compass errors.
- AI.II.I.K10 Pilotage and dead reckoning.
- AI.II.I.K11 Planned calculations versus actual results and required corrections.
- AI.II.I.K12 Diversion and lost procedures.
- AI.II.I.K13 Inflight intercept procedures.
- AI.II.I.K14 Use of an electronic flight bag (EFB), if used.
- AI.II.I.K15 Chart symbols.

### **Risk**

**Management:** The applicant explains and teaches how to identify and manage risk associated with:

- AI.II.R1 Pilot.
- AI.II.R2 Aircraft.

- AI.III.R3* Environment (e.g., weather, airports, airspace, terrain, obstacles).
- AI.III.R4* External pressures.
- AI.III.R5* Limitations of air traffic control (ATC) services.
- AI.III.R6* Fuel planning.

**Skills:** The applicant demonstrates and simultaneously explains how to:

- AI.III.S1* Prepare, present, and explain a cross-country flight plan assigned by the evaluator, including a risk analysis to the first fuel stop.
- AI.III.S2* Apply pertinent information from appropriate and current aeronautical charts, Chart Supplements; Notices to Air Missions (NOTAMs) relative to airport, runway and taxiway closures; and other flight publications.
- AI.III.S3* Create a navigation plan and simulate filing a VFR flight plan.
- AI.III.S4* Recalculate fuel reserves based on a scenario provided by the evaluator.

### **Task J. 14 CFR and Publications**

*References: 14 CFR parts 1, 61, 91; 49 CFR part 830; AIM; Chart Supplements; FAA-H-8083-2, FAA-H-8083-3, FAA-H-8083-25; POH/AFM*

**Objective:** To determine the applicant understands the Code of Federal Regulations and other relevant publications, can apply that knowledge, manage associated risks, demonstrate appropriate skills, and provide effective instruction.

**Knowledge:** The applicant demonstrates instructional knowledge by describing and explaining:

- AI.II.J.K1* 14 CFR parts 1, 61, and 91.
- AI.II.J.K2* 49 CFR part 830.
- AI.II.J.K3* Advisory Circulars, INFOs, and SAFOs.
- AI.II.J.K4* Airman Certification Standards or Practical Test Standards.
- AI.II.J.K5* Pilot's Operating Handbooks or flight manuals.
- AI.II.J.K6* Aeronautical Information Manual (AIM).

#### **Risk**

**Management:** The applicant explains and teaches how to identify and manage risk associated with:

- AI.II.J.R1* Use of expired charts, manuals, or publications without current updates.

**Skills:** The applicant demonstrates how to:

- AI.II.J.S1* Teach at least one of the elements listed in K1 through K6.

### **Task K. Endorsements and Logbook Entries**

*References: 14 CFR part 61; AC 61-65; FAA-H-8083-2, FAA-H-8083-3, FAA-H-8083-9, FAA-H-8083-25*

**Objective:** To determine the applicant understands logbook entries and endorsements, can apply that knowledge, manage associated risks, demonstrate appropriate skills, and provide effective instruction.

- Knowledge:** The applicant demonstrates instructional knowledge by describing and explaining:
- AI.II.K.K1* Required logbook entries for instruction given.
  - AI.II.K.K2* Required student pilot pre-solo knowledge test, solo endorsements, and logbook entries.
  - AI.II.K.K3* Other required pilot logbook endorsements (e.g., Class B Airspace, Special Federal Aviation Regulation (SFAR)).
  - AI.II.K.K4* Preparation of a recommendation for a pilot practical test, including appropriate logbook entry and relevant certificate/rating application for:
    - AI.II.K.K4a* a. Initial pilot certification
    - AI.II.K.K4b* b. Additional pilot certification
    - AI.II.K.K4c* c. Additional aircraft qualification
  - AI.II.K.K5* Endorsement of a pilot logbook for the satisfactory completion of an FAA flight review.
  - AI.II.K.K6* Required flight instructor records.
  - AI.II.K.K7* Flight instructor renewal and reinstatement requirements.

**Risk**

**Management:** The applicant is able to identify, assess, and mitigate risk associated with:

- AI.II.K.R1* Endorsements without appropriate limitations or expiration dates.

**Skills:** The applicant demonstrates how to:

- AI.II.K.S1* Describe and prepare logbook entries/endorsements required for at least two of the events specified in the elements or sub-elements of K1 through K5.

### **Task L. *Water and Seaplane Characteristics, Seaplane Bases, Maritime Rules, and Aids to Marine Navigation (ASES, AMES)***

*References: AIM; Chart Supplements; FAA-H-8083-2, FAA-H-8083-9, FAA-H-8083-23, FAA-H-8083-25; POH/AFM; USCG Navigation Rules*

**Objective:** To determine the applicant understands water and seaplane characteristics, seaplane bases, maritime rules, and aids to marine navigation, can apply that knowledge, manage associated risks, demonstrate appropriate skills, and provide effective instruction.

**Knowledge:** The applicant demonstrates instructional knowledge by describing and explaining:

- AI.II.L.K1* Characteristics of a water surface as affected by features, such as:
  - AI.II.L.K1a* a. Size and location
  - AI.II.L.K1b* b. Protected and unprotected areas
  - AI.II.L.K1c* c. Surface wind
  - AI.II.L.K1d* d. Direction and strength of water current
  - AI.II.L.K1e* e. Floating and partially submerged debris
  - AI.II.L.K1f* f. Sandbars, islands, and shoals
  - AI.II.L.K1g* g. Vessel traffic and wakes
  - AI.II.L.K1h* h. Direction and height of waves
  - AI.II.L.K1i* i. Other characteristics specific to the area

- AI.III.L.K2* Float and hull construction, and its effect on seaplane performance.
- AI.III.L.K3* Causes of porpoising and skipping, and the pilot action needed to prevent or correct these occurrences.
- AI.III.L.K4* How to locate and identify seaplane bases on charts or in directories.
- AI.III.L.K5* Operating restrictions at various bases.
- AI.III.L.K6* Right-of-way, steering, and sailing rules pertinent to seaplane operation.
- AI.III.L.K7* Marine navigation aids, such as buoys, beacons, lights, sound signals, and range markers.
- AI.III.L.K8* Naval vessel protection zones.
- AI.III.L.K9* No wake zones.

**Risk**

**Management:** The applicant explains and teaches how to identify and manage risk associated with:

- AI.III.L.R1* Local conditions.
- AI.III.L.R2* Impact of marine traffic.
- AI.III.L.R3* Right-of-way and sailing rules pertinent to seaplane operations.
- AI.III.L.R4* Limited services and assistance available at seaplane bases.

**Skills:**

The applicant demonstrates and simultaneously explains how to:

- AI.III.L.S1* Explain how float and hull construction can affect seaplane performance.
- AI.III.L.S2* Describe how to correct for porpoising and skipping.
- AI.III.L.S3* Identify marine navigation aids.
- AI.III.L.S4* Describe correct right-of-way, steering, and sailing operations.
- AI.III.L.S5* Assess the water surface characteristics for the proposed flight.
- AI.III.L.S6* Identify restrictions at local seaplane bases.

**Task M. Night Operations**

*References: AIM; FAA-H-8083-2, FAA-H-8083-3, FAA-H-8083-9, FAA-H-8083-25; POH/AFM*

**Objective:** To determine the applicant understands night operations, can apply that knowledge, manage associated risks, demonstrate appropriate skills, and provide effective instruction.

**Knowledge:** The applicant demonstrates instructional knowledge by describing and explaining:

- AI.III.M.K1* Physiological aspects of vision related to night flying.
- AI.III.M.K2* Lighting systems identifying airports, runways, taxiways and obstructions, as well as pilot controlled lighting.
- AI.III.M.K3* Airplane equipment and lighting requirements for night operations.
- AI.III.M.K4* Personal equipment essential for night flight.
- AI.III.M.K5* Night orientation, navigation, chart reading techniques and methods for maintaining night vision effectiveness.

- AI.II.M.K6* Use of instruments to verify the aircraft attitude at night.
- AI.II.M.K7* Visual illusions at night.
- AI.II.M.K8* Night taxi operations.
- AI.II.M.K9* Interpretation of traffic position and direction based solely on position lights.

**Risk**

**Management:** The applicant explains and teaches how to identify and manage risk associated with:

- AI.II.M.R1* Inoperative equipment.
- AI.II.M.R2* Weather considerations specific to night operations.
- AI.II.M.R3* Collision hazards.
- AI.II.M.R4* Distractions, task prioritization, loss of situational awareness, or disorientation.
- AI.II.M.R5* Effect of visual illusions and night adaptation during all phases of night flying.
- AI.II.M.R6* Runway incursion.
- AI.II.M.R7* Night currency versus proficiency.

**Skills:** The applicant demonstrates how to:

- AI.II.M.S1* Teach at least one of the elements listed in K1 through K9.

**Task N. High Altitude Operations - Supplemental Oxygen**

*References: 14 CFR part 91; AC 61-107; AIM; FAA-H-8083-2, FAA-H-8083-3, FAA-H-8083-9, FAA-H-8083-25; POH/ AFM*

**Objective:** To determine the applicant exhibits satisfactory knowledge, risk management, and skills associated with flight at higher altitudes where supplemental oxygen is required or recommended, can apply that knowledge, manage associated risks, demonstrate appropriate skills, and provide effective instruction.

**Knowledge:** The applicant demonstrates instructional knowledge by describing and explaining:

- AI.II.N.K 1* Regulatory requirements for supplemental oxygen use by flight crew and passengers.
- AI.II.N.K2* Physiological factors, including:
  - AI.II.N.K2a* a. Impairment
  - AI.II.N.K2b* b. Symptoms of hypoxia
  - AI.II.N.K2c* c. Time of useful consciousness (TUC)
- AI.II.N.K3* Operational factors, including:
  - AI.II.N.K3a* a. Characteristics, limitations, and applicability of continuous flow, demand, and pressure-demand oxygen systems
  - AI.II.N.K3b* b. Differences between and identification of “aviator’s breathing oxygen” and other types of oxygen
  - AI.II.N.K3c* c. Precautions when using supplemental oxygen systems

**Risk**

**Management:** The applicant explains and teaches how to identify and manage risk associated with:

- AI.II.N.R1* High altitude flight.

- AI.II.N.R2 Use of supplemental oxygen.
- AI.II.N.R3 Management of compressed gas containers.
- AI.II.N.R4 Combustion hazards in an oxygen-rich environment.

**Skills:** The applicant demonstrates and simultaneously explains how to:

- AI.II.N.S1 Provide an adequate briefing on use of supplemental oxygen equipment.
- AI.II.N.S2 Operate or simulate operation of the installed or portable oxygen equipment in the aircraft, if installed or available.
- AI.II.N.S3 Determine the quantity of supplemental oxygen required in a scenario given by the evaluator.

### **Task O. High Altitude Operations - Pressurization**

*References: AC 61-107; AIM; FAA-H-8083-2, FAA-H-8083-3, FAA-H-8083-9, FAA-H-8083-25; POH/AFM*

**Objective:** To determine the applicant understands flight in pressurized aircraft at high altitudes, can apply that knowledge, manage associated risks, demonstrate appropriate skills, and provide effective instruction.

**Knowledge:** The applicant demonstrates instructional knowledge by describing and explaining:

- AI.II.O.K1 Fundamental concepts of aircraft pressurization system, including failure modes.
- AI.II.O.K2 Physiological factors, including:
  - AI.II.O.K2a a. Impairment
  - AI.II.O.K2b b. Symptoms of hypoxia
  - AI.II.O.K2c c. Time of useful consciousness (TUC)
  - AI.II.O.K2d d. Effects of rapid decompression on crew and passengers

#### **Risk**

**Management:** The applicant explains and teaches how to identify and manage risk associated with:

- AI.II.O.R1 High altitude flight.
- AI.II.O.R2 Malfunction of pressurization system, if equipment is installed.

**Skills:** The applicant demonstrates and simultaneously explains how to:

- AI.II.O.S1 Operate the pressurization system, if equipment is installed.
- AI.II.O.S2 Respond appropriately to simulated pressurization malfunctions, if equipment is installed.

### **Task P. One Engine Inoperative (OEI) Performance (AMEL, AMES)**

*References: FAA-H-8083-2, FAA-H-8083-3, FAA-H-8083-9, FAA-H-8083-25; FAA-P-8740-66; POH/AFM*

**Objective:** To determine the applicant understands elements related to multiengine performance, can apply that knowledge, manage associated risks, demonstrate appropriate skills, and provide effective instruction.

**Note:** Evaluator assesses the applicant's knowledge of at least two knowledge elements from this Task.

**Knowledge:** The applicant demonstrates instructional knowledge by describing and explaining:

- AI.II.P.K1 Proficient use of appropriate performance charts, tables, graphs, or other data to determine airplane performance and limitations for all phases of flight.

- AI.II.P.K2* Effects of exceeding limitations.
- AI.II.P.K3* Effects of atmospheric conditions on performance.
- AI.II.P.K4* Factors to be considered to determine required performance is within the airplane's single and multiengine capabilities.
- AI.II.P.K5* Aerodynamics of OEI operation including:
  - AI.II.P.K5a* a. Critical engine
  - AI.II.P.K5b* b. Effects of bank angle on  $V_{MC}$
  - AI.II.P.K5c* c. Zero side slip
  - AI.II.P.K5d* d. Reasons for loss of directional control
- AI.II.P.K6* The relationship between minimum control speed ( $V_{MC}$ ) and stall speed and the effect of density altitude on that relationship.
- AI.II.P.K7* How to determine the best course of action after an engine failure.

**Risk**

**Management:** The applicant explains and teaches how to identify and manage risk associated with:

- AI.II.P.R1* Exceeding the critical angle of attack.
- AI.II.P.R2* Loss of directional control.
- AI.II.P.R3* Flying over terrain that exceeds the single engine service ceiling.
- AI.II.P.R4* Fuel management.

**Skills:**

The applicant demonstrates and simultaneously explains how to:

- AI.II.P.S1* Compute the expected single engine climb performance.

## Area of Operation III. Preflight Preparation

**Note:** The evaluator must select at least one Task from this Area of Operation.

### Task A. Pilot Qualifications

*References: 14 CFR parts 61, 68, 91; AC 60-28, AC 68-1; FAA-H-8083-2, FAA-H-8083-3, FAA-H-8083-23, FAA-H-8083-25; POH/AFM*

**Objective:** To determine the applicant understands pilot training and qualification requirements for different levels of pilot certificate including student pilot, sport pilot, recreational pilot, private pilot, commercial pilot, and flight instructor; can apply that knowledge, manage associated risks, demonstrate appropriate skills, and provide effective instruction.

**Knowledge:** The applicant demonstrates instructional knowledge by describing and explaining:

- AI.III.A.K1* Certification, currency, and recordkeeping requirements, including training and logbook entries.
- AI.III.A.K2* Privileges and limitations of pilot certificates and ratings at student pilot, sport, recreational, private, commercial, and flight instructor levels.
- AI.III.A.K3* Medical certificates: class, expiration, privileges, temporary disqualifications, and operations under BasicMed.
- AI.III.A.K4* Documents pilots must possess to exercise privileges of the specified certificate(s) and rating(s).

#### Risk

**Management:** The applicant explains and teaches how to identify and manage risk associated with:

- AI.III.A.R1* Proficiency versus currency.
- AI.III.A.R2* Flying unfamiliar aircraft or operating with unfamiliar flight display systems and avionics.

**Skills:** The applicant demonstrates how to:

- AI.III.A.S1* Deliver instruction on at least two of the elements specified in K1 through K4.

### Task B. Airworthiness Requirements

*References: 14 CFR parts 23, 39, 43, 91; FAA-H-8083-2, FAA-H-8083-3, FAA-H-8083-9, FAA-H-8083-23, FAA-H-8083-25*

**Objective:** To determine the applicant understands airworthiness requirements, including aircraft certificates, can apply that knowledge, manage associated risks, demonstrate appropriate skills, and provide effective instruction.

**Knowledge:** The applicant demonstrates instructional knowledge by describing and explaining:

- AI.III.B.K1* General airworthiness requirements and compliance for airplanes, including:
  - AI.III.B.K1a* a. Location and expiration dates of required aircraft certificates
  - AI.III.B.K1b* b. Required inspections and aircraft logbook documentation
  - AI.III.B.K1c* c. Airworthiness Directives and Special Airworthiness Information Bulletins
  - AI.III.B.K1d* d. Purpose and procedure for obtaining a special flight permit
- AI.III.B.K2* Pilot-performed preventive maintenance.
- AI.III.B.K3* Equipment requirements for day and night VFR flight, including:
  - AI.III.B.K3a* a. Flying with inoperative equipment

- AI.III.B.K3b b. Using an approved Minimum Equipment List (MEL)
- AI.III.B.K3c c. Kinds of Operation Equipment List (KOEL) AI.III.B.K3d
- d. Required discrepancy records or placards
- AI.III.B.K4 Standard and special airworthiness certificates and their associated operational limitations.

**Risk**

**Management:** The applicant explains and teaches how to identify and manage risk associated with:

- AI.III.B.R1 Inoperative equipment discovered prior to flight.

**Skills:** The applicant demonstrates and simultaneously explains how to:

- AI.III.B.S1 Locate and describe airplane airworthiness and registration information.
- AI.III.B.S2 Determine the airplane is airworthy in the scenario given by the evaluator.
- AI.III.B.S3 Apply appropriate procedures for operating with inoperative equipment in a scenario given by the evaluator.

**Task C. Weather Information**

*References: 14 CFR part 91; AC 91-92; AIM; FAA-H-8083-2, FAA-H-8083-3, FAA-H-8083-9, FAA-H-8083-25, FAA-H-8083-28*

**Objective:** To determine the applicant understands weather information, can apply that knowledge, manage associated risks, demonstrate appropriate skills, and provide effective instruction.

*Note: If K2 is selected, the evaluator must assess the applicant’s knowledge of at least three sub-elements. If K3 is selected, the evaluator must assess the applicant’s knowledge of at least three sub-elements.*

**Knowledge:** The applicant demonstrates instructional knowledge by describing and explaining:

- AI.III.C.K1 Sources of weather data (e.g., National Weather Service, Flight Service) for flight planning purposes.
- AI.III.C.K2 Acceptable weather products and resources required for preflight planning, current and forecast weather for departure, en route, and arrival phases of flight such as:
  - AI.III.C.K2a a. Airport Observations (METAR and SPECI) and Pilot Observations (PIREP)
  - AI.III.C.K2b b. Surface Analysis Chart, Ceiling and Visibility Chart (CVA)
  - AI.III.C.K2c c. Terminal Aerodrome Forecasts (TAF)
  - AI.III.C.K2d d. Graphical Forecasts for Aviation (GFA)
  - AI.III.C.K2e e. Wind and Temperature Aloft Forecast (FB)
  - AI.III.C.K2f f. Convective Outlook (AC)
  - AI.III.C.K2g g. Inflight Aviation Weather Advisories including Airmen's Meteorological Information (AIRMET), Significant Meteorological Information (SIGMET), and Convective SIGMET
- AI.III.C.K3 Meteorology applicable to the departure, en route, alternate, and destination under visual flight rules (VFR) in Visual Meteorological Conditions (VMC), including expected climate and hazardous conditions such as:
  - AI.III.C.K3a a. Atmospheric composition and stability
  - AI.III.C.K3b b. Wind (e.g., windshear, mountain wave, factors affecting wind, etc.)
  - AI.III.C.K3c c. Temperature and heat exchange

- AI.III.C.K3d* d. Moisture/precipitation
- AI.III.C.K3e* e. Weather system formation, including air masses and fronts
- AI.III.C.K3f* f. Clouds
- AI.III.C.K3g* g. Turbulence
- AI.III.C.K3h* h. Thunderstorms and microbursts
- AI.III.C.K3i* i. Icing and freezing level information
- AI.III.C.K3j* j. Fog/mist
- AI.III.C.K3k* k. Frost
- AI.III.C.K3l* l. Obstructions to visibility (e.g., smoke, haze, volcanic ash, etc.)
- AI.III.C.K4* Flight deck instrument displays of digital weather and aeronautical information.

**Risk**

**Management:** The applicant explains and teaches how to identify and manage risk associated with:

- AI.III.C.R1* Making the go/no-go and continue/divert decisions, including:
  - AI.III.C.R1a* a. Circumstances that would make diversion prudent
  - AI.III.C.R1b* b. Personal weather minimums
  - AI.III.C.R1c* c. Hazardous weather conditions, including known or forecast icing or turbulence aloft
- AI.III.C.R2* Use and limitations of:
  - AI.III.C.R2a* a. Installed onboard weather equipment
  - AI.III.C.R2b* b. Aviation weather reports and forecasts
  - AI.III.C.R2c* c. Inflight weather resources

**Skills:**

The applicant demonstrates and simultaneously explains how to:

- AI.III.C.S1* Use available aviation weather resources to obtain an adequate weather briefing.
- AI.III.C.S2* Analyze the implications of at least three of the conditions listed in K3a through K3l, using actual weather or weather conditions provided by the evaluator.
- AI.III.C.S3* Correlate weather information to make a go/no-go decision.

## Area of Operation IV. Preflight Lesson on a Maneuver to be Performed in Flight

**Note:** The evaluator asks the applicant to present a preflight lesson on the selected maneuver as the lesson would be taught to a student and determines the outcome of this Task before the flight portion of the practical test. Previously developed lesson plans from the instructor applicant's library may be used.

### Task A. Maneuver Lesson

References: FAA-H-8083-2, FAA-H-8083-3, FAA-H-8083-9, FAA-H-8083-23, FAA-H-8083-25; POH/AFM

**Objective:** To determine the applicant understands the elements associated with a maneuver Task selected from Area of Operation VII through Area of Operation XII (ASEL, ASES) or Area of Operation VII through Area of Operation XIII (AMEL, AMES) and applies that knowledge when delivering ground instruction.

**Knowledge:** The applicant demonstrates instructional knowledge by describing and explaining:

- AI.IV.A.K1 Purpose of the maneuver.
- AI.IV.A.K2 Elements of the maneuver and the associated common errors.
- AI.IV.A.K3 Desired outcome(s), including completion standards.

#### Risk

**Management:** The applicant explains and teaches how to identify and manage risk associated with:

- AI.IV.A.R1 The selected maneuver Task.

**Skills:** The applicant exhibits the skill to:

- AI.IV.A.S1 Deliver instruction on the selected maneuver using a lesson plan, teaching methods, and teaching aids, as appropriate, that incorporate K1 through K3.

## Area of Operation V. Preflight Procedures

**Note:** The evaluator must select at least one Task from this Area of Operation.

### Task A. Preflight Assessment

References: FAA-H-8083-2, FAA-H-8083-3, FAA-H-8083-9, FAA-H-8083-23, FAA-H-8083-25, FAA-H-8083-28; POH/AFM

**Objective:** To determine the applicant understands preflight assessment, can apply that knowledge, manage associated risks, demonstrate appropriate skills, and provide effective instruction.

**Knowledge:** The applicant demonstrates instructional knowledge by describing and explaining:

- AI.V.A.K1 Pilot self-assessment.
- AI.V.A.K2 Determining that the airplane to be used is appropriate and airworthy.
- AI.V.A.K3 Airplane preflight inspection, including:
  - AI.V.A.K3a a. Which items should be inspected
  - AI.V.A.K3b b. The reasons for checking each item
  - AI.V.A.K3c c. How to detect possible defects
  - AI.V.A.K3d d. The associated regulations
- AI.V.A.K4 Environmental factors, including weather, terrain, route selection, and obstructions.

#### Risk

**Management:** The applicant explains and teaches how to identify and manage risk associated with:

- AI.V.A.R1 Pilot.
- AI.V.A.R2 Aircraft.
- AI.V.A.R3 Environment (e.g., weather, airports, airspace, terrain, obstacles).
- AI.V.A.R4 External pressures.
- AI.V.A.R5 Aviation security concerns.

**Skills:** The applicant demonstrates and simultaneously explains how to:

- AI.V.A.S1 Inspect the airplane with reference to an appropriate checklist.
- AI.V.A.S2 Verify the airplane is in condition for safe flight and conforms to its type design.
- AI.V.A.S3 Perform self-assessment.
- AI.V.A.S4 Continue to assess the environment for safe flight.

### Task B. Flight Deck Management

References: 14 CFR part 91; AC 120-71; FAA-H-8083-2, FAA-H-8083-3, FAA-H-8083-9, FAA-H-8083-23, FAA-H-8083-25; POH/AFM

**Objective:** To determine the applicant understands flight deck management, can apply that knowledge, manage associated risks, demonstrate appropriate skills, and provide effective instruction.

**Note:** See Appendix 2: Safety of Flight.

- Knowledge:** The applicant demonstrates instructional knowledge by describing and explaining:
- AI.V.B.K1* Passenger briefing requirements, including operation and required use of safety restraint systems.
  - AI.V.B.K2* Use of appropriate checklists.
  - AI.V.B.K3* Requirements for current and appropriate navigation data.
  - AI.V.B.K4* Securing items and cargo.

**Risk**

**Management:** The applicant explains and teaches how to identify and manage risk associated with:

- AI.V.B.R1* Use of systems or equipment, including automation and portable electronic devices.
- AI.V.B.R2* Inoperative equipment.
- AI.V.B.R3* Passenger distractions.

**Skills:** The applicant demonstrates and simultaneously explains how to:

- AI.V.B.S1* Secure all items in the aircraft.
- AI.V.B.S2* Conduct an appropriate passenger briefing, including identifying the pilot-in-command (PIC), use of safety belts, shoulder harnesses, doors, passenger conduct, sterile aircraft, propeller blade avoidance, and emergency procedures.
- AI.V.B.S3* Properly program and manage the aircraft's automation, as applicable.
- AI.V.B.S4* Appropriately manage risks by utilizing ADM, including SRM/CRM.

### **Task C. Engine Starting**

*References: FAA-H-8083-2, FAA-H-8083-3, FAA-H-8083-9, FAA-H-8083-23, FAA-H-8083-25; POH/AFM*

**Objective:** To determine the applicant understands engine starting, can apply that knowledge, manage associated risks, demonstrate appropriate skills, and provide effective instruction.

**Knowledge:** The applicant demonstrates instructional knowledge by describing and explaining:

- AI.V.C.K1* Starting under various conditions.
- AI.V.C.K2* Starting the engine(s) by use of external power.
- AI.V.C.K3* Engine limitations as they relate to starting.

**Risk**

**Management:** The applicant explains and teaches how to identify and manage risk associated with:

- AI.V.C.R1* Propeller safety. *AI.V.C.R2*  
Use of external power unit.
- AI.V.C.R3* Limitations during starting.

**Skills:** The applicant demonstrates and simultaneously explains how to:

- AI.V.C.S1* Position the airplane properly considering structures, other aircraft, wind, and the safety of nearby persons and property.

AI.V.C.S2 Complete the appropriate checklist(s).

### **Task D. Taxiing, Airport Signs, and Lighting (ASEL, AMEL)**

References: AC 91-73; AIM; Chart Supplements; FAA-H-8083-2, FAA-H-8083-3, FAA-H-8083-9, FAA-H-8083-25; POH/ AFM

**Objective:** To determine the applicant understands taxiing an airplane, can apply that knowledge, manage associated risks, demonstrate appropriate skills, and provide effective instruction.

**Knowledge:** The applicant demonstrates instructional knowledge by describing and explaining:

- AI.V.D.K1 Elements of safe taxi operations.
- AI.V.D.K2 Current airport aeronautical references and information resources such as the Chart Supplement, airport diagram, and Notices to Air Missions (NOTAMs).
- AI.V.D.K3 Taxi instructions/clearances.
- AI.V.D.K4 Airport markings, signs, and lights.
- AI.V.D.K5 Visual indicators for wind.
- AI.V.D.K6 Aircraft lighting, as appropriate.
- AI.V.D.K7 Procedures for:
  - AI.V.D.K7a a. Appropriate flight deck activities prior to taxi, including route planning and identifying the location of Hot Spots
  - AI.V.D.K7b b. Radio communications at towered and nontowered airports
  - AI.V.D.K7c c. Entering or crossing runways
  - AI.V.D.K7d d. Night taxi operations
  - AI.V.D.K7e e. Low visibility taxi operations

#### **Risk**

**Management:** The applicant explains and teaches how to identify and manage risk associated with:

- AI.V.D.R1 Activities and distractions.
- AI.V.D.R2 Confirmation or expectation bias as related to taxi instructions.
- AI.V.D.R3 A taxi route or departure runway change.
- AI.V.D.R4 Runway incursion.

**Skills:** The applicant demonstrates and simultaneously explains how to:

- AI.V.D.S1 Receive and correctly read back clearances/instructions, if applicable.
- AI.V.D.S2 Use an airport diagram or taxi chart during taxi, if published, and maintain situational awareness.
- AI.V.D.S3 Position the flight controls for the existing wind, if applicable.
- AI.V.D.S4 Complete the appropriate checklist(s).
- AI.V.D.S5 Perform a brake check immediately after the airplane begins moving.
- AI.V.D.S6 Maintain positive control of the airplane during ground operations by controlling direction and speed without excessive use of brakes.

- AI.V.D.S7* Comply with airport/taxiway markings, signals, and air traffic control (ATC) clearances and instructions.
- AI.V.D.S8* Position the airplane properly relative to hold lines.

### **Task E. Taxiing and Sailing (ASES, AMES)**

*References: AC 91-73; AIM; Chart Supplements; FAA-H-8083-2, FAA-H-8083-9, FAA-H-8083-23, FAA-H-8083-25; POH/AFM; USCG Navigation Rules*

**Objective:** To determine the applicant understands taxiing and sailing, can apply that knowledge, manage associated risks, demonstrate appropriate skills, and provide effective instruction.

**Knowledge:** The applicant demonstrates instructional knowledge by describing and explaining:

- AI.V.E.K1* Procedures for various types of taxiing and sailing.
- AI.V.E.K2* Current airport aeronautical references and information resources such as the Chart Supplement, airport diagram, and Notices to Air Missions (NOTAMs).
- AI.V.E.K3* Taxi instructions/clearances.
- AI.V.E.K4* Airport/seaplane base markings, signs, and lights.
- AI.V.E.K5* Visual indicators for wind.
- AI.V.E.K6* Airplane lighting.
- AI.V.E.K7* Procedures for:
- AI.V.E.K7a* a. Appropriate flight deck activities during taxiing or sailing
- AI.V.E.K7b* b. Radio communications at towered and nontowered seaplane bases

#### **Risk**

**Management:** The applicant explains and teaches how to identify and manage risk associated with:

- AI.V.E.R1* Activities and distractions.
- AI.V.E.R2* Porpoising and skipping.
- AI.V.E.R3* Low visibility taxi and sailing operations.
- AI.V.E.R4* Other aircraft, vessels, and hazards.
- AI.V.E.R5* Confirmation or expectation bias as related to taxi instructions.

**Skills:** The applicant demonstrates and simultaneously explains how to:

- AI.V.E.S1* Receive and correctly read back clearances/instructions, if applicable.
- AI.V.E.S2* Use an appropriate airport diagram or taxi chart, if published.
- AI.V.E.S3* Comply with seaplane base/airport/taxiway markings, signals, and signs.
- AI.V.E.S4* Depart the dock/mooring buoy or beach/ramp in a safe manner, considering wind, current, traffic, and hazards.
- AI.V.E.S5* Complete the appropriate checklist(s).
- AI.V.E.S6* Position the flight controls, flaps, doors, water rudders, and power correctly for the existing conditions to follow the desired course while sailing and to prevent or correct for porpoising and skipping during step taxi.

- AI.V.E.S7* Exhibit procedures for steering and maneuvering while maintaining proper situational awareness and desired orientation, path, and position while taxiing using idle, plow, or step taxi technique, as appropriate.
- AI.V.E.S8* Plan and follow the most favorable taxi or sailing course for current conditions.
- AI.V.E.S9* Abide by right-of-way rules, maintain positive airplane control, proper speed, and separation between other aircraft, vessels, and persons.
- AI.V.E.S10* Comply with applicable taxi elements in Task D if the practical test is conducted in an amphibious airplane.

## **Task F. Before Takeoff Check**

*References: FAA-H-8083-2, FAA-H-8083-3, FAA-H-8083-9, FAA-H-8083-23, FAA-H-8083-25; POH/AFM*

**Objective:** To determine the applicant understands before takeoff checks, can apply that knowledge, manage associated risks, demonstrate appropriate skills, and provide effective instruction.

**Knowledge:** The applicant demonstrates instructional knowledge by describing and explaining:

- AI.V.F.K1* Purpose of before takeoff checklist items, including:
  - AI.V.F.K1a* a. Reasons for checking each item
  - AI.V.F.K1b* b. Detecting malfunctions
  - AI.V.F.K1c* c. Ensuring the aircraft is in safe operating condition as recommended by the manufacturer

### **Risk**

**Management:** The applicant explains and teaches how to identify and manage risk associated with:

- AI.V.F.R1* Division of attention while conducting before takeoff checks.
- AI.V.F.R2* Unexpected runway changes by air traffic control (ATC).
- AI.V.F.R3* Wake turbulence.
- AI.V.F.R4* Potential powerplant failure during takeoff or other malfunction considering operational factors such as airplane characteristics, runway/takeoff path length, surface conditions, environmental conditions, and obstructions.

**Skills:** The applicant demonstrates and simultaneously explains how to:

- AI.V.F.S1* Review takeoff performance.
- AI.V.F.S2* Complete the appropriate checklist(s).
- AI.V.F.S3* Position the airplane appropriately considering wind direction and the presence of any aircraft, vessels, or buildings as applicable.
- AI.V.F.S4* Divide attention inside and outside the flight deck.
- AI.V.F.S5* Verify that engine parameters and airplane configuration are suitable.

## Area of Operation VI. Airport and Seaplane Base Operations

**Note:** The evaluator must select at least one Task from this Area of Operation.

### Task A. Communications, Light Signals, and Runway Lighting Systems

References: 14 CFR part 91; AIM; FAA-H-8083-2, FAA-H-8083-3, FAA-H-8083-9, FAA-H-8083-25

**Objective:** To determine the applicant understands communications, ATC light signals, and runway lighting systems and can apply that knowledge, manage associated risks, demonstrate appropriate skills, and provide effective instruction.

**Knowledge:** The applicant demonstrates instructional knowledge by describing and explaining:

- AI.VI.A.K1* How to obtain appropriate radio frequencies.
- AI.VI.A.K2* Proper radio communication procedures and air traffic control (ATC) phraseology.
- AI.VI.A.K3* ATC light signal recognition.
- AI.VI.A.K4* Appropriate use of transponder(s).
- AI.VI.A.K5* Lost communication procedures.
- AI.VI.A.K6* Equipment issues that could cause loss of communication.
- AI.VI.A.K7* Radar assistance.
- AI.VI.A.K8* Runway Status Lighting Systems.
- AI.VI.A.K9* Common errors related to this Task.

#### Risk

**Management:** The applicant explains and teaches how to identify and manage risk associated with:

- AI.VI.A.R1* Communication.
- AI.VI.A.R2* Deciding if and when to declare an emergency.

**Skills:** The applicant demonstrates and simultaneously explains how to:

- AI.VI.A.S1* Select and activate appropriate frequencies.
- AI.VI.A.S2* Transmit using standard phraseology and procedures as specified in the Aeronautical Information Manual (AIM) and Pilot/Controller Glossary.
- AI.VI.A.S3* Acknowledge radio communications and comply with ATC instructions or as directed by the evaluator.
- AI.VI.A.S4* Analyze and correct common errors related to this Task.

### Task B. Traffic Patterns

References: 14 CFR part 91; AIM; FAA-H-8083-2, FAA-H-8083-3, FAA-H-8083-9, FAA-H-8083-25

**Objective:** To determine the applicant understands traffic patterns, can apply that knowledge, manage associated risks, demonstrate appropriate skills, and provide effective instruction.

**Knowledge:** The applicant demonstrates instructional knowledge by describing and explaining:

- AI.VI.B.K1* Towered and nontowered airport operations.
- AI.VI.B.K2* Traffic pattern selection for the current conditions.

- AI.VI.B.K3* Right-of-way rules.
- AI.VI.B.K4* Use of automated weather and airport information.
- AI.VI.B.K5* Common errors related to this Task.

**Risk**

**Management:** The applicant explains and teaches how to identify and manage risk associated with:

- AI.VI.B.R1* Collision hazards.
- AI.VI.B.R2* Distractions, task prioritization, loss of situational awareness, or disorientation.
- AI.VI.B.R3* Windshear and wake turbulence.

**Skills:**

The applicant demonstrates and simultaneously explains how to:

- AI.VI.B.S1* Identify and interpret airport/seaplane base runways, taxiways, markings, signs, and lighting.
- AI.VI.B.S2* Comply with recommended traffic pattern procedures.
- AI.VI.B.S3* Correct for wind drift to maintain the proper ground track.
- AI.VI.B.S4* Maintain orientation with the runway/landing area in use.
- AI.VI.B.S5* Maintain traffic pattern altitude,  $\pm 100$  feet, and the appropriate airspeed,  $\pm 10$  knots.
- AI.VI.B.S6* Maintain situational awareness and proper spacing from other aircraft in the traffic pattern.
- AI.VI.B.S7* Analyze and correct common errors related to this Task.

## Area of Operation VII. Takeoffs, Landings, and Go-Arounds

**Note:** The evaluator must select at least two takeoff and two landing Tasks from Area of Operation VII, Takeoffs, Landings, and Go-Arounds.

### Task A. Normal Takeoff and Climb

References: AIM; FAA-H-8083-2, FAA-H-8083-3, FAA-H-8083-9, FAA-H-8083-23, FAA-H-8083-25; POH/AFM

**Objective:** To determine the applicant understands normal takeoff and climb, can apply that knowledge, manage associated risks, demonstrate appropriate skills, and provide effective instruction.

**Note:** If a crosswind condition does not exist, the applicant's knowledge of crosswind elements must be evaluated through oral testing.

**Knowledge:** The applicant demonstrates instructional knowledge by describing and explaining:

- AI.VII.A.K1 Procedures for normal and crosswind takeoff.
- AI.VII.A.K2 Effects of atmospheric conditions, including wind, on takeoff and climb performance.
- AI.VII.A.K3 Best angle of climb speed ( $V_X$ ) and best rate of climb speed ( $V_Y$ ).
- AI.VII.A.K4 Appropriate airplane configuration.
- AI.VII.A.K5 Common errors related to this Task.

#### Risk

**Management:** The applicant explains and teaches how to identify and manage risk associated with:

- AI.VII.A.R1 Selection of runway based on pilot capability, airplane performance and limitations, available distance, and wind.
- AI.VII.A.R2 Effects of:
  - AI.VII.A.R2a a. Crosswind
  - AI.VII.A.R2b b. Windshear
  - AI.VII.A.R2c c. Tailwind
  - AI.VII.A.R2d d. Wake turbulence
  - AI.VII.A.R2e e. Takeoff surface/condition
- AI.VII.A.R3 Abnormal operations, including planning for:
  - AI.VII.A.R3a a. Rejected takeoff
  - AI.VII.A.R3b b. Potential engine failure in takeoff/climb phase of flight
- AI.VII.A.R4 Collision hazards.
- AI.VII.A.R5 Low altitude maneuvering, including stall, spin, or controlled flight into terrain (CFIT).
- AI.VII.A.R6 Distractions, task prioritization, loss of situational awareness, or disorientation.
- AI.VII.A.R7 Runway incursion.

**Skills:** The applicant demonstrates and simultaneously explains how to:

- AI.VII.A.S1 Complete the appropriate checklist(s).
- AI.VII.A.S2 Make radio calls as appropriate.

<i>AI.VII.A.S3</i>	Verify assigned/correct runway or takeoff path.
<i>AI.VII.A.S4</i>	Determine wind direction with or without visible wind direction indicators.
<i>AI.VII.A.S5</i>	Position the flight controls for the existing wind, if applicable.
<i>AI.VII.A.S6</i>	Clear the area, taxi into takeoff position, and align the airplane on the runway centerline (ASEL, AMEL) or takeoff path (ASES, AMES).
<i>AI.VII.A.S7</i>	Retract the water rudders, as appropriate (ASES, AMES).
<i>AI.VII.A.S8</i>	Advance the throttle smoothly to takeoff power and confirm proper engine and flight instrument indications prior to rotation.
<i>AI.VII.A.S9</i>	Avoid excessive water spray on the propeller(s) (ASES, AMES).
<i>AI.VII.A.S10</i>	Establish and maintain the most efficient planing/lift-off attitude, and correct for porpoising or skipping (ASES, AMES).
<i>AI.VII.A.S11</i>	Rotate and lift off at the recommended airspeed and accelerate to $V_{\gamma}$ .
<i>AI.VII.A.S12</i>	Establish a pitch attitude to maintain the manufacturer's recommended speed or $V_{\gamma}$ , $\pm 5$ knots.
<i>AI.VII.A.S13</i>	Configure the airplane in accordance with manufacturer's guidance.
<i>AI.VII.A.S14</i>	Maintain $V_{\gamma} \pm 5$ knots to a safe maneuvering altitude.
<i>AI.VII.A.S15</i>	Maintain directional control and proper wind-drift correction throughout takeoff and climb.
<i>AI.VII.A.S16</i>	Comply with noise abatement procedures, as applicable.
<i>AI.VII.A.S17</i>	Analyze and correct common errors related to this Task.

## **Task B. Normal Approach and Landing**

*References: AIM; FAA-H-8083-2, FAA-H-8083-3, FAA-H-8083-9, FAA-H-8083-23, FAA-H-8083-25; POH/AFM*

**Objective:** To determine the applicant understands normal approach and landing, can apply that knowledge, manage associated risks, demonstrate appropriate skills, and provide effective instruction.

**Note:** *If a crosswind condition does not exist, the applicant's knowledge of crosswind elements must be evaluated through oral testing.*

**Knowledge:** The applicant demonstrates instructional knowledge by describing and explaining:

<i>AI.VII.B.K1</i>	Procedures for normal and crosswind approach and landing.
<i>AI.VII.B.K2</i>	A stabilized approach, including energy management concepts.
<i>AI.VII.B.K3</i>	Effects of atmospheric conditions, including wind, on approach and landing performance.
<i>AI.VII.B.K4</i>	Wind correction techniques on approach and landing.
<i>AI.VII.B.K5</i>	Common errors related to this Task.

### **Risk**

**Management:** The applicant explains and teaches how to identify and manage risk associated with:

<i>AI.VII.B.R1</i>	Selection of runway/landing surface, approach path, and touchdown area based on pilot capability, aircraft performance and limitations, available distance, and wind.
--------------------	---

- AI.VII.B.R2* Effects of:
  - AI.VII.B.R2a* a. Crosswind
  - AI.VII.B.R2b* b. Windshear
  - AI.VII.B.R2c* c. Tailwind
  - AI.VII.B.R2d* d. Wake turbulence
  - AI.VII.B.R2e* e. Landing surface/condition
- AI.VII.B.R3* Planning for:
  - AI.VII.B.R3a* a. Rejected landing and go-around
  - AI.VII.B.R3b* b. Land and hold short operations (LAHSO)
- AI.VII.B.R4* Collision hazards.
- AI.VII.B.R5* Low altitude maneuvering, including stall, spin, or controlled flight into terrain (CFIT).
- AI.VII.B.R6* Distractions, task prioritization, loss of situational awareness, or disorientation.

**Skills:** The applicant demonstrates and simultaneously explains how to:

- AI.VII.B.S1* Complete the appropriate checklist(s).
- AI.VII.B.S2* Make radio calls as appropriate.
- AI.VII.B.S3* Ensure the airplane is aligned with the correct/assigned runway or landing surface.
- AI.VII.B.S4* Scan the runway or landing surface and adjoining area for traffic and obstructions.
- AI.VII.B.S5* Select and aim for a suitable touchdown point considering the wind conditions, landing surface, and obstructions.
- AI.VII.B.S6* Establish the recommended approach and landing configuration, airspeed, and trim, and adjust pitch attitude and power as required to maintain a stabilized approach.
- AI.VII.B.S7* Maintain manufacturer’s published approach airspeed or in its absence not more than 1.3 times the stalling speed or the minimum steady flight speed in the landing configuration ( $V_{SO}$ ),  $\pm 5$  knots with gust factor applied.
- AI.VII.B.S8* Maintain directional control and appropriate crosswind correction throughout the approach and landing.
- AI.VII.B.S9* Make smooth, timely, and correct control application during round out and touchdown.
- AI.VII.B.S10* Touch down at a proper pitch attitude, within 200 feet beyond or on the specified point, with no side drift, and with the airplane’s longitudinal axis aligned with and over the runway center/landing path.
- AI.VII.B.S11* Execute a timely go-around if the approach cannot be made within the tolerances specified above or for any other condition that may result in an unsafe approach or landing.
- AI.VII.B.S12* Analyze and correct common errors related to this Task.

### **Task C. Soft-Field Takeoff and Climb (ASEL)**

*References:* AIM; FAA-H-8083-2, FAA-H-8083-3, FAA-H-8083-9, FAA-H-8083-25; POH/AFM

**Objective:** To determine the applicant understands soft-field takeoff and climb, can apply that knowledge, manage associated risks, demonstrate appropriate skills, and provide effective instruction.

**Knowledge:** The applicant demonstrates instructional knowledge by describing and explaining:

- AI.VII.C.K1* Purpose of and procedures for soft-field takeoff and climb.
- AI.VII.C.K2* Effects of atmospheric conditions, including wind, on takeoff and climb performance.
- AI.VII.C.K3* Best angle of climb speed ( $V_{X}$ ) and best rate of climb speed ( $V_{Y}$ ).
- AI.VII.C.K4* Appropriate airplane configuration.
- AI.VII.C.K5* Ground effect.
- AI.VII.C.K6* Importance of weight transfer from wheels to wings.
- AI.VII.C.K7* Left turning tendencies.
- AI.VII.C.K8* Common errors related to this Task.

**Risk**

**Management:** The applicant explains and teaches how to identify and manage risk associated with:

- AI.VII.C.R1* Selection of runway based on pilot capability, airplane performance and limitations, available distance, and wind.
- AI.VII.C.R2* Effects of:
  - AI.VII.C.R2a* a. Crosswind
  - AI.VII.C.R2b* b. Windshear
  - AI.VII.C.R2c* c. Tailwind
  - AI.VII.C.R2d* d. Wake turbulence
  - AI.VII.C.R2e* e. Runway surface/condition
- AI.VII.C.R3* Abnormal operations, including planning for:
  - AI.VII.C.R3a* a. Rejected takeoff
  - AI.VII.C.R3b* b. Potential engine failure in takeoff/climb phase of flight
- AI.VII.C.R4* Collision hazards.
- AI.VII.C.R5* Low altitude maneuvering, including stall, spin, or controlled flight into terrain (CFIT).
- AI.VII.C.R6* Distractions, task prioritization, loss of situational awareness, or disorientation.

**Skills:** The applicant demonstrates and simultaneously explains how to:

- AI.VII.C.S1* Complete the appropriate checklist(s).
- AI.VII.C.S2* Make radio calls as appropriate.
- AI.VII.C.S3* Verify assigned/correct runway.
- AI.VII.C.S4* Determine wind direction with or without visible wind direction indicators.
- AI.VII.C.S5* Position the flight controls for the existing wind, if applicable.
- AI.VII.C.S6* Clear the area, maintain necessary flight control inputs, taxi into takeoff position and align the airplane on the runway centerline without stopping, while advancing the throttle smoothly to takeoff power.
- AI.VII.C.S7* Confirm takeoff power and proper engine and flight instrument indications.
- AI.VII.C.S8* Establish and maintain a pitch attitude that transfers the weight of the airplane from the wheels to the wings as rapidly as possible.

- AI.VII.C.S9* Lift off at the lowest possible airspeed and remain in ground effect while accelerating to  $V_x$  or  $V_y$ , as appropriate.
- AI.VII.C.S10* Establish a pitch attitude for  $V_x$  or  $V_y$ , as appropriate, and maintain selected airspeed  $\pm 5$  knots during the climb.
- AI.VII.C.S11* Configure the airplane after a positive rate of climb has been verified or in accordance with airplane manufacturer's instructions.
- AI.VII.C.S12* Maintain  $V_x$  or  $V_y$ , as appropriate,  $\pm 5$  knots to a safe maneuvering altitude.
- AI.VII.C.S13* Maintain directional control and proper wind-drift correction throughout takeoff and climb.
- AI.VII.C.S14* Comply with noise abatement procedures, as applicable.
- AI.VII.C.S15* Analyze and correct common errors related to this Task.

### **Task D. Soft-Field Approach and Landing (ASEL)**

*References: AIM; FAA-H-8083-2, FAA-H-8083-3, FAA-H-8083-9, FAA-H-8083-25; POH/AFM*

**Objective:** To determine the applicant understands soft-field approach and landing, can apply that knowledge, manage associated risks, demonstrate appropriate skills, and provide effective instruction.

**Knowledge:** The applicant demonstrates instructional knowledge by describing and explaining:

- AI.VII.D.K1* Purpose of and procedures for soft-field approach and landing.
- AI.VII.D.K2* A stabilized approach, including energy management concepts.
- AI.VII.D.K3* Effects of atmospheric conditions, including wind, on approach and landing performance.
- AI.VII.D.K4* Wind correction techniques on approach and landing.
- AI.VII.D.K5* Common errors related to this Task.

#### **Risk**

**Management:** The applicant explains and teaches how to identify and manage risk associated with:

- AI.VII.D.R1* Selection of runway based on pilot capability, airplane performance and limitations, available distance, and wind.
- AI.VII.D.R2* Effects of:
  - AI.VII.D.R2a* a. Crosswind
  - AI.VII.D.R2b* b. Windshear
  - AI.VII.D.R2c* c. Tailwind
  - AI.VII.D.R2d* d. Wake turbulence
  - AI.VII.D.R2e* e. Runway surface/condition
- AI.VII.D.R3* Planning for:
  - AI.VII.D.R3a* a. Rejected landing and go-around
  - AI.VII.D.R3b* b. Land and hold short operations (LAHSO)
- AI.VII.D.R4* Collision hazards.
- AI.VII.D.R5* Low altitude maneuvering, including stall, spin, or controlled flight into terrain (CFIT).
- AI.VII.D.R6* Distractions, task prioritization, loss of situational awareness, or disorientation.

<b>Skills:</b>	The applicant demonstrates and simultaneously explains how to:
<i>AI.VII.D.S1</i>	Complete the appropriate checklist(s).
<i>AI.VII.D.S2</i>	Make radio calls as appropriate.
<i>AI.VII.D.S3</i>	Ensure the airplane is aligned with the correct/assigned runway.
<i>AI.VII.D.S4</i>	Scan the landing runway and adjoining area for traffic and obstructions.
<i>AI.VII.D.S5</i>	Select and aim for a suitable touchdown point considering the wind conditions, landing surface, and obstructions.
<i>AI.VII.D.S6</i>	Establish the recommended approach and landing configuration, airspeed, and trim, and adjust pitch attitude and power as required to maintain a stabilized approach.
<i>AI.VII.D.S7</i>	Maintain manufacturer's published approach airspeed or in its absence not more than 1.3 times the stalling speed or the minimum steady flight speed in the landing configuration ( $V_{SO}$ ), $\pm 5$ knots with gust factor applied.
<i>AI.VII.D.S8</i>	Maintain directional control and appropriate crosswind correction throughout the approach and landing.
<i>AI.VII.D.S9</i>	Make smooth, timely, and correct control inputs during the round out and touchdown, and, for tricycle gear airplanes, keep the nose wheel off the surface until loss of elevator effectiveness.
<i>AI.VII.D.S10</i>	Touch down at a proper pitch attitude with minimum sink rate, no side drift, and with the airplane's longitudinal axis aligned with the center of the runway.
<i>AI.VII.D.S11</i>	Maintain elevator as recommended by manufacturer during rollout and exit the "soft" area at a speed that would preclude sinking into the surface.
<i>AI.VII.D.S12</i>	Execute a timely go-around if the approach cannot be made within the tolerances specified above or for any other condition that may result in an unsafe approach or landing.
<i>AI.VII.D.S13</i>	Maintain proper position of the flight controls and sufficient speed to taxi while on the soft surface.
<i>AI.VII.D.S14</i>	Analyze and correct common errors related to this Task.

### **Task E. Short-Field Takeoff and Maximum Performance Climb (ASEL, AMEL)**

*References: AIM; FAA-H-8083-2, FAA-H-8083-3, FAA-H-8083-9, FAA-H-8083-25; POH/AFM*

**Objective:** To determine the applicant understands short-field takeoff and maximum performance climb, can apply that knowledge, manage associated risks, demonstrate appropriate skills, and provide effective instruction.

<b>Knowledge:</b>	The applicant demonstrates instructional knowledge by describing and explaining:
<i>AI.VII.E.K1</i>	Purpose of and procedures for short-field takeoff and maximum performance climb.
<i>AI.VII.E.K2</i>	Effects of atmospheric conditions, including wind, on takeoff and climb performance.
<i>AI.VII.E.K3</i>	Best angle of climb speed ( $V_X$ ) and best rate of climb speed ( $V_Y$ ).
<i>AI.VII.E.K4</i>	Appropriate airplane configuration.
<i>AI.VII.E.K5</i>	Common errors related to this Task.

<b>Risk Management:</b>	The applicant explains and teaches how to identify and manage risk associated with:
<i>AI.VII.E.R1</i>	Selection of runway based on pilot capability, airplane performance and limitations, available distance,

and wind.

*AI.VII.E.R2* Effects of:

*AI.VII.E.R2a* a. Crosswind

*AI.VII.E.R2b* b. Windshear

*AI.VII.E.R2c* c. Tailwind

*AI.VII.E.R2d* d. Wake turbulence

*AI.VII.E.R2e* e. Landing surface/condition

*AI.VII.E.R3* Abnormal operations, including planning for:

*AI.VII.E.R3a* a. Rejected takeoff

*AI.VII.E.R3b* b. Potential engine failure in takeoff/climb phase of flight

*AI.VII.E.R4* Collision hazards.

*AI.VII.E.R5* Low altitude maneuvering, including stall, spin, or controlled flight into terrain (CFIT).

*AI.VII.E.R6* Distractions, task prioritization, loss of situational awareness, or disorientation.

**Skills:** The applicant demonstrates and simultaneously explains how to:

*AI.VII.E.S1* Complete the appropriate checklist(s).

*AI.VII.E.S2* Make radio calls as appropriate.

*AI.VII.E.S3* Verify assigned/correct runway.

*AI.VII.E.S4* Determine wind direction with or without visible wind direction indicators.

*AI.VII.E.S5* Position the flight controls for the existing wind, if applicable.

*AI.VII.E.S6* Clear the area, taxi into takeoff position, and align the airplane on the runway centerline utilizing maximum available takeoff area.

*AI.VII.E.S7* Apply brakes while setting engine power to achieve maximum performance.

*AI.VII.E.S8* Confirm takeoff power prior to brake release and verify proper engine and flight instrument indications prior to rotation.

*AI.VII.E.S9* Rotate and lift off at the recommended airspeed and accelerate to the recommended obstacle clearance airspeed or  $V_x$ ,  $\pm 5$  knots.

*AI.VII.E.S10* Establish a pitch attitude to maintain the recommended obstacle clearance airspeed or  $V_x$ ,  $\pm 5$  knots until the obstacle is cleared or until the airplane is 50 feet above the surface.

*AI.VII.E.S11* Establish a pitch attitude for  $V_y$  and accelerate to  $V_y \pm 5$  knots after clearing the obstacle or at 50 feet above ground level (AGL) if simulating an obstacle.

*AI.VII.E.S12* Configure the airplane in accordance with the manufacturer's guidance after a positive rate of climb has been verified.

*AI.VII.E.S13* Maintain  $V_y \pm 5$  knots to a safe maneuvering altitude.

*AI.VII.E.S14* Maintain directional control and proper wind-drift correction throughout takeoff and climb.

*AI.VII.E.S15* Comply with noise abatement procedures, as applicable.

*AI.VII.E.S16* Analyze and correct common errors related to this Task.

## Task F. Short-Field Approach and Landing (ASEL, AMEL)

References: AIM; FAA-H-8083-2, FAA-H-8083-3, FAA-H-8083-9, FAA-H-8083-25; POH/AFM

**Objective:** To determine the applicant understands short-field approach and landing, can apply that knowledge, manage associated risks, demonstrate appropriate skills, and provide effective instruction.

**Knowledge:** The applicant demonstrates instructional knowledge by describing and explaining:

- AI.VII.F.K1* Purpose of and procedures for short-field approach and landing.
- AI.VII.F.K2* A stabilized approach, including energy management concepts.
- AI.VII.F.K3* Effects of atmospheric conditions, including wind, on approach and landing performance.
- AI.VII.F.K4* Wind correction techniques on approach and landing.
- AI.VII.F.K5* Common errors related to this Task.

### Risk

**Management:** The applicant explains and teaches how to identify and manage risk associated with:

- AI.VII.F.R1* Selection of runway based on pilot capability, airplane performance and limitations, available distance, and wind.
- AI.VII.F.R2* Effects of:
  - AI.VII.F.R2a* a. Crosswind
  - AI.VII.F.R2b* b. Windshear
  - AI.VII.F.R2c* c. Tailwind
  - AI.VII.F.R2d* d. Wake turbulence
  - AI.VII.F.R2e* e. Landing surface/condition
- AI.VII.F.R3* Planning for:
  - AI.VII.F.R3a* a. Rejected landing and go-around
  - AI.VII.F.R3b* b. Land and hold short operations (LAHSO)
- AI.VII.F.R4* Collision hazards.
- AI.VII.F.R5* Low altitude maneuvering, including stall, spin, or controlled flight into terrain (CFIT).
- AI.VII.F.R6* Distractions, task prioritization, loss of situational awareness, or disorientation.

**Skills:** The applicant demonstrates and simultaneously explains how to:

- AI.VII.F.S1* Complete the appropriate checklist(s).
- AI.VII.F.S2* Make radio calls as appropriate.
- AI.VII.F.S3* Ensure the airplane is aligned with the correct/assigned runway.
- AI.VII.F.S4* Scan the landing runway and adjoining area for traffic and obstructions.
- AI.VII.F.S5* Select and aim for a suitable touchdown point considering the wind conditions, landing surface, and obstructions.
- AI.VII.F.S6* Establish the recommended approach and landing configuration, airspeed, and trim, and adjust pitch attitude and power as required to maintain a stabilized approach.

- AI.VII.F.S7* Maintain manufacturer’s published approach airspeed or in its absence not more than 1.3 times the stalling speed or the minimum steady flight speed in the landing configuration ( $V_{SO}$ ),  $\pm 5$  knots with gust factor applied.
- AI.VII.F.S8* Maintain directional control and appropriate crosswind correction throughout the approach and landing.
- AI.VII.F.S9* Make smooth, timely, and correct control application before, during, and after touchdown.
- AI.VII.F.S10* Touch down at a proper pitch attitude within 100 feet beyond or on the specified point, threshold markings, or runway numbers, with no side drift, minimum float, and with the airplane’s longitudinal axis aligned with and over the runway centerline.
- AI.VII.F.S11* Use manufacturer’s recommended procedures for airplane configuration and braking.
- AI.VII.F.S12* Execute a timely go-around if the approach cannot be made within the tolerances specified above or for any other condition that may result in an unsafe approach or landing.
- AI.VII.F.S13* Analyze and correct common errors related to this Task.

### **Task G. Confined Area Takeoff and Maximum Performance Climb (ASES, AMES)**

*References: AIM; FAA-H-8083-2, FAA-H-8083-3, FAA-H-8083-9, FAA-H-8083-23, FAA-H-8083-25; POH/AFM*

**Objective:** To determine the applicant understands confined area takeoff and maximum performance climb, can apply that knowledge, manage associated risks, demonstrate appropriate skills, and provide effective instruction.

**Knowledge:** The applicant demonstrates instructional knowledge by describing and explaining:

- AI.VII.G.K1* Purpose of and procedures for confined area takeoff and maximum performance climb.
- AI.VII.G.K2* Effects of atmospheric conditions, including wind, on takeoff and climb performance.
- AI.VII.G.K3* Best angle of climb speed ( $V_X$ ) and best rate of climb speed ( $V_Y$ ).
- AI.VII.G.K4* Appropriate airplane configuration.
- AI.VII.G.K5* Effects of water surface.
- AI.VII.G.K6* Common errors related to this Task.

#### **Risk**

**Management:** The applicant explains and teaches how to identify and manage risk associated with:

- AI.VII.G.R1* Selection of takeoff path based on pilot capability, airplane performance and limitations, available distance, and wind.
- AI.VII.G.R2* Effects of:
  - AI.VII.G.R2a* a. Crosswind
  - AI.VII.G.R2b* b. Windshear
  - AI.VII.G.R2c* c. Tailwind
  - AI.VII.G.R2d* d. Wake turbulence
  - AI.VII.G.R2e* e. Water surface/condition
- AI.VII.G.R3* Abnormal operations, including planning for:
  - AI.VII.G.R3a* a. Rejected takeoff
  - AI.VII.G.R3b* b. Potential engine failure in takeoff/climb phase of flight

- AI.VII.G.R4* Collision hazards.
- AI.VII.G.R5* Low altitude maneuvering, including stall, spin, or controlled flight into terrain (CFIT).
- AI.VII.G.R6* Distractions, task prioritization, loss of situational awareness, or disorientation.

**Skills:** The applicant demonstrates and simultaneously explains how to:

- AI.VII.G.S1* Complete the appropriate checklist(s).
- AI.VII.G.S2* Make radio calls as appropriate.
- AI.VII.G.S3* Verify assigned/correct takeoff path.
- AI.VII.G.S4* Determine wind direction with or without visible wind direction indicators.
- AI.VII.G.S5* Position the flight controls for the existing wind, if applicable.
- AI.VII.G.S6* Clear the area, taxi into takeoff position utilizing maximum available takeoff area, and align the airplane on the takeoff path.
- AI.VII.G.S7* Retract the water rudders, as appropriate.
- AI.VII.G.S8* Establish a pitch attitude that maintains the most efficient planing/lift-off attitude and correct for porpoising and skipping.
- AI.VII.G.S9* Advance the throttle smoothly to takeoff power and confirm proper engine and flight instrument indications prior to rotation.
- AI.VII.G.S10* Avoid excessive water spray on the propeller(s).
- AI.VII.G.S11* Rotate and lift off at the recommended airspeed and accelerate to the recommended obstacle clearance airspeed or  $V_x$ .
- AI.VII.G.S12* Establish a pitch attitude to maintain the recommended obstacle clearance airspeed or  $V_x$ ,  $\pm 5$  knots until the obstacle is cleared or until the airplane is 50 feet above the surface.
- AI.VII.G.S13* Establish a pitch attitude for  $V_y$  and accelerate to  $V_y \pm 5$  knots after clearing the obstacle or at 50 feet above ground level (AGL) if simulating an obstacle.
- AI.VII.G.S14* Retract flaps, if extended, after a positive rate of climb has been verified or in accordance with airplane manufacturer's guidance.
- AI.VII.G.S15* Maintain  $V_y \pm 5$  knots to a safe maneuvering altitude.
- AI.VII.G.S16* Maintain directional control and proper wind-drift correction throughout takeoff and climb.
- AI.VII.G.S17* Comply with noise abatement procedures, as applicable.
- AI.VII.G.S18* Analyze and correct common errors related to this Task.

### **Task H. Confined Area Approach and Landing (ASES, AMES)**

*References: AIM; FAA-H-8083-2, FAA-H-8083-3, FAA-H-8083-9, FAA-H-8083-23, FAA-H-8083-25; POH/AFM*

**Objective:** To determine the applicant understands confined area approach and landing, can apply that knowledge, manage associated risks, demonstrate appropriate skills, and provide effective instruction.

**Knowledge:** The applicant demonstrates instructional knowledge by describing and explaining:

- AI.VII.H.K1* Purpose of and procedures for confined area approach and landing.
- AI.VII.H.K2* A stabilized approach, including energy management concepts.

- AI.VII.H.K3* Effects of atmospheric conditions, including wind, on approach and landing performance.
- AI.VII.H.K4* Wind correction techniques on approach and landing.
- AI.VII.H.K5* Common errors related to this Task.

**Risk**

**Management:** The applicant explains and teaches how to identify and manage risk associated with:

- AI.VII.H.R1* Selection of approach path and touchdown area based on pilot capability, airplane performance and limitations, available distance, and wind.
- AI.VII.H.R2* Effects of:
  - AI.VII.H.R2a* a. Crosswind
  - AI.VII.H.R2b* b. Windshear
  - AI.VII.H.R2c* c. Tailwind
  - AI.VII.H.R2d* d. Wake turbulence
  - AI.VII.H.R2e* e. Water surface/condition
- AI.VII.H.R3* Planning for a go-around and rejected landing.
- AI.VII.H.R4* Collision hazards.
- AI.VII.H.R5* Low altitude maneuvering, including stall, spin, or controlled flight into terrain (CFIT).
- AI.VII.H.R6* Distractions, task prioritization, loss of situational awareness, or disorientation.

**Skills:**

The applicant demonstrates and simultaneously explains how to:

- AI.VII.H.S1* Complete the appropriate checklist(s).
- AI.VII.H.S2* Make radio calls as appropriate.
- AI.VII.H.S3* Ensure the airplane is aligned for an approach to the correct/assigned landing surface.
- AI.VII.H.S4* Scan the landing area for traffic and obstructions.
- AI.VII.H.S5* Select and aim for a suitable touchdown point considering the wind conditions, landing surface, and obstructions.
- AI.VII.H.S6* Establish the recommended approach and landing configuration, airspeed, and trim, and adjust pitch attitude and power as required to maintain a stabilized approach.
- AI.VII.H.S7* Maintain manufacturer’s published approach airspeed or in its absence not more than  $1.3 V_{SO}$ , +10/-5 knots with gust factor applied.
- AI.VII.H.S8* Maintain directional control and appropriate crosswind correction throughout the approach and landing.
- AI.VII.H.S9* Make smooth, timely, and correct control application before, during, and after touchdown.
- AI.VII.H.S10* Contact the water at the recommended airspeed with a proper pitch attitude for the surface conditions.
- AI.VII.H.S11* Touch down at a proper pitch attitude, within 100 feet beyond or on the specified point, with no side drift, minimum float, and with the airplane’s longitudinal axis aligned with the projected landing path.
- AI.VII.H.S12* Execute a timely go-around if the approach cannot be made within the tolerances specified above or for any other condition that may result in an unsafe approach or landing.

- AI.VII.H.S13* Apply elevator control as necessary to stop in the shortest distance consistent with safety.
- AI.VII.H.S14* Analyze and correct common errors related to this Task.

### **Task I. Glassy Water Takeoff and Climb (ASES, AMES)**

*References: AIM; FAA-H-8083-2, FAA-H-8083-9, FAA-H-8083-23, FAA-H-8083-25; POH/AFM*

**Objective:** To determine the applicant understands glassy-water takeoff and climb, can apply that knowledge, manage associated risks, demonstrate appropriate skills, and provide effective instruction.

**Note:** *If a glassy water condition does not exist, the applicant must be evaluated by simulating the Task.*

**Knowledge:** The applicant demonstrates instructional knowledge by describing and explaining:

- AI.VII.I.K1* Purpose of and procedures for glassy water takeoff and climb.
- AI.VII.I.K2* Effects of atmospheric conditions, including wind, on takeoff and climb performance.
- AI.VII.I.K3* Best angle of climb speed ( $V_x$ ) and best rate of climb speed ( $V_y$ ).
- AI.VII.I.K4* Appropriate airplane configuration.
- AI.VII.I.K5* Appropriate use of glassy water takeoff and climb technique.
- AI.VII.I.K6* Common errors related to this Task.

#### **Risk**

**Management:** The applicant explains and teaches how to identify and manage risk associated with:

- AI.VII.I.R1* Selection of takeoff path based on pilot capability, airplane performance and limitations, and available distance.
- AI.VII.I.R2* Water surface/condition.
- AI.VII.I.R3* Abnormal operations, including planning for:
- AI.VII.I.R3a* a. Rejected takeoff
  - AI.VII.I.R3b* b. Potential engine failure in takeoff/climb phase of flight
- AI.VII.I.R4* Collision hazards.
- AI.VII.I.R5* Low altitude maneuvering, including stall, spin, or controlled flight into terrain (CFIT).
- AI.VII.I.R6* Distractions, task prioritization, loss of situational awareness, or disorientation.
- AI.VII.I.R7* Gear position in an amphibious airplane.

**Skills:** The applicant demonstrates and simultaneously explains how to:

- AI.VII.I.S1* Complete the appropriate checklist(s).
- AI.VII.I.S2* Make radio calls as appropriate.
- AI.VII.I.S3* Position flight controls and configure the aircraft for the existing conditions.
- AI.VII.I.S4* Clear the area, select appropriate takeoff path considering surface hazards or vessels and surface conditions.
- AI.VII.I.S5* Retract the water rudders, as appropriate.

- AI.VII.I.S6 Advance the throttle smoothly to takeoff power and confirm proper engine and flight instrument indications prior to rotation.
- AI.VII.I.S7 Establish and maintain an appropriate planing attitude, directional control, and correct for porpoising, skipping, and increase in water drag.
- AI.VII.I.S8 Avoid excessive water spray on the propeller(s).
- AI.VII.I.S9 Use appropriate techniques to lift seaplane from the water considering surface conditions.
- AI.VII.I.S10 Establish proper attitude/airspeed and accelerate to  $V_y \pm 5$  knots during the climb.
- AI.VII.I.S11 Configure the airplane after a positive rate of climb has been verified or in accordance with airplane manufacturer's instructions.
- AI.VII.I.S12 Maintain  $V_y \pm 5$  knots to a safe maneuvering altitude.
- AI.VII.I.S13 Maintain directional control throughout takeoff and climb.
- AI.VII.I.S14 Analyze and correct common errors related to this Task.

### **Task J. Glassy Water Approach and Landing (ASES, AMES)**

*References: AIM; FAA-H-8083-2, FAA-H-8083-9, FAA-H-8083-23, FAA-H-8083-25; POH/AFM*

**Objective:** To determine the applicant understands glassy-water approach and landing, can apply that knowledge, manage associated risks, demonstrate appropriate skills, and provide effective instruction.

**Note:** *If a glassy water condition does not exist, the applicant must be evaluated by simulating the Task.*

**Knowledge:** The applicant demonstrates instructional knowledge by describing and explaining:

- AI.VII.J.K1 Purpose of and procedures for glassy water approach and landing.
- AI.VII.J.K2 A stabilized approach, including energy management concepts.
- AI.VII.J.K3 Effects of atmospheric conditions, including wind, on approach and landing performance.
- AI.VII.J.K4 When and why glassy water techniques are used.
- AI.VII.J.K5 Common errors related to this Task.

#### **Risk**

**Management:** The applicant explains and teaches how to identify and manage risk associated with:

- AI.VII.J.R1 Selection of approach path and touchdown area based on pilot capability, airplane performance and limitations, and available distance.
- AI.VII.J.R2 Water surface/condition.
- AI.VII.J.R3 Planning for a go-around and rejected landing.
- AI.VII.J.R4 Collision hazards.
- AI.VII.J.R5 Low altitude maneuvering, including stall, spin, or controlled flight into terrain (CFIT).
- AI.VII.J.R6 Distractions, task prioritization, loss of situational awareness, or disorientation.
- AI.VII.J.R7 Gear position in an amphibious airplane.

**Skills:** The applicant demonstrates and simultaneously explains how to:

- AI.VII.J.S1 Complete the appropriate checklist(s).
- AI.VII.J.S2 Make radio calls as appropriate.
- AI.VII.J.S3 Scan the landing area for traffic and obstructions.
- AI.VII.J.S4 Select a proper approach and landing path considering the landing surface, visual attitude references, water depth, and collision hazards.
- AI.VII.J.S5 Establish the recommended approach and landing configuration, airspeed, and trim, and adjust pitch attitude and power as required to maintain a stabilized approach.
- AI.VII.J.S6 Maintain manufacturer's published approach airspeed or in its absence not more than  $1.3 V_{SO}$ ,  $\pm 5$  knots.
- AI.VII.J.S7 Make smooth, timely, and correct power and control adjustments to maintain proper pitch attitude and rate of descent to touchdown.
- AI.VII.J.S8 Contact the water in a proper pitch attitude, and slow to idle taxi speed.
- AI.VII.J.S9 Maintain directional control throughout the approach and landing.
- AI.VII.J.S10 Analyze and correct common errors related to this Task.

### **Task K. Rough Water Takeoff and Climb (ASES, AMES)**

References: AIM; FAA-H-8083-2, FAA-H-8083-9, FAA-H-8083-23, FAA-H-8083-25; POH/AFM

**Objective:** To determine the applicant understands rough water takeoff and climb, can apply that knowledge, manage associated risks, demonstrate appropriate skills, and provide effective instruction.

**Note:** If a rough water condition does not exist, the applicant must be evaluated by simulating the Task.

**Knowledge:** The applicant demonstrates instructional knowledge by describing and explaining:

- AI.VII.K.K1 Purpose of and procedures for a rough water takeoff and climb.
- AI.VII.K.K2 Effects of atmospheric conditions, including wind, on takeoff and climb performance.
- AI.VII.K.K3 Best angle of climb speed ( $V_X$ ) and best rate of climb speed ( $V_Y$ ).
- AI.VII.K.K4 Appropriate airplane configuration.
- AI.VII.K.K5 Appropriate use of rough water takeoff and climb technique.
- AI.VII.K.K6 Common errors related to this Task.

#### **Risk**

**Management:** The applicant explains and teaches how to identify and manage risk associated with:

- AI.VII.K.R1 Selection of takeoff path based on pilot capability, airplane performance and limitations, available distance, and wind.
- AI.VII.K.R2 Effects of:
  - AI.VII.K.R2a a. Crosswind
  - AI.VII.K.R2b b. Windshear
  - AI.VII.K.R2c c. Tailwind
  - AI.VII.K.R2d d. Wake turbulence
  - AI.VII.K.R2e e. Water surface/condition

- AI.VII.K.R3 Abnormal operations, including planning for:
  - AI.VII.K.R3a a. Rejected takeoff
  - AI.VII.K.R3b b. Potential engine failure in takeoff/climb phase of flight
- AI.VII.K.R4 Collision hazards.
- AI.VII.K.R5 Low altitude maneuvering, including stall, spin, or controlled flight into terrain (CFIT).
- AI.VII.K.R6 Distractions, task prioritization, loss of situational awareness, or disorientation.
- AI.VII.K.R7 Gear position in an amphibious airplane.

**Skills:** The applicant demonstrates and simultaneously explains how to:

- AI.VII.K.S1 Complete the appropriate checklist(s).
- AI.VII.K.S2 Make radio calls as appropriate.
- AI.VII.K.S3 Verify assigned/correct takeoff path.
- AI.VII.K.S4 Determine wind direction with or without visible wind direction indicators.
- AI.VII.K.S5 Position flight controls and configure the airplane for the existing conditions.
- AI.VII.K.S6 Clear the area, select an appropriate takeoff path considering wind, swells, surface hazards, or vessels.
- AI.VII.K.S7 Retract the water rudders, as appropriate.
- AI.VII.K.S8 Advance the throttle smoothly to takeoff power and confirm proper engine and flight instrument indications prior to rotation.
- AI.VII.K.S9 Establish and maintain an appropriate planing attitude, directional control, and correct for porpoising, skipping, and increase in water drag.
- AI.VII.K.S10 Avoid excessive water spray on the propeller(s).
- AI.VII.K.S11 Lift off at minimum airspeed and accelerate to  $V_y \pm 5$  knots before leaving ground effect.
- AI.VII.K.S12 Configure the airplane after a positive rate of climb has been verified or in accordance with airplane manufacturer's instructions.
- AI.VII.K.S13 Maintain  $V_y \pm 5$  knots to a safe maneuvering altitude.
- AI.VII.K.S14 Maintain directional control and proper wind-drift correction throughout takeoff and climb.
- AI.VII.K.S15 Analyze and correct common errors related to this Task.

### **Task L. Rough Water Approach and Landing (ASES, AMES)**

*References: AIM; FAA-H-8083-2, FAA-H-8083-9, FAA-H-8083-23, FAA-H-8083-25; POH/AFM*

**Objective:** To determine the applicant understands rough water approach, can apply that knowledge, manage associated risks, demonstrate appropriate skills, and provide effective instruction.

**Note:** *If a rough water condition does not exist, the applicant must be evaluated by simulating the Task.*

**Knowledge:** The applicant demonstrates instructional knowledge by describing and explaining:

- AI.VIII.L.K1 Purpose of and procedures for rough water approach and landing.
- AI.VIII.L.K2 A stabilized approach, including energy management concepts.

- AI.VIII.K3* Effects of atmospheric conditions, including wind, on approach and landing performance.
- AI.VIII.K4* Wind correction techniques on approach and landing.
- AI.VIII.K5* When and why rough water techniques are used.
- AI.VIII.K6* Common errors related to this Task.

**Risk**

**Management:** The applicant explains and teaches how to identify and manage risk associated with:

- AI.VIII.R1* Selection of approach path and touchdown area based on pilot capability, airplane performance and limitations, available distance, and wind.
- AI.VIII.R2* Effects of:
  - AI.VIII.R2a* a. Crosswind
  - AI.VIII.R2b* b. Windshear
  - AI.VIII.R2c* c. Tailwind
  - AI.VIII.R2d* d. Wake turbulence
  - AI.VIII.R2e* e. Water surface/condition
- AI.VIII.R3* Planning for a go-around and rejected landing.
- AI.VIII.R4* Collision hazards.
- AI.VIII.R5* Low altitude maneuvering, including stall, spin, or controlled flight into terrain (CFIT).
- AI.VIII.R6* Distractions, task prioritization, loss of situational awareness, or disorientation.
- AI.VIII.R7* Gear position in an amphibious airplane.

**Skills:**

The applicant demonstrates and simultaneously explains how to:

- AI.VIII.S1* Complete the appropriate checklist(s).
- AI.VIII.S2* Make radio calls as appropriate.
- AI.VIII.S3* Ensure the airplane is aligned with the correct/assigned waterway.
- AI.VIII.S4* Scan the landing area for traffic and obstructions.
- AI.VIII.S5* Select and aim for a suitable touchdown point considering the wind conditions, landing surface, and obstructions.
- AI.VIII.S6* Establish the recommended approach and landing configuration, airspeed, and trim, and adjust pitch attitude and power as required to maintain a stabilized approach.
- AI.VIII.S7* Maintain manufacturer's published approach airspeed or in its absence not more than 1.3 times the stalling speed or the minimum steady flight speed in the landing configuration ( $V_{SO}$ ),  $\pm 5$  knots with gust factor applied.
- AI.VIII.S8* Maintain directional control and appropriate crosswind correction throughout the approach and landing.
- AI.VIII.S9* Make smooth, timely, and correct power and control adjustments to maintain proper pitch attitude and rate of descent to touchdown.
- AI.VIII.S10* Contact the water in a proper pitch attitude, considering the type of rough water.
- AI.VIII.S11* Analyze and correct common errors related to this Task.

## Task M. Slip to a Landing (ASEL, ASES)

References: AIM; FAA-H-8083-2, FAA-H-8083-3, FAA-H-8083-9, FAA-H-8083-25; POH/AFM

**Objective:** To determine the applicant understands a slip to a landing, can apply that knowledge, manage associated risks, demonstrate appropriate skills, and provide effective instruction.

**Knowledge:** The applicant demonstrates instructional knowledge by describing and explaining:

- AI.VII.M.K1* Purpose of and procedures for forward or side slip to a landing.
- AI.VII.M.K2* Concepts of energy management during a forward or side slip approach.
- AI.VII.M.K3* Effects of atmospheric conditions, including wind, on approach and landing performance.
- AI.VII.M.K4* Wind correction techniques during a forward or side slip.
- AI.VII.M.K5* Common errors related to this Task.

### Risk

**Management:** The applicant explains and teaches how to identify and manage risk associated with:

- AI.VII.M.R1* Selection of runway/landing surface, approach path, and touchdown area based on pilot capability, aircraft performance and limitations, available distance, and wind.
- AI.VII.M.R2* Effects of:
  - AI.VII.M.R2a* a. Crosswind
  - AI.VII.M.R2b* b. Windshear
  - AI.VII.M.R2c* c. Tailwind
  - AI.VII.M.R2d* d. Wake turbulence
  - AI.VII.M.R2e* e. Landing surface/condition
- AI.VII.M.R3* Planning for:
  - AI.VII.M.R3a* a. Rejected landing and go-around
  - AI.VII.M.R3b* b. Land and hold short operations (LAHSO)
- AI.VII.M.R4* Collision hazards.
- AI.VII.M.R5* Low altitude maneuvering, including stall, spin, or controlled flight into terrain (CFIT).
- AI.VII.M.R6* Distractions, task prioritization, loss of situational awareness, or disorientation. *AI.VII.M.R7* Forward slip operations, including fuel flowage, tail stalls with flaps, and airspeed control.
- AI.VII.M.R8* Surface contact with the airplane's longitudinal axis misaligned.
- AI.VII.M.R9* Unstable approach.

**Skills:** The applicant demonstrates and simultaneously explains how to:

- AI.VII.M.S1* Complete the appropriate checklist(s).
- AI.VII.M.S2* Make radio calls as appropriate.
- AI.VII.M.S3* Plan and follow a flightpath to the selected landing area considering altitude, wind, terrain, and obstructions.
- AI.VII.M.S4* Select the most suitable touchdown point based on wind, landing surface, obstructions, and airplane

limitations.

- AI.VII.M.S5* Position airplane on downwind leg, parallel to landing runway or selected landing surface.
- AI.VII.M.S6* Configure the airplane correctly.
- AI.VII.M.S7* As necessary, correlate crosswind with direction of slip and transition to sideslip as appropriate before touchdown.
- AI.VII.M.S8* Touch down at a proper pitch attitude, within 400 feet beyond or on the specified point, with no side drift, and with the airplane's longitudinal axis aligned with and over the runway center/landing path.
- AI.VII.M.S9* Maintain a ground track aligned with the runway center/landing path.
- AI.VII.M.S10* Analyze and correct common errors related to this Task.

## **Task N. Go-Around/Rejected Landing**

*References: AIM; FAA-H-8083-2, FAA-H-8083-3, FAA-H-8083-9, FAA-H-8083-23, FAA-H-8083-25; POH/AFM*

**Objective:** To determine the applicant understands go-around/rejected landing with emphasis on factors that contribute to landing conditions that may require a go-around, can apply that knowledge, manage associated risks, demonstrate appropriate skills, and provide effective instruction.

**Knowledge:** The applicant demonstrates instructional knowledge by describing and explaining:

- AI.VII.N.K1* Purpose of and procedures for go-around or rejected landing.
- AI.VII.N.K2* A stabilized approach, including energy management concepts.
- AI.VII.N.K3* Effects of atmospheric conditions, including wind and density altitude, on a go-around or rejected landing.
- AI.VII.N.K4* Wind correction techniques on takeoff/departure and approach/landing.
- AI.VII.N.K5* Common errors related to this Task.

### **Risk**

**Management:** The applicant explains and teaches how to identify and manage risk associated with:

- AI.VII.N.R1* Delayed recognition of the need for a go-around/rejected landing.
- AI.VII.N.R2* Delayed performance of a go-around at low altitude.
- AI.VII.N.R3* Power application.
- AI.VII.N.R4* Configuring the airplane.
- AI.VII.N.R5* Collision hazards.
- AI.VII.N.R6* Low altitude maneuvering, including stall, spin, or controlled flight into terrain (CFIT).
- AI.VII.N.R7* Distractions, task prioritization, loss of situational awareness, or disorientation.
- AI.VII.N.R8* Managing a go-around/rejected landing after accepting a LAHSO clearance.
- AI.VII.N.R9* Runway incursion.

**Skills:** The applicant demonstrates and simultaneously explains how to:

- AI.VII.N.S1* Complete the appropriate checklist(s).
- AI.VII.N.S2* Make radio calls as appropriate.

- AI.VII.N.S3* Make a timely decision to discontinue the approach to landing.
- AI.VII.N.S4* Apply takeoff power immediately and transition to climb pitch attitude for  $V_x$  or  $V_y$  as appropriate  $\pm 5$  knots.
- AI.VII.N.S5* Configure the airplane after a positive rate of climb has been verified or in accordance with airplane manufacturer's instructions.
- AI.VII.N.S6* Maneuver to the side of the runway/landing area when necessary to clear and avoid conflicting traffic.
- AI.VII.N.S7* Maintain  $V_y \pm 5$  knots to a safe maneuvering altitude.
- AI.VII.N.S8* Maintain directional control and proper wind-drift correction throughout the climb.
- AI.VII.N.S9* Analyze and correct common errors related to this Task.

### **Task O. Power-Off 180° Accuracy Approach and Landing (ASEL, ASES)**

*References: AIM; FAA-H-8083-2, FAA-H-8083-3, FAA-H-8083-9, FAA-H-8083-25; POH/AFM*

**Objective:** To determine the applicant understands a power-off 180° accuracy approach, can apply that knowledge, manage associated risks, demonstrate appropriate skills, and provide effective instruction.

**Note:** See Appendix 3: Aircraft, Equipment, and Operational Requirements & Limitations for information related to this Task.

**Knowledge:** The applicant demonstrates instructional knowledge by describing and explaining:

- AI.VII.O.K1* Purpose of and procedures for proper 180° accuracy approach and landing.
- AI.VII.O.K2* A stabilized approach, including energy management concepts. *AI.VII.O.K3*  
Effects of atmospheric conditions, including wind, on approach and landing.
- AI.VII.O.K4* Wind correction techniques on approach and landing.
- AI.VII.O.K5* Common errors related to this Task.

#### **Risk**

**Management:** The applicant explains and teaches how to identify and manage risk associated with:

- AI.VII.O.R1* Selection of runway/landing surface, approach path, and touchdown area based on pilot capability, aircraft performance and limitations, available distance, and wind.
- AI.VII.O.R2* Effects of:
  - AI.VII.O.R2a* a. Crosswind
  - AI.VII.O.R2b* b. Windshear
  - AI.VII.O.R2c* c. Tailwind
  - AI.VII.O.R2d* d. Wake turbulence
  - AI.VII.O.R2e* e. Landing surface/condition
- AI.VII.O.R3* Planning for:
  - AI.VII.O.R3a* a. Rejected landing and go-around
  - AI.VII.O.R3b* b. Land and hold short operations (LAHSO)
- AI.VII.O.R4* Collision hazards.

- AI.VII.O.R5* Low altitude maneuvering, including stall, spin, or controlled flight into terrain (CFIT).
- AI.VII.O.R6* Distractions, task prioritization, loss of situational awareness, or disorientation.
- AI.VII.O.R7* Forward slip operations, including fuel flowage, tail stalls with flaps, and airspeed control.

**Skills:** The applicant demonstrates and simultaneously explains how to:

- AI.VII.O.S1* Complete the appropriate checklist(s).
- AI.VII.O.S2* Make radio calls as appropriate.
- AI.VII.O.S3* Plan and follow a flightpath to the selected landing area considering altitude, wind, terrain, and obstructions.
- AI.VII.O.S4* Select the most suitable touchdown point based on wind, landing surface, obstructions, and aircraft limitations.
- AI.VII.O.S5* Position airplane on downwind leg, parallel to landing runway.
- AI.VII.O.S6* Correctly configure the airplane.
- AI.VII.O.S7* As necessary, correlate crosswind with direction of forward slip and transition to side slip before touchdown.
- AI.VII.O.S8* Touch down at a proper pitch attitude, within 200 feet beyond or on the specified point with no side drift and with the airplane's longitudinal axis aligned with and over the runway centerline or landing path, as applicable.
- AI.VII.O.S9* Analyze and correct common errors related to this Task.

## Area of Operation VIII. Fundamentals of Flight

**Note:** The evaluator must select at least one Task from this Area of Operation.

### Task A. Straight-and-Level Flight

References: FAA-H-8083-2, FAA-H-8083-3, FAA-H-8083-9, FAA-H-8083-25

**Objective:** To determine the applicant understands straight-and-level flight, can apply that knowledge, manage associated risks, demonstrate appropriate skills, and provide effective instruction.

**Knowledge:** The applicant demonstrates instructional knowledge by describing and explaining:

- AI.VIII.A.K1* Purpose of and procedures for proper straight-and-level flight.
- AI.VIII.A.K2* Flight control and trim use.
- AI.VIII.A.K3* The pilot's visual references when performing the maneuver.
- AI.VIII.A.K4* Integrated flight instruction.
- AI.VIII.A.K5* Common errors related to this Task.

#### Risk

**Management:** The applicant explains and teaches how to identify and manage risk associated with:

- AI.VIII.A.R1* Distractions, task prioritization, loss of situational awareness, or disorientation.
- AI.VIII.A.R2* Collision hazards.

**Skills:** The applicant demonstrates and simultaneously explains how to:

- AI.VIII.A.S1* Establish and maintain straight-and-level flight.
- AI.VIII.A.S2* Analyze and correct common errors related to this Task.

### Task B. Level Turns

References: FAA-H-8083-2, FAA-H-8083-3, FAA-H-8083-9, FAA-H-8083-25

**Objective:** To determine the applicant understands level turns, can apply that knowledge, manage associated risks, demonstrate appropriate skills, and provide effective instruction.

**Knowledge:** The applicant demonstrates instructional knowledge by describing and explaining:

- AI.VIII.B.K1* Purpose of and procedures for level turns.
- AI.VIII.B.K2* Flight control and trim use.
- AI.VIII.B.K3* The pilot's visual references when performing the maneuver.
- AI.VIII.B.K4* Integrated flight instruction.
- AI.VIII.B.K5* Common errors related to this Task.

#### Risk

**Management:** The applicant explains and teaches how to identify and manage risk associated with:

- AI.VIII.B.R1* Distractions, task prioritization, loss of situational awareness, or disorientation.
- AI.VIII.B.R2* Collision hazards.

**Skills:** The applicant demonstrates and simultaneously explains how to:

*AI.VIII.B.S1* Establish, maintain, and roll out of a level turn.

*AI.VIII.B.S2* Analyze and correct common errors related to this Task.

### **Task C. Straight Climbs and Climbing Turns**

*References: FAA-H-8083-2, FAA-H-8083-3, FAA-H-8083-9, FAA-H-8083-25*

**Objective:** To determine the applicant understands straight climbs and climbing turns, can apply that knowledge, manage associated risks, demonstrate appropriate skills, and provide effective instruction.

**Knowledge:** The applicant demonstrates instructional knowledge by describing and explaining:

*AI.VIII.C.K1* Purpose of and procedures for straight climbs and climbing turns.

*AI.VIII.C.K2* Flight control and trim use.

*AI.VIII.C.K3* The pilot's visual references when performing the maneuver.

*AI.VIII.C.K4* Integrated flight instruction.

*AI.VIII.C.K5* Common errors related to this Task.

#### **Risk**

**Management:** The applicant explains and teaches how to identify and manage risk associated with:

*AI.VIII.C.R1* Distractions, task prioritization, loss of situational awareness, or disorientation.

*AI.VIII.C.R2* Collision hazards.

**Skills:** The applicant demonstrates and simultaneously explains how to:

*AI.VIII.C.S1* Establish, maintain, and level off from climbs and climbing turns.

*AI.VIII.C.S2* Analyze and correct common errors related to this Task.

### **Task D. Straight Descents and Descending Turns**

*References: FAA-H-8083-2, FAA-H-8083-3, FAA-H-8083-9, FAA-H-8083-25*

**Objective:** To determine the applicant understands straight descents and descending turns, can apply that knowledge, manage associated risks, demonstrate appropriate skills, and provide effective instruction.

**Knowledge:** The applicant demonstrates instructional knowledge by describing and explaining:

*AI.VIII.D.K1* Purpose of and procedures for straight descents and descending turns.

*AI.VIII.D.K2* Flight control and trim use.

*AI.VIII.D.K3* The pilot's visual references when performing the maneuver.

*AI.VIII.D.K4* Integrated flight instruction.

*AI.VIII.D.K5* Common errors related to this Task.

#### **Risk**

**Management:** The applicant explains and teaches how to identify and manage risk associated with:

*AI.VIII.D.R1* Distractions, task prioritization, loss of situational awareness, or disorientation.

*AI.VIII.D.R2* Collision hazards.

**Skills:** The applicant demonstrates and simultaneously explains how to:

*AI.VIII.D.S1* Establish, maintain, and level off from straight descents and descending turns.

*AI.VIII.D.S2* Analyze and correct common errors related to this Task.

## Area of Operation IX. Performance and Ground Reference Maneuvers

**Note:** For ASEL or ASES, the evaluator must select at least four Tasks including Task A or B, Task C or D, and Tasks E and F from Area of Operation IX, Performance and Ground Reference Maneuvers. For AMEL or AMES the evaluator must select at least Tasks A and E.

### Task A. Steep Turns

References: FAA-H-8083-2, FAA-H-8083-3, FAA-H-8083-9, FAA-H-8083-25; POH/AFM

**Objective:** To determine the applicant understands steep turns, can apply that knowledge, manage associated risks, demonstrate appropriate skills, and provide effective instruction.

**Knowledge:** The applicant demonstrates instructional knowledge by describing and explaining:

- AI.IX.A.K1 Purpose of and procedures for steep turn.
- AI.IX.A.K2 Pilot sensations and control forces.
- AI.IX.A.K3 Aerodynamics associated with steep turns, including:
  - AI.IX.A.K3a a. Maintaining coordinated flight
  - AI.IX.A.K3b b. Overbanking tendencies
  - AI.IX.A.K3c c. Maneuvering speed, including the impact of weight changes
  - AI.IX.A.K3d d. Load factor and accelerated stalls
  - AI.IX.A.K3e e. Rate and radius of turn AI.IX.A.K4

Common errors related to this Task.

#### Risk

**Management:** The applicant explains and teaches how to identify and manage risk associated with:

- AI.IX.A.R1 Division of attention between aircraft control and orientation.
- AI.IX.A.R2 Collision hazards.
- AI.IX.A.R3 Low altitude maneuvering, including stall, spin, or controlled flight into terrain (CFIT).
- AI.IX.A.R4 Distractions, task prioritization, loss of situational awareness, or disorientation.
- AI.IX.A.R5 Uncoordinated flight.

**Skills:** The applicant demonstrates and simultaneously explains how to:

- AI.IX.A.S1 Clear the area.
- AI.IX.A.S2 Establish the manufacturer's recommended airspeed; or if one is not available, an airspeed not to exceed maneuvering speed ( $V_A$ ).
- AI.IX.A.S3 Roll into a coordinated 360° steep turn with approximately a 50° bank.
- AI.IX.A.S4 Perform the Task in the opposite direction.
- AI.IX.A.S5 Maintain the entry altitude  $\pm 100$  feet, airspeed  $\pm 10$  knots, bank  $\pm 5^\circ$ , and roll out on the entry heading  $\pm 10^\circ$ .
- AI.IX.A.S6 Analyze and correct common errors related to this Task.

## Task B. Steep Spiral (ASEL, ASES)

References: FAA-H-8083-2, FAA-H-8083-3, FAA-H-8083-9, FAA-H-8083-25; POH/AFM

**Objective:** To determine the applicant understands steep spirals, can apply that knowledge, manage associated risks, demonstrate appropriate skills, and provide effective instruction.

**Knowledge:** The applicant demonstrates instructional knowledge by describing and explaining:

- AI.IX.B.K1* Purpose of and procedures for a proper steep spiral.
- AI.IX.B.K2* Relationship to emergency landing procedures.
- AI.IX.B.K3* Maintaining a constant radius about a point.
- AI.IX.B.K4* Effects of wind on ground track and relation to a ground reference.
- AI.IX.B.K5* Common errors related to this Task.

### Risk

**Management:** The applicant explains and teaches how to identify and manage risk associated with:

- AI.IX.B.R1* Division of attention between aircraft control and orientation.
- AI.IX.B.R2* Collision hazards.
- AI.IX.B.R3* Low altitude maneuvering, including stall, spin, or controlled flight into terrain (CFIT).
- AI.IX.B.R4* Distractions, task prioritization, loss of situational awareness, or disorientation.
- AI.IX.B.R5* Uncoordinated flight.
- AI.IX.B.R6* Effects of wind.
- AI.IX.B.R7* Airframe or airspeed limitations.

**Skills:** The applicant demonstrates and simultaneously explains how to:

- AI.IX.B.S1* Clear the area.
- AI.IX.B.S2* Select an altitude sufficient to continue through a series of at least three, 360° turns.
- AI.IX.B.S3* Establish and maintain a steep spiral, not to exceed 60° angle of bank, to maintain a constant radius about a suitable ground reference point.
- AI.IX.B.S4* Apply wind-drift correction to track a constant radius circle around selected reference point with bank not to exceed 60° a steepest point in turn.
- AI.IX.B.S5* Divide attention between airplane control, traffic avoidance and the ground track while maintaining coordinated flight.
- AI.IX.B.S6* Maintain the specified airspeed,  $\pm 10$  knots and roll out toward an object or specified heading,  $\pm 10^\circ$ , and complete the maneuver no lower than 1,500 feet above ground level (AGL).
- AI.IX.B.S7* Analyze and correct common errors related to this Task.

## Task C. Chandelles (ASEL, ASES)

References: FAA-H-8083-2, FAA-H-8083-3, FAA-H-8083-9, FAA-H-8083-25; POH/AFM

**Objective:** To determine the applicant understands chandelles, can apply that knowledge, manage associated risks, demonstrate appropriate skills, and provide effective instruction.

**Knowledge:** The applicant demonstrates instructional knowledge by describing and explaining:

- AI.IX.C.K1* Purpose of and procedures for chandelles.
- AI.IX.C.K2* Aerodynamics associated with chandelles, including:
  - AI.IX.C.K2a* a. Maintaining coordinated flight
  - AI.IX.C.K2b* b. Overbanking tendencies
  - AI.IX.C.K2c* c. Maneuvering speed, including the impact of weight changes
  - AI.IX.C.K2d* d. Accelerated stalls
- AI.IX.C.K3* Appropriate airplane configuration for maximum performance climb.
- AI.IX.C.K4* Proper pitch control required for continuously decreasing airspeed.
- AI.IX.C.K5* Common errors related to this Task.

**Risk**

**Management:** The applicant explains and teaches how to identify and manage risk associated with:

- AI.IX.C.R1* Division of attention between aircraft control and orientation.
- AI.IX.C.R2* Collision hazards.
- AI.IX.C.R3* Low altitude maneuvering, including stall, spin, or controlled flight into terrain (CFIT).
- AI.IX.C.R4* Distractions, task prioritization, loss of situational awareness, or disorientation.
- AI.IX.C.R5* Uncoordinated flight.
- AI.IX.C.R6* Energy management.
- AI.IX.C.R7* Rate and radius of turn with confined area operations.

**Skills:** The applicant demonstrates and simultaneously explains how to:

- AI.IX.C.S1* Clear the area.
- AI.IX.C.S2* Select an altitude that allows the maneuver to be performed no lower than 1,500 feet above ground level (AGL).
- AI.IX.C.S3* Establish the appropriate entry configuration, power, and airspeed.
- AI.IX.C.S4* Establish the angle of bank at approximately 30°.
- AI.IX.C.S5* Simultaneously apply power and pitch to maintain a smooth, coordinated climbing turn, in either direction, to the 90° point, with a constant bank and continuously decreasing airspeed.
- AI.IX.C.S6* Begin a coordinated constant rate rollout from the 90° point to the 180° point maintaining power and a constant pitch attitude.
- AI.IX.C.S7* Complete rollout at the 180° point,  $\pm 10^\circ$  just above a stall airspeed, and maintaining that airspeed momentarily avoiding a stall.
- AI.IX.C.S8* Resume a straight-and-level flight with minimum loss of altitude.
- AI.IX.C.S9* Analyze and correct common errors related to this Task.

## Task D. Lazy Eights (ASEL, ASES)

References: FAA-H-8083-2, FAA-H-8083-3, FAA-H-8083-9, FAA-H-8083-25; POH/AFM

**Objective:** To determine the applicant understands lazy eights, can apply that knowledge, manage associated risks, demonstrate appropriate skills, and provide effective instruction.

**Knowledge:** The applicant demonstrates instructional knowledge by describing and explaining:

- AI.IX.D.K1* Purpose of and procedures for lazy eights.
- AI.IX.D.K2* Aerodynamics associated with lazy eights, including how to maintain coordinated flight.
- AI.IX.D.K3* Performance and airspeed limitations.
- AI.IX.D.K4* Phases of the lazy eight maneuver from entry to recovery.
- AI.IX.D.K5* Common errors related to this Task.

### Risk

**Management:** The applicant explains and teaches how to identify and manage risk associated with:

- AI.IX.D.R1* Division of attention between aircraft control and orientation.
- AI.IX.D.R2* Collision hazards.
- AI.IX.D.R3* Low altitude maneuvering, including stall, spin, or controlled flight into terrain (CFIT).
- AI.IX.D.R4* Distractions, task prioritization, loss of situational awareness, or disorientation.
- AI.IX.D.R5* Uncoordinated flight.
- AI.IX.D.R6* Energy management.
- AI.IX.D.R7* Accelerated stalls.

**Skills:** The applicant demonstrates and simultaneously explains how to:

- AI.IX.D.S1* Clear the area.
- AI.IX.D.S2* Select an altitude that allows the maneuver to be performed no lower than 1,500 feet above ground level (AGL).
- AI.IX.D.S3* Establish the recommended entry configuration, power, and airspeed.
- AI.IX.D.S4* Maintain coordinated flight throughout the maneuver.
- AI.IX.D.S5* Complete the maneuver in accordance with the following:
  - AI.IX.D.S5a* a. Approximately 30° bank at the steepest point *AI.IX.D.S5b*
  - b. Constant change of pitch and roll rate and airspeed
  - AI.IX.D.S5c* c. Altitude at 180° point, ±100 feet from entry altitude
  - AI.IX.D.S5d* d. Airspeed at the 180° point, ±10 knots from entry airspeed
  - AI.IX.D.S5e* e. Heading at the 180° point, ±10°
- AI.IX.D.S6* Continue the maneuver through the number of symmetrical loops specified, then resume straight-and-level flight.
- AI.IX.D.S7* Analyze and correct common errors related to this Task.

## Task E. Ground Reference Maneuvers

References: FAA-H-8083-2, FAA-H-8083-3, FAA-H-8083-9, FAA-H-8083-25; POH/AFM

**Objective:** To determine the applicant understands ground reference maneuvers, can apply that knowledge, manage associated risks, demonstrate appropriate skills, and provide effective instruction.

**Note:** The evaluator selects at least one ground reference maneuver for the applicant to demonstrate.

**Knowledge:** The applicant demonstrates instructional knowledge by describing and explaining:

- AI.IX.E.K1 Purpose of and procedures for ground reference maneuvers.
- AI.IX.E.K2 Effects of wind on ground track and relation to a ground reference.
- AI.IX.E.K3 Effects of bank angle and groundspeed on rate and radius of turn.
- AI.IX.E.K4 Relationship of rectangular course to airport traffic pattern.
- AI.IX.E.K5 Common errors related to this Task.

### Risk

**Management:** The applicant explains and teaches how to identify and manage risk associated with:

- AI.IX.E.R1 Division of attention between aircraft control and orientation.
- AI.IX.E.R2 Collision hazards.
- AI.IX.E.R3 Low altitude maneuvering, including stall, spin, or controlled flight into terrain (CFIT).
- AI.IX.E.R4 Distractions, task prioritization, loss of situational awareness, or disorientation.
- AI.IX.E.R5 Uncoordinated flight.

**Skills:** The applicant demonstrates and simultaneously explains how to:

- AI.IX.E.S1 Clear the area.
- AI.IX.E.S2 Select a suitable ground reference area, line, or point as appropriate.
- AI.IX.E.S3 Plan the maneuver:
  - AI.IX.E.S3a 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
  - AI.IX.E.S3b 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
  - AI.IX.E.S3c 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
- AI.IX.E.S4 Apply adequate wind-drift correction during straight and turning flight to maintain a constant ground track around a rectangular reference area, or to maintain a constant radius turn on each side of a selected reference line or point.
- AI.IX.E.S5 If performing S-Turns, reverse the turn directly over the selected reference line; if performing turns around a point, complete turns in either direction, as specified by the evaluator.
- AI.IX.E.S6 Divide attention between airplane control, traffic avoidance and the ground track while maintaining coordinated flight.
- AI.IX.E.S7 Maintain altitude  $\pm 100$  feet; maintain airspeed  $\pm 10$  knots.
- AI.IX.E.S8 Analyze and correct common errors related to this Task.

## Task F. Eights on Pylons (ASEL, ASES)

References: FAA-H-8083-2, FAA-H-8083-3, FAA-H-8083-9, FAA-H-8083-25; POH/AFM

**Objective:** To determine the applicant understands eights on pylons, can apply that knowledge, manage associated risks, demonstrate appropriate skills, and provide effective instruction.

**Knowledge:** The applicant demonstrates instructional knowledge by describing and explaining:

- AI.IX.F.K1* Purpose of and procedures for eights on pylons.
- AI.IX.F.K2* Aerodynamics associated with the eights on pylons, including coordinated and uncoordinated flight.
- AI.IX.F.K3* Pivotal altitude and factors that affect it.
- AI.IX.F.K4* Effect of wind on ground track.
- AI.IX.F.K5* Phases of the eights on pylons maneuver from entry to recovery.
- AI.IX.F.K6* Common errors related to this Task.

### Risk

**Management:** The applicant explains and teaches how to identify and manage risk associated with:

- AI.IX.F.R1* Division of attention between aircraft control and orientation.
- AI.IX.F.R2* Collision hazards.
- AI.IX.F.R3* Low altitude maneuvering, including stall, spin, or controlled flight into terrain (CFIT).
- AI.IX.F.R4* Distractions, task prioritization, loss of situational awareness, or disorientation.
- AI.IX.F.R5* Uncoordinated flight.
- AI.IX.F.R6* Energy management.
- AI.IX.F.R7* Emergency landing considerations.

**Skills:** The applicant demonstrates and simultaneously explains how to:

- AI.IX.F.S1* Clear the area.
- AI.IX.F.S2* Determine the approximate pivotal altitude.
- AI.IX.F.S3* Select suitable pylons that permits straight-and-level flight between the pylons.
- AI.IX.F.S4* Enter the maneuver in the correct direction and position using an appropriate altitude and airspeed.
- AI.IX.F.S5* Establish the correct bank angle for the conditions, not to exceed 40°.
- AI.IX.F.S6* Apply smooth and continuous corrections so that the line-of-sight reference line remains on the pylon.
- AI.IX.F.S7* Divide attention between accurate, coordinated airplane control and outside visual references.
- AI.IX.F.S8* Maintain pylon position using appropriate pivotal altitude, avoiding slips and skids.
- AI.IX.F.S9* Analyze and correct common errors related to this Task.

## Area of Operation X. Slow flight, Stalls, and Spins

**Note:** For single-engine, the evaluator must select Task A or B; Task C, D, or E; Task F, G, or H; and Task I. For multiengine the evaluator must select Task A and Task C, D, or E.

### Task A. Maneuvering During Slow Flight

*References: AC 61-67; FAA-H-8083-2, FAA-H-8083-3, FAA-H-8083-9, FAA-H-8083-25; POH/AFM*

**Objective:** To determine the applicant understands maneuvering during slow flight in cruise configuration, can apply that knowledge, manage associated risks, demonstrate appropriate skills, and provide effective instruction.

**Note:** See Appendix 2: Safety of Flight and Appendix 3: Aircraft, Equipment, and Operational Requirements & Limitations for information related to this Task.

**Knowledge:** The applicant demonstrates instructional knowledge by describing and explaining:

- AI.X.A.K1 Purpose of and procedures for proper slow flight.
- AI.X.A.K2 Aerodynamics associated with slow flight in various airplane configurations, including the relationship between angle of attack, airspeed, load factor, power setting, airplane weight and center of gravity, airplane attitude, and yaw effects.
- AI.X.A.K3 Common errors related to this Task.

#### Risk

**Management:** The applicant explains and teaches how to identify and manage risk associated with:

- AI.X.A.R1 Inadvertent slow flight and flight with a stall warning, which could lead to loss of control.
- AI.X.A.R2 Range and limitations of stall warning indicators (e.g., aircraft buffet, stall horn, etc.).
- AI.X.A.R3 Uncoordinated flight.
- AI.X.A.R4 Effect of environmental elements on airplane performance (e.g., turbulence, microbursts, and high-density altitude).
- AI.X.A.R5 Collision hazards.
- AI.X.A.R6 Distractions, task prioritization, loss of situational awareness, or disorientation.

**Skills:** The applicant demonstrates and simultaneously explains how to:

- AI.X.A.S1 Clear the area.
- AI.X.A.S2 Select an entry altitude that allows the Task to be completed no lower than 1,500 feet above ground level (AGL) (ASEL, ASES) or 3,000 feet AGL (AMEL, AMES).
- AI.X.A.S3 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 a stall warning (e.g., aircraft buffet, stall horn, etc.).
- AI.X.A.S4 Accomplish coordinated straight-and-level flight, turns, climbs, and descents with the aircraft configured as specified by the evaluator without a stall warning (e.g., aircraft buffet, stall horn, etc.).
- AI.X.A.S5 Maintain the specified altitude,  $\pm 50$  feet; specified heading,  $\pm 10^\circ$ ; airspeed,  $\pm 5/-0$  knots; and specified angle of bank,  $\pm 5^\circ$ .
- AI.X.A.S6 Analyze and correct common errors related to this Task.

## **Task B. Demonstration of Flight Characteristics at Various Configurations and Airspeeds (ASEL and ASES)**

References: AC 61-67; FAA-H-8083-2, FAA-H-8083-3, FAA-H-8083-9, FAA-H-8083-25; POH/AFM

**Objective:** To determine the applicant understands flight characteristics and power required at different airspeeds and configurations appropriate to the make and model of airplane flown, can apply that knowledge, manage associated risks, demonstrate appropriate skills, and provide effective instruction.

**Note:** See Appendix 2: Safety of Flight and Appendix 3: Aircraft, Equipment, and Operational Requirements & Limitations for information related to this Task.

**Knowledge:** The applicant demonstrates instructional knowledge by describing and explaining:

- AI.X.B.K1* Purpose of and procedures for demonstration of flight characteristics at various configurations and airspeeds.
- AI.X.B.K2* Power required at various airspeeds between cruise airspeed and critically slow airspeeds near the critical angle of attack.
- AI.X.B.K3* The minimum power required speed and its role in differentiating the region of normal command and the region of reversed command on the power-required curve.
- AI.X.B.K4* The relationships between lift, drag, angle of attack, airspeed, load factor, power required, weight, center of gravity, attitude, yaw effects, controllability, and stalls and spins.
- AI.X.B.K5* Pitch, power, and trim control inputs that are required to operate the airplane in level flight, turns, climbs, and descents and how the control inputs change at various airspeeds between cruise airspeed and critically slow airspeeds.
- AI.X.B.K6* Flight characteristics and aerodynamics associated with configuration changes applicable to the specific make and model of airplane provided for the practical test.
- AI.X.B.K7* Airspeeds specific to the airplane for various operations, how to identify them on the airspeed indicator (if applicable), and their significance in airplane performance, including:
  - AI.X.B.K7a* a. Design/operating maneuvering speed
  - AI.X.B.K7b* b. Landing gear extended/operating speed, if applicable
  - AI.X.B.K7c* c. Flaps extended/operating speed, if applicable
  - AI.X.B.K7d* d. Best glide speed
  - AI.X.B.K7e* e. Reference landing speed
  - AI.X.B.K7f* f. Stalling speeds
- AI.X.B.K8* Common errors related to this Task.

### **Risk**

**Management:** The applicant explains and teaches how to identify and manage risk associated with:

- AI.X.B.R1* Lack of familiarity with airplane airspeed limitations and interpretation of the airspeed indicator.
- AI.X.B.R2* Exceeding airspeed limitations.
- AI.X.B.R3* Flight characteristics in the region of reversed command and the potential for loss of control.
- AI.X.B.R4* Inadvertent exceedance of the critical angle of attack.
- AI.X.B.R5* Range, limitations, and operational characteristics of airspeed indicators and stall warning indicators (e.g., airplane buffet, stall horn, etc.).

- AI.X.B.R6* Unacknowledged stall warning indications.
- AI.X.B.R7* Effects of environmental elements on airplane performance and controllability. (e.g., turbulence, microbursts, and high density altitude).
- AI.X.B.R8* Collision hazards.
- AI.X.B.R9* Maneuvering at critically slow airspeeds.

**Skills:** The applicant demonstrates and simultaneously explains how to:

- AI.X.B.S1* Conduct and explain the procedure, manage the associated risk, and fly the airplane, while maintaining altitude  $\pm 100$  feet, airspeed  $+5/-0$  knots, heading  $\pm 10^\circ$ , and specified bank angle  $\pm 5^\circ$ , as appropriate.
- AI.X.B.S2* Select an altitude that allows the maneuver to be performed no lower than 1,500 feet above ground level (AGL).
- AI.X.B.S3* Clear the area.
- AI.X.B.S4* Clean configuration demonstration:
  - AI.X.B.S4a* a. Establish and maintain design/operating maneuvering speed appropriate to the airplane's weight while describing pitch, power, and trim inputs to maintain altitude and airspeed, then;
  - AI.X.B.S4b* b. With gear and flaps retracted (as applicable), slow the airplane to, and maintain, best glide speed (or as specified by evaluator), noting the power setting required, then;
  - AI.X.B.S4c* c. Continue to slow the airplane to, 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, and maintain that airspeed in level flight, noting the airspeed and power setting required, while;
  - AI.X.B.S4d* d. Verbally acknowledging stall warning indications, then;
  - AI.X.B.S4e* e. Without changing power setting, lower the pitch attitude and accelerate to a faster airspeed until reestablishing the airplane in level flight, noting the new airspeed and amount of altitude lost, then;
  - AI.X.B.S4f* f. Return to normal cruise flight at the altitude and heading specified by the evaluator
- AI.X.B.S5* Landing configuration demonstration.
  - AI.X.B.S5a* a. Establish and maintain design/operating maneuvering speed appropriate to the airplane's weight while describing pitch, power, and trim inputs to maintain altitude and airspeed, then;
  - AI.X.B.S5b* b. Slow the airplane to, and maintain, the appropriate limiting airspeeds and fully extend the landing gear and flaps (as appropriate), then;
  - AI.X.B.S5c* c. With gear and flaps fully extended (as applicable), slow the airplane to, and maintain, reference landing speed (or as specified by the evaluator), noting the power setting required, then;
  - AI.X.B.S5d* d. With gear and flaps fully extended, continue to slow the airplane to, 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, and maintain that airspeed in level flight, noting the airspeed and power setting required, while;
  - AI.X.B.S5e* e. Verbally acknowledging stall warning indications, then;
  - AI.X.B.S5f* f. Without changing power setting, lower the pitch attitude and accelerate to a faster airspeed until reestablishing the airplane in in level flight, noting the new airspeed and amount of altitude lost, then;
  - AI.X.B.S5g* g. Return to normal cruise flight at the altitude and heading specified by the evaluator
- AI.X.B.S6* Analyze and correct common errors related to this Task.

## Task C. Power-Off Stalls

References: AC 61-67; FAA-H-8083-2, FAA-H-8083-3, FAA-H-8083-9, FAA-H-8083-25; POH/AFM

**Objective:** To determine the applicant understands power-off stalls, can apply that knowledge, manage associated risks, demonstrate appropriate skills, and provide effective instruction.

**Note:** See Appendix 2: Safety of Flight and Appendix 3: Aircraft, Equipment, and Operational Requirements & Limitations for information related to this Task.

**Knowledge:** The applicant demonstrates instructional knowledge by describing and explaining:

- AI.X.C.K1 Purpose of and procedures for power-off stalls.
- AI.X.C.K2 Aerodynamics associated with stalls in various airplane configurations, including the relationship between angle of attack, airspeed, load factor, power setting, airplane weight and center of gravity, airplane attitude, and yaw effects.
- AI.X.C.K3 Stall characteristics as they relate to airplane design, and recognition impending stall and full stall indications using sight, sound, or feel.
- AI.X.C.K4 Factors and situations that can lead to a power-off stall and actions that can be taken to prevent it.
- AI.X.C.K5 Fundamentals of stall recovery.
- AI.X.C.K6 Common errors related to this Task.

### Risk

**Management:** The applicant explains and teaches how to identify and manage risk associated with:

- AI.X.C.R1 Factors and situations that could lead to an inadvertent power-off stall, spin, and loss of control.
- AI.X.C.R2 Range and limitations of stall warning indicators (e.g., aircraft buffet, stall horn, etc.).
- AI.X.C.R3 Stall warning(s) during normal operations.
- AI.X.C.R4 Stall recovery procedure.
- AI.X.C.R5 Secondary stalls, accelerated stalls, and cross-control stalls.
- AI.X.C.R6 Effect of environmental elements on airplane performance related to power-off stalls (e.g., turbulence, microbursts, and high-density altitude).
- AI.X.C.R7 Collision hazards.
- AI.X.C.R8 Distractions, task prioritization, loss of situational awareness, or disorientation.

**Skills:** The applicant demonstrates and simultaneously explains how to:

- AI.X.C.S1 Clear the area.
- AI.X.C.S2 Select an entry altitude that allows the Task to be completed no lower than 1,500 feet above ground level (AGL) (ASEL, ASES) or 3,000 feet AGL (AMEL, AMES).
- AI.X.C.S3 Configure the airplane in the approach or landing configuration, as specified by the evaluator, and maintain coordinated flight throughout the maneuver.
- AI.X.C.S4 Establish a stabilized descent.
- AI.X.C.S5 Transition smoothly from the approach or landing attitude to a pitch attitude that induces a stall.

- AI.X.C.S6* Maintain a specified heading,  $\pm 10^\circ$  if in straight flight; maintain a specified angle of bank not to exceed  $20^\circ$ ,  $\pm 5^\circ$  if in turning flight, until an impending or full stall occurs, as specified by the evaluator.
- AI.X.C.S7* Acknowledge the cues at the first indication of a stall (e.g., aircraft buffet, stall horn, etc.).
- AI.X.C.S8* Recover at the first indication of a stall or after a full stall has occurred, as specified by the evaluator.
- AI.X.C.S9* Configure the airplane as recommended by the manufacturer, and accelerate to best angle of climb speed ( $V_{\gamma}$ ) or best rate of climb speed ( $V_{\dot{\gamma}}$ ).
- AI.X.C.S10* Return to the altitude, heading, and airspeed specified by the evaluator.
- AI.X.C.S11* Analyze and correct common errors related to this Task.

## **Task D. Power-On Stalls**

*References: AC 61-67; FAA-H-8083-2, FAA-H-8083-3, FAA-H-8083-9, FAA-H-8083-25; POH/AFM*

**Objective:** To determine the applicant understands power-on stalls, can apply that knowledge, manage associated risks, demonstrate appropriate skills, and provide effective instruction.

**Note:** See Appendix 2: *Safety of Flight* and Appendix 3: *Aircraft, Equipment, and Operational Requirements & Limitations* for information related to this Task.

**Knowledge:** The applicant demonstrates instructional knowledge by describing and explaining:

- AI.X.D.K1* Purpose of and procedures for power-on stalls.
- AI.X.D.K2* Aerodynamics associated with stalls in various airplane configurations, including the relationship between angle of attack, airspeed, load factor, power setting, airplane weight and center of gravity, airplane attitude, and yaw effects.
- AI.X.D.K3* Stall characteristics as they relate to airplane design, and recognition impending stall and full stall indications using sight, sound, or feel.
- AI.X.D.K4* Factors and situations that can lead to a power-on stall and actions that can be taken to prevent it.
- AI.X.D.K5* Fundamentals of stall recovery.
- AI.X.D.K6* Common errors related to this Task.

### **Risk**

**Management:** The applicant explains and teaches how to identify and manage risk associated with:

- AI.X.D.R1* Factors and situations that could lead to an inadvertent power-on stall, spin, and loss of control.
- AI.X.D.R2* Range and limitations of stall warning indicators (e.g., aircraft buffet, stall horn, etc.).
- AI.X.D.R3* Stall warning(s) during normal operations.
- AI.X.D.R4* Stall recovery procedure.
- AI.X.D.R5* Secondary stalls, accelerated stalls, elevator trim stalls, and cross-control stalls.
- AI.X.D.R6* Effect of environmental elements on airplane performance related to power-on stalls (e.g., turbulence, microbursts, and high-density altitude).
- AI.X.D.R7* Collision hazards.
- AI.X.D.R8* Distractions, task prioritization, loss of situational awareness, or disorientation.

**Skills:** The applicant demonstrates and simultaneously explains how to:

- AI.X.D.S1 Clear the area.
- AI.X.D.S2 Select an entry altitude that allows the Task to be completed no lower than 1,500 feet above ground level (AGL) (ASEL, ASES) or 3,000 feet AGL (AMEL, AMES).
- AI.X.D.S3 Establish the takeoff, departure, or cruise configuration, as specified by the evaluator, and maintain coordinated flight throughout the maneuver.
- AI.X.D.S4 Set power to no less than 65 percent power.
- AI.X.D.S5 Transition smoothly from the takeoff or departure attitude to the pitch attitude that induces a stall.
- AI.X.D.S6 Maintain a specified heading  $\pm 10^\circ$  if in straight flight; maintain a specified angle of bank not to exceed  $20^\circ$ ,  $\pm 10^\circ$  if in turning flight, until an impending or full stall is reached, as specified by the evaluator.
- AI.X.D.S7 Acknowledge the cues at the first indication of a stall (e.g., aircraft buffet, stall horn, etc.).
- AI.X.D.S8 Recover at the first indication of a stall or after a full stall has occurred, as specified by the evaluator.
- AI.X.D.S9 Configure the airplane as recommended by the manufacturer, and accelerate to best angle of climb speed ( $V_x$ ) or best rate of climb speed ( $V_y$ ).
- AI.X.D.S10 Return to the altitude, heading, and airspeed specified by the evaluator.
- AI.X.D.S11 Analyze and correct common errors related to this Task.

### **Task E. Accelerated Stalls**

*References: AC 61-67; FAA-H-8083-2, FAA-H-8083-3, FAA-H-8083-9, FAA-H-8083-25; POH/AFM*

**Objective:** To determine the applicant understands accelerated stalls (power-on and power-off), can apply that knowledge, manage associated risks, demonstrate appropriate skills, and provide effective instruction.

**Note:** See Appendix 2: Safety of Flight and Appendix 3: Aircraft, Equipment, and Operational Requirements & Limitations for information related to this Task.

**Knowledge:** The applicant demonstrates instructional knowledge by describing and explaining:

- AI.X.E.K1 Purpose of and procedures for accelerated stalls.
- AI.X.E.K2 Aerodynamics associated with accelerated stalls in various airplane configurations, including the relationship between angle of attack, airspeed, load factor, power setting, airplane weight and center of gravity, airplane attitude, and yaw effects.
- AI.X.E.K3 Stall characteristics as they relate to airplane design, and recognition impending stall and full stall indications using sight, sound, or feel.
- AI.X.E.K4 Factors leading to an accelerated stall and preventive actions.
- AI.X.E.K5 Fundamentals of stall recovery.
- AI.X.E.K6 Common errors related to this Task.

### **Risk**

**Management:** The applicant explains and teaches how to identify and manage risk associated with:

- AI.X.E.R1 Factors and situations that could lead to an inadvertent accelerated stall, spin, and loss of control.

- AI.X.E.R2 Range and limitations of stall warning indicators (e.g., aircraft buffet, stall horn, etc.).
- AI.X.E.R3 Stall warning(s) during normal operations.
- AI.X.E.R4 Stall recovery procedure.
- AI.X.E.R5 Secondary stalls, cross-control stalls, and spins.
- AI.X.E.R6 Effect of environmental elements on airplane performance related to accelerated stalls (e.g., turbulence, microbursts, and high-density altitude).
- AI.X.E.R7 Collision hazards.
- AI.X.E.R8 Distractions, task prioritization, loss of situational awareness, or disorientation.

**Skills:** The applicant demonstrates and simultaneously explains how to:

- AI.X.E.S1 Clear the area.
- AI.X.E.S2 Select an entry altitude that allows the Task to be completed no lower than 3,000 feet above ground level (AGL).
- AI.X.E.S3 Establish the configuration as specified by the evaluator.
- AI.X.E.S4 Set power appropriate for the configuration, such that the airspeed does not exceed the maneuvering speed ( $V_A$ ) or any other applicable Pilot's Operating Handbook (POH)/Airplane Flight Manual (AFM) limitation.
- AI.X.E.S5 Establish and maintain a coordinated turn in a 45° bank, increasing elevator back pressure smoothly and firmly until an impending stall is reached.
- AI.X.E.S6 Acknowledge the cues at the first indication of a stall (e.g., aircraft buffet, stall horn, etc.).
- AI.X.E.S7 Execute a stall recovery in accordance with procedures set forth in the Pilot's Operating Handbook (POH)/Flight Manual (FM).
- AI.X.E.S8 Configure the airplane as recommended by the manufacturer, and accelerate to best angle of climb speed ( $V_X$ ) or best rate of climb speed ( $V_Y$ ).
- AI.X.E.S9 Return to the altitude, heading, and airspeed specified by the evaluator.
- AI.X.E.S10 Analyze and correct common errors related to this Task.

### **Task F. Cross-Controlled Stall Demonstration (ASEL, ASES)**

*References: AC 61-67; FAA-H-8083-2, FAA-H-8083-3, FAA-H-8083-9, FAA-H-8083-25; POH/AFM*

**Objective:** To determine the applicant understands cross-controlled stalls, can apply that knowledge, manage associated risks, demonstrate appropriate skills, and provide effective instruction.

**Note:** See Appendix 2: Safety of Flight and Appendix 3: Aircraft, Equipment, and Operational Requirements & Limitations for information related to this Task.

**Knowledge:** The applicant demonstrates instructional knowledge by describing and explaining:

- AI.X.F.K1 Aerodynamics of cross-controlled stalls.
- AI.X.F.K2 Flight situations where unintentional cross-controlled stalls may occur.
- AI.X.F.K3 Recognition of cross-controlled stalls.
- AI.X.F.K4 Entry procedure and minimum entry altitude.

- AI.X.F.K5 Recovery procedure.
- AI.X.F.K6 Common errors related to this Task.

### Risk

**Management:** The applicant explains and teaches how to identify and manage risk associated with:

- AI.X.F.R1 Stall recovery procedure.
- AI.X.F.R2 Effect of environmental elements on airplane performance related to cross-controlled stalls (e.g., turbulence, microbursts, and high-density altitude).
- AI.X.F.R3 Collision hazards.
- AI.X.F.R4 Aircraft limitations.
- AI.X.F.R5 Distractions, task prioritization, loss of situational awareness, or disorientation.

**Skills:** The applicant exhibits the skill to:

- AI.X.F.S1 Clear the area.
- AI.X.F.S2 Select an entry altitude that allows the Task to be completed no lower than 3,000 feet above ground level (AGL).
- AI.X.F.S3 Configure the airplane (with gear down) and close the throttle.
- AI.X.F.S4 Establish a normal glide airspeed and trim the airplane.
- AI.X.F.S5 Roll into a medium-banked turn, apply excess rudder in the turn while holding bank constant with opposite aileron input, and add elevator pressure to keep the nose from lowering.
- AI.X.F.S6 Acknowledge the cues at the first indication of a stall (e.g., aircraft buffet, stall horn, etc.).
- AI.X.F.S7 Recover at the first indication of a stall or after a full stall has occurred, as specified by the evaluator.
- AI.X.F.S8 Describe and demonstrate conditions that lead to a cross-controlled stall for future avoidance.
- AI.X.F.S9 Analyze and correct common errors related to this Task.

## Task G. Elevator Trim Stall Demonstration (ASEL, ASES)

*References: AC 61-67; FAA-H-8083-2, FAA-H-8083-3, FAA-H-8083-9, FAA-H-8083-25; POH/AFM*

**Objective:** To determine the applicant understands elevator trim stalls, can apply that knowledge, manage associated risks, demonstrate appropriate skills, and provide effective instruction.

**Note:** See Appendix 2: Safety of Flight and Appendix 3: Aircraft, Equipment, and Operational Requirements & Limitations for information related to this Task.

**Knowledge:** The applicant demonstrates instructional knowledge by describing and explaining:

- AI.X.G.K1 Aerodynamics of elevator trim stalls.
- AI.X.G.K2 Flight situations where elevator trim stalls could occur.
- AI.X.G.K3 Recognition of elevator trim stalls.
- AI.X.G.K4 Entry procedure and minimum entry altitude.
- AI.X.G.K5 Recovery procedure.
- AI.X.G.K6 Common errors related to this Task.

## Risk

**Management:** The applicant explains and teaches how to identify and manage risk associated with:

- AI.X.G.R1* Stall recovery procedure.
- AI.X.G.R2* Effect of environmental elements on airplane performance related to cross-controlled stalls (e.g., turbulence, microbursts, and high-density altitude).
- AI.X.G.R3* Collision hazards.
- AI.X.G.R4* Aircraft limitations.
- AI.X.G.R5* Distractions, task prioritization, loss of situational awareness, or disorientation.

**Skills:** The applicant exhibits the skill to:

- AI.X.G.S1* Clear the area.
- AI.X.G.S2* Select an entry altitude that allows the Task to be completed no lower than 3,000 feet above ground level (AGL).
- AI.X.G.S3* Retard the throttle and configure the airplane for landing.
- AI.X.G.S4* Establish a normal glide airspeed and trim the airplane.
- AI.X.G.S5* Advance the throttle to the maximum allowable power as in a go-around.
- AI.X.G.S6* Acknowledge the cues at the first indication of a stall (e.g., aircraft buffet, stall horn, etc.).
- AI.X.G.S7* Recover at the first indication of a stall or after a full stall has occurred, as specified by the evaluator.
- AI.X.G.S8* Adjust trim and return to the desired flightpath.
- AI.X.G.S9* Describe and demonstrate conditions that lead to an elevator trim stall for future avoidance.
- AI.X.G.S10* Analyze and correct common errors related to this Task.

## **Task H. Secondary Stall Demonstration (ASEL, ASES)**

*References: AC 61-67; FAA-H-8083-2, FAA-H-8083-3, FAA-H-8083-9, FAA-H-8083-25; POH/AFM*

**Objective:** To determine the applicant understands secondary stalls, can apply that knowledge, manage associated risks, demonstrate appropriate skills, and provide effective instruction.

**Note:** See Appendix 2: Safety of Flight and Appendix 3: Aircraft, Equipment, and Operational Requirements & Limitations for information related to this Task.

**Knowledge:** The applicant demonstrates instructional knowledge by describing and explaining:

- AI.X.H.K1* Aerodynamics of secondary stalls.
- AI.X.H.K2* Flight situations where secondary stalls may occur.
- AI.X.H.K3* Recognition of a secondary stall.
- AI.X.H.K4* Entry procedure and minimum entry altitude.
- AI.X.H.K5* Recovery procedure.
- AI.X.H.K6* Common errors related to this Task.

## Risk

**Management:** The applicant explains and teaches how to identify and manage risk associated with:

- AI.X.H.R1* Stall recovery procedure.
- AI.X.H.R2* Effect of environmental elements on airplane performance related to cross-controlled stalls (e.g., turbulence, microbursts, and high-density altitude).
- AI.X.H.R3* Collision hazards.
- AI.X.H.R4* Aircraft limitations.
- AI.X.H.R5* Distractions, task prioritization, loss of situational awareness, or disorientation.

**Skills:** The applicant exhibits the skill to:

- AI.X.H.S1* Clear the area.
- AI.X.H.S2* Select an entry altitude that allows the Task to be completed no lower than 3,000 feet above ground level (AGL).
- AI.X.H.S3* Enter a stall in a specified configuration and exceed the critical angle of attack a second time during the recovery.
- AI.X.H.S4* Recover promptly and appropriately after a secondary stall occurs.
- AI.X.H.S5* Describe and demonstrate conditions that lead to a secondary stall for future avoidance.
- AI.X.H.S6* Analyze and correct common errors related to this Task.

## Task I. Spin Awareness and Spins

*References: AC 61-67; FAA-H-8083-2, FAA-H-8083-3, FAA-H-8083-9, FAA-H-8083-25; POH/AFM*

**Objective:** To determine the applicant understands spins, can apply that knowledge, manage associated risks, demonstrate appropriate skills, and provide effective instruction.

**Note:** *At the discretion of the evaluator, 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.*

**Note:** *See Appendix 2: Safety of Flight and Appendix 3: Aircraft, Equipment, and Operational Requirements & Limitations for information related to this Task.*

**Knowledge:** The applicant demonstrates instructional knowledge by describing and explaining:

- AI.X.I.K1* Purpose of and procedures for spin awareness and spins.
- AI.X.I.K2* Aerodynamics associated with spins in various airplane configurations, including the relationship between angle of attack, airspeed, load factor, power setting, airplane weight and center of gravity, airplane attitude, and yaw effects.
- AI.X.I.K3* What causes a spin and how to identify the entry, incipient, and developed phases of a spin.
- AI.X.I.K4* Spin recovery procedure.
- AI.X.I.K5* Human factors associated with spin instruction.
- AI.X.I.K6* How to determine if an airplane approved for the spin maneuver based on airworthiness category and

type certificate.

- AI.X.I.K7* Flight situations where unintentional spins may occur.
- AI.X.I.K8* Entry procedure and minimum entry altitude for intentional spins.
- AI.X.I.K9* Control procedure to maintain a stabilized spin.
- AI.X.I.K10* Recognize conditions that lead to a spin for future avoidance.
- AI.X.I.K11* Orientation during a spin, including which instrument(s) are reliable for determining the directions of spin.
- AI.X.I.K12* Recovery procedure and minimum recovery altitude for intentional spins.
- AI.X.I.K13* Common errors related to this Task.

**Risk**

**Management:** The applicant explains and teaches how to identify and manage risk associated with:

- AI.X.I.R1* Factors and situations that could lead to inadvertent spin and loss of control. *AI.X.I.R2*  
Range and limitations of stall warning indicators (e.g., aircraft buffet, stall horn, etc.).
- AI.X.I.R3* Spin recovery procedure.
- AI.X.I.R4* Effect of environmental elements on airplane performance related to spins (e.g., turbulence, microbursts, and high-density altitude).
- AI.X.I.R5* Collision hazards.
- AI.X.I.R6* Distractions, task prioritization, loss of situational awareness, or disorientation.

**Skills:** The applicant demonstrates and simultaneously explains how to:

- AI.X.I.S1* Clear the area.
- AI.X.I.S2* Select an entry altitude that allows the Task to be completed no lower than 4,000 feet AGL.
- AI.X.I.S3* Enter and recover from an intentional spin if requested by the evaluator.
- AI.X.I.S4* Analyze and correct common errors related to this Task.

## Area of Operation XI. Basic Instrument Maneuvers

**Note:** The evaluator must select at least one Task from this Area of Operation.

### Task A. Straight-and-Level Flight

References: FAA-H-8083-2, FAA-H-8083-3, FAA-H-8083-9, FAA-H-8083-15, FAA-H-8083-16, FAA-H-8083-25; POH/ AFM

**Objective:** To determine the applicant understands attitude instrument flying during straight-and-level flight, can apply that knowledge, manage associated risks, demonstrate appropriate skills, and provide effective instruction, solely by reference to instruments.

**Knowledge:** The applicant demonstrates instructional knowledge by describing and explaining:

- AI.XI.A.K1 Flight instruments as they relate to:
  - AI.XI.A.K1a a. Instrument limitations and potential errors
  - AI.XI.A.K1b b. Indication of the aircraft attitude AI.XI.A.K1c
  - c. Function and operation
  - AI.XI.A.K1d d. Proper instrument cross-check techniques
- AI.XI.A.K2 Common errors related to this Task.

#### Risk

**Management:** The applicant explains and teaches how to identify and manage risk associated with:

- AI.XI.A.R1 Instrument flying hazards, including failure to maintain visual flight rules (VFR), spatial disorientation, loss of control, fatigue, stress, and emergency off airport landings.
- AI.XI.A.R2 When to seek assistance or declare an emergency in a deteriorating situation.
- AI.XI.A.R3 Collision hazards.
- AI.XI.A.R4 Distractions, task prioritization, loss of situational awareness, or disorientation.
- AI.XI.A.R5 Fixation and omission.
- AI.XI.A.R6 Instrument Interpretation.
- AI.XI.A.R7 Control application solely by reference to instruments.
- AI.XI.A.R8 Trimming the aircraft.

**Skills:** The applicant demonstrates and simultaneously explains how to:

- AI.XI.A.S1 Maintain straight-and-level flight using proper instrument cross-check and interpretation and coordinated control application.
- AI.XI.A.S2 Maintain altitude  $\pm 100$  feet, heading  $\pm 10^\circ$ , and airspeed  $\pm 10$  knots.
- AI.XI.A.S3 Analyze and correct common errors related to this Task.

### Task B. Constant Airspeed Climbs

References: FAA-H-8083-2, FAA-H-8083-3, FAA-H-8083-9, FAA-H-8083-15, FAA-H-8083-16, FAA-H-8083-25; POH/ AFM

**Objective:** To determine the applicant understands attitude instrument flying during constant airspeed climbs, can apply that knowledge, manage associated risks, demonstrate appropriate skills, and provide effective instruction, solely by

reference to instruments.

**Knowledge:** The applicant demonstrates instructional knowledge by describing and explaining:

- AI.XI.B.K1* Flight instruments as they relate to:
  - AI.XI.B.K1a* a. Instrument limitations and potential errors
  - AI.XI.B.K1b* b. Indication of the aircraft attitude *AI.XI.B.K1c*
  - c. Function and operation
  - AI.XI.B.K1d* d. Proper instrument cross-check techniques
- AI.XI.B.K2* Common errors related to this Task.

- Risk Management:** The applicant explains and teaches how to identify and manage risk associated with:
- AI.XI.B.R1* Instrument flying hazards, including failure to maintain visual flight rules (VFR), spatial disorientation, loss of control, fatigue, stress, and emergency off airport landings.
  - AI.XI.B.R2* When to seek assistance or declare an emergency in a deteriorating situation.
  - AI.XI.B.R3* Collision hazards.
  - AI.XI.B.R4* Distractions, task prioritization, loss of situational awareness, or disorientation.
  - AI.XI.B.R5* Fixation and omission.
  - AI.XI.B.R6* Instrument Interpretation.
  - AI.XI.B.R7* Control application solely by reference to instruments.
  - AI.XI.B.R8* Trimming the aircraft.

- Skills:** The applicant demonstrates and simultaneously explains how to:
- AI.XI.B.S1* Transition to the climb pitch attitude and power setting on an assigned heading using proper instrument cross-check and interpretation, and coordinated flight control application.
  - AI.XI.B.S2* Climb at a constant airspeed to specific altitudes in straight flight and turns.
  - AI.XI.B.S3* Level off at the assigned altitude and maintain altitude  $\pm 100$  feet, heading  $\pm 10^\circ$ , and airspeed  $\pm 10$  knots.
  - AI.XI.B.S4* Analyze and correct common errors related to this Task.

### **Task C. Constant Airspeed Descents**

*References: FAA-H-8083-2, FAA-H-8083-3, FAA-H-8083-9, FAA-H-8083-15, FAA-H-8083-16, FAA-H-8083-25; POH/AFM*

**Objective:** To determine the applicant understands attitude instrument flying during constant airspeed descents, can apply that knowledge, manage associated risks, demonstrate appropriate skills, and provide effective instruction, solely by reference to instruments.

**Knowledge:** The applicant demonstrates instructional knowledge by describing and explaining:

- AI.XI.C.K1* Flight instruments as they relate to:
  - AI.XI.C.K1a* a. Instrument limitations and potential errors

- AI.XI.C.K1b*      b. Indication of the aircraft attitude *AI.XI.C.K1c*
- c. Function and operation
- AI.XI.C.K1d*      d. Proper instrument cross-check techniques
- AI.XI.C.K2*      Common errors related to this Task.

**Risk**

**Management:** The applicant explains and teaches how to identify and manage risk associated with:

- AI.XI.C.R1*      Instrument flying hazards, including failure to maintain visual flight rules (VFR), spatial disorientation, loss of control, fatigue, stress, and emergency off airport landings.
- AI.XI.C.R2*      When to seek assistance or declare an emergency in a deteriorating situation.
- AI.XI.C.R3*      Collision hazards.
- AI.XI.C.R4*      Distractions, task prioritization, loss of situational awareness, or disorientation.
- AI.XI.C.R5*      Fixation and omission.
- AI.XI.C.R6*      Instrument Interpretation.
- AI.XI.C.R7*      Control application solely by reference to instruments.
- AI.XI.C.R8*      Trimming the aircraft.

**Skills:**

The applicant demonstrates and simultaneously explains how to:

- AI.XI.C.S1*      Transition to the descent pitch attitude and power setting on an assigned heading using proper instrument cross-check and interpretation, and coordinated flight control application.
- AI.XI.C.S2*      Descend at a constant airspeed to specific altitudes in straight flight and turns.
- AI.XI.C.S3*      Level off at the assigned altitude and maintain altitude  $\pm 100$  feet, heading  $\pm 10^\circ$ , and airspeed  $\pm 10$  knots.
- AI.XI.C.S4*      Analyze and correct common errors related to this Task.

**Task D. Turns to Headings**

*References: FAA-H-8083-2, FAA-H-8083-3, FAA-H-8083-9, FAA-H-8083-15, FAA-H-8083-16, FAA-H-8083-25; POH/AFM*

**Objective:** To determine the applicant understands attitude instrument flying during turns to headings, can apply that knowledge, manage associated risks, demonstrate appropriate skills, and provide effective instruction, solely by reference to instruments.

**Knowledge:** The applicant demonstrates instructional knowledge by describing and explaining:

- AI.XI.D.K1*      Flight instruments as they relate to: *AI.XI.D.K1a*
  - a. Instrument limitations and potential errors
- AI.XI.D.K1b*      b. Indication of the aircraft attitude
- AI.XI.D.K1c*      c. Function and operation
- AI.XI.D.K1d*      d. Proper instrument cross-check techniques
- AI.XI.D.K2*      Common errors related to this Task.

## Risk

**Management:** The applicant explains and teaches how to identify and manage risk associated with:

- AI.XI.D.R1* Instrument flying hazards, including failure to maintain visual flight rules (VFR), spatial disorientation, loss of control, fatigue, stress, and emergency off airport landings.
- AI.XI.D.R2* When to seek assistance or declare an emergency in a deteriorating situation.
- AI.XI.D.R3* Collision hazards.
- AI.XI.D.R4* Distractions, task prioritization, loss of situational awareness, or disorientation.
- AI.XI.D.R5* Fixation and omission.
- AI.XI.D.R6* Instrument Interpretation.
- AI.XI.D.R7* Control application solely by reference to instruments.
- AI.XI.D.R8* Trimming the aircraft.

**Skills:** The applicant demonstrates and simultaneously explains how to:

- AI.XI.D.S1* Turns to headings, maintain altitude  $\pm 100$  feet, maintain a standard rate turn, roll out on the assigned heading  $\pm 10^\circ$ , and maintain airspeed  $\pm 10$  knots.
- AI.XI.D.S2* Analyze and correct common errors related to this Task.

## Task E. Recovery from Unusual Flight Attitudes

*References: FAA-H-8083-2, FAA-H-8083-3, FAA-H-8083-9, FAA-H-8083-15, FAA-H-8083-16, FAA-H-8083-25; POH/ AFM*

**Objective:** To determine the applicant understands attitude instrument flying while recovering from unusual attitudes, can apply that knowledge, manage associated risks, demonstrate appropriate skills, and provide effective instruction, solely by reference to instruments.

**Knowledge:** The applicant demonstrates instructional knowledge by describing and explaining:

- AI.XI.E.K1* Prevention of unusual attitudes, including flight causal, physiological, and environmental factors, and system and equipment failures.
- AI.XI.E.K2* Procedures for recovery from unusual attitudes in flight.
- AI.XI.E.K3* Procedures available to safely regain visual meteorological conditions (VMC) after flight into inadvertent instrument meteorological conditions or unintended instrument meteorological conditions (IIMC)/(UIMC).
- AI.XI.E.K4* Appropriate use of automation, if applicable.
- AI.XI.E.K5* Common errors related to this Task.

## Risk

**Management:** The applicant explains and teaches how to identify and manage risk associated with:

- AI.XI.E.R1* Situations that could lead to loss of control in-flight (LOC-I) or unusual attitudes in-flight (e.g., stress, task saturation, inadequate instrument scan distractions, and spatial disorientation).
- AI.XI.E.R2* Assessment of the unusual attitude.
- AI.XI.E.R3* Control input errors, inducing undesired aircraft attitudes.

- AI.XI.E.R4* Collision hazards.
- AI.XI.E.R5* Distractions, task prioritization, loss of situational awareness, or disorientation.
- AI.XI.E.R6* Interpreting flight instruments.
- AI.XI.E.R7* Control application solely by reference to instruments.
- AI.XI.E.R8* Operating envelope considerations.

**Skills:**

The applicant demonstrates and simultaneously explains how to:

- AI.XI.E.S1* Use proper instrument cross-check and interpretation to identify an unusual attitude (including both nose-high and nose-low) in flight, and apply the appropriate flight control, power input, and aircraft configuration in the correct sequence, to return to a stabilized level flight attitude.
- AI.XI.E.S2* Use single-pilot resource management (SRM) or crew resource management (CRM), as appropriate.
- AI.XI.E.S3* Analyze and correct common errors related to this Task.

## Area of Operation XII. Emergency Operations

**Note:** For ASEL or ASES, the evaluator must select at least Tasks B and C. For AMEL or AMES, the evaluator must select Tasks E or F; Task G; and at least one other Task.

### Task A. Emergency Descent

References: FAA-H-8083-2, FAA-H-8083-3, FAA-H-8083-9, FAA-H-8083-23, FAA-H-8083-25; POH/AFM

**Objective:** To determine the applicant understands emergency descent, can apply that knowledge, manage associated risks, demonstrate appropriate skills, and provide effective instruction.

**Note:** See Appendix 2: Safety of Flight.

**Knowledge:** The applicant demonstrates instructional knowledge by describing and explaining:

- AI.XII.A.K1 Purpose of and procedures for emergency descent.
- AI.XII.A.K2 Situations that would require an emergency descent (e.g., depressurization, smoke, or engine fire).
- AI.XII.A.K3 Immediate action items and emergency procedures.
- AI.XII.A.K4 Aircraft performance and limitations.
- AI.XII.A.K5 Airspeed, including airspeed limitations.
- AI.XII.A.K6 Common errors related to this Task.

**Risk Management:** The applicant explains and teaches how to identify and manage risk associated with:

- AI.XII.A.R1 Altitude, wind, terrain, obstructions, gliding distance, and available landing distance considerations.
- AI.XII.A.R2 Collision hazards.
- AI.XII.A.R3 Configuring the airplane.
- AI.XII.A.R4 Distractions, task prioritization, loss of situational awareness, or disorientation.

**Skills:** The applicant demonstrates and simultaneously explains how to:

- AI.XII.A.S1 Clear the area.
- AI.XII.A.S2 Establish and maintain the appropriate airspeed and configuration appropriate to the scenario specified by the evaluator and as covered in Pilot's Operating Handbook (POH)/Airplane Flight Manual (AFM) for the emergency descent.
- AI.XII.A.S3 Maintain orientation, divide attention appropriately, and plan and execute a smooth recovery.
- AI.XII.A.S4 Use bank angle between 30° and 45° to maintain positive load factors during the descent.
- AI.XII.A.S5 Maintain appropriate airspeed +0/-10 knots, and level off at a specified altitude ±100 feet.
- AI.XII.A.S6 Complete the appropriate checklist(s).
- AI.XII.A.S7 Analyze and correct common errors related to this Task.

## Task B. Emergency Approach and Landing (Simulated) (ASEL, ASES)

References: FAA-H-8083-2, FAA-H-8083-3, FAA-H-8083-9, FAA-H-8083-23, FAA-H-8083-25; POH/AFM

**Objective:** To determine the applicant understands power failure at altitude and associated emergency approach and landing procedures, can apply that knowledge, manage associated risks, demonstrate appropriate skills, and provide effective instruction.

**Note:** See Appendix 2: Safety of Flight and Appendix 3: Aircraft, Equipment, and Operational Requirements & Limitations for information related to this Task.

**Knowledge:** The applicant demonstrates instructional knowledge by describing and explaining:

- AI.XII.B.K1 Immediate action items and emergency procedures.
- AI.XII.B.K2 Airspeed, including:
  - AI.XII.B.K2a a. Importance of best glide speed and its relationship to distance
  - AI.XII.B.K2b b. Difference between best glide speed and minimum sink speed
  - AI.XII.B.K2c c. Effects of wind on glide distance
- AI.XII.B.K3 Effects of atmospheric conditions on emergency approach and landing.
- AI.XII.B.K4 A stabilized approach, including energy management concepts.
- AI.XII.B.K5 Emergency Locator Transmitters (ELTs) and other emergency locating devices.
- AI.XII.B.K6 Air traffic control (ATC) services to aircraft in distress.
- AI.XII.B.K7 Common errors related to this Task.

- Risk Management:** The applicant explains and teaches how to identify and manage risk associated with:
- AI.XII.B.R1 Altitude, wind, terrain, obstructions, gliding distance, and available landing distance considerations.
  - AI.XII.B.R2 Following or changing the planned flightpath to the selected landing area.
  - AI.XII.B.R3 Collision hazards.
  - AI.XII.B.R4 Configuring the airplane.
  - AI.XII.B.R5 Low altitude maneuvering, including stall, spin, or controlled flight into terrain (CFIT).
  - AI.XII.B.R6 Distractions, task prioritization, loss of situational awareness, or disorientation.

- Skills:** The applicant demonstrates and simultaneously explains how to:
- AI.XII.B.S1 Establish and maintain the recommended best glide airspeed,  $\pm 10$  knots.
  - AI.XII.B.S2 Configure the airplane in accordance with the Pilot's Operating Handbook (POH)\Airplane Flight Manual (AFM) and existing conditions.
  - AI.XII.B.S3 Select a suitable landing area considering altitude, wind, terrain, obstructions, and available glide distance.
  - AI.XII.B.S4 Plan and follow a flightpath to the selected landing area considering altitude, wind, terrain, and obstructions.
  - AI.XII.B.S5 Prepare for landing as specified by the evaluator.

- AI.XII.B.S6* Complete the appropriate checklist(s).
- AI.XII.B.S7* Analyze and correct common errors related to this Task.

### **Task C. Systems and Equipment Malfunctions**

*References: FAA-H-8083-2, FAA-H-8083-3, FAA-H-8083-9, FAA-H-8083-23, FAA-H-8083-25; POH/AFM*

**Objective:** To determine the applicant understands system and equipment malfunctions appropriate to the aircraft provided for the practical test, can apply that knowledge, manage associated risks, demonstrate appropriate skills, and provide effective instruction.

**Knowledge:** The applicant demonstrates instructional knowledge by describing and explaining:

- AI.XII.C.K1* Causes of partial or complete power loss related to the specific type of powerplant(s).
- AI.XII.C.K2* System and equipment malfunctions specific to the aircraft, including:
- AI.XII.C.K2a* a. Electrical malfunction
  - AI.XII.C.K2b* b. Vacuum/pressure and associated flight instrument malfunctions
  - AI.XII.C.K2c* c. Pitot-static system malfunction
  - AI.XII.C.K2d* d. Electronic flight deck display malfunction
  - AI.XII.C.K2e* e. Landing gear or flap malfunction
  - AI.XII.C.K2f* f. Inoperative trim
- AI.XII.C.K3* Causes and remedies for smoke or fire onboard the aircraft.
- AI.XII.C.K4* Any other system specific to the aircraft (e.g., supplemental oxygen, deicing).
- AI.XII.C.K5* Inadvertent door or window opening.
- AI.XII.C.K6* Common errors related to this Task.

#### **Risk**

**Management:** The applicant explains and teaches how to identify and manage risk associated with:

- AI.XII.C.R1* Startle response.
- AI.XII.C.R2* Checklist usage for a system or equipment malfunction.
- AI.XII.C.R3* Distractions, task prioritization, loss of situational awareness, or disorientation.
- AI.XII.C.R4* Undesired aircraft state.

**Skills:** The applicant demonstrates and simultaneously explains how to:

- AI.XII.C.S1* Determine appropriate action for simulated emergencies specified by the evaluator, from at least three of the elements or sub-elements listed in K1 through K5.
- AI.XII.C.S2* Complete the appropriate checklist(s).
- AI.XII.C.S3* Analyze and correct common errors related to this Task.

## Task D. Emergency Equipment and Survival Gear

References: FAA-H-8083-2, FAA-H-8083-3, FAA-H-8083-9, FAA-H-8083-23, FAA-H-8083-25; POH/AFM

**Objective:** To determine the applicant understands emergency equipment and survival gear, can apply that knowledge, manage associated risks, demonstrate appropriate skills, and provide effective instruction.

**Note:** See Appendix 3: Aircraft, Equipment, and Operational Requirements & Limitations for information related to this Task.

- Knowledge:** The applicant demonstrates instructional knowledge by describing and explaining:
- AI.XII.D.K1 Emergency Locator Transmitter (ELT) operations, limitations, and testing requirements.
  - AI.XII.D.K2 Fire extinguisher operations and limitations.
  - AI.XII.D.K3 Emergency equipment and survival gear needed for:
    - AI.XII.D.K3a a. Climate extremes (hot/cold)
    - AI.XII.D.K3b b. Mountainous terrain
    - AI.XII.D.K3c c. Overwater operations
  - AI.XII.D.K4 When to deploy a ballistic parachute and associated passenger briefings, if equipped.
  - AI.XII.D.K5 When to activate an emergency auto-land system and brief passengers, if equipped.
  - AI.XII.D.K6 Common errors related to this Task.

### Risk

**Management:** The applicant explains and teaches how to identify and manage risk associated with:

- AI.XII.D.R1 Survival gear (water, clothing, shelter) for 48 to 72 hours.
- AI.XII.D.R2 Use of a ballistic parachute system.
- AI.XII.D.R3 Use of an emergency auto-land system, if installed.

**Skills:** The applicant demonstrates and simultaneously explains how to:

- AI.XII.D.S1 Identify appropriate equipment and personal gear.
- AI.XII.D.S2 Brief passengers on proper use of on-board emergency equipment and survival gear.
- AI.XII.D.S3 Simulate ballistic parachute deployment procedures, if equipped.
- AI.XII.D.S4 Analyze and correct common errors related to this Task.

## Task E. Engine Failure During Takeoff Before V<sub>MC</sub> (Simulated) (AMEL, AMES)

References: FAA-H-8083-2, FAA-H-8083-3, FAA-H-8083-9, FAA-H-8083-25; FAA-P-8740-66; POH/AFM

**Objective:** To determine the applicant understands engine failure during takeoff, can apply that knowledge, manage associated risks, demonstrate appropriate skills, and provide effective instruction.

**Note:** See Appendix 2: Safety of Flight and Appendix 3: Aircraft, Equipment, and Operational Requirements & Limitations for information related to this Task.

**Knowledge:** The applicant demonstrates instructional knowledge by describing and explaining:

- AI.XII.E.K1 Factors affecting minimum controllable speed ( $V_{MC}$ ).
- AI.XII.E.K2  $V_{MC}$  (red line) and best single-engine rate of climb airspeed ( $V_{YSE}$ ) (blue line).
- AI.XII.E.K3 Accelerate/stop distance.
- AI.XII.E.K4 Common errors related to this Task.

**Risk**

**Management:** The applicant explains and teaches how to identify and manage risk associated with:

- AI.XII.E.R1 Potential engine failure during takeoff.
- AI.XII.E.R2 Configuring the airplane.
- AI.XII.E.R3 Distractions, task prioritization, loss of situational awareness, or disorientation.

**Skills:**

The applicant demonstrates and simultaneously explains how to:

- AI.XII.E.S1 Close the throttles smoothly and promptly when a simulated engine failure occurs.
- AI.XII.E.S2 Maintain directional control and apply brakes (AMEL), or flight controls (AMES), as necessary.
- AI.XII.E.S3 Analyze and correct common errors related to this Task.

**Task F. Engine Failure After Liftoff (Simulated) (AMEL, AMES)**

*References: FAA-H-8083-2, FAA-H-8083-3, FAA-H-8083-9, FAA-H-8083-25; FAA-P-8740-66; POH/AFM*

**Objective:** To determine the applicant understands engine failure after liftoff, can apply that knowledge, manage associated risks, demonstrate appropriate skills, and provide effective instruction.

**Note:** See Appendix 2: Safety of Flight and Appendix 3: Aircraft, Equipment, and Operational Requirements & Limitations for information related to this Task.

**Knowledge:** The applicant demonstrates instructional knowledge by describing and explaining:

- AI.XII.F.K1 Factors affecting minimum controllable speed ( $V_{MC}$ ).
- AI.XII.F.K2  $V_{MC}$  (red line),  $V_{YSE}$  (blue line), and safe single-engine speed ( $V_{SSE}$ ).
- AI.XII.F.K3 Accelerate/stop and accelerate/go distances.
- AI.XII.F.K4 How to identify, verify, feather, and secure an inoperative engine.
- AI.XII.F.K5 Importance of drag reduction, including propeller feathering, gear and flap retraction, the manufacturer's recommended control input and its relation to zero sideslip.
- AI.XII.F.K6 Simulated propeller feathering and the evaluator's zero-thrust procedures and responsibilities.
- AI.XII.F.K7 Common errors related to this Task.

**Risk**

**Management:** The applicant explains and teaches how to identify and manage risk associated with:

- AI.XII.F.R1 Potential engine failure after lift-off.
- AI.XII.F.R2 Collision hazards.
- AI.XII.F.R3 Configuring the airplane.
- AI.XII.F.R4 Low altitude maneuvering, including stall, spin, or controlled flight into terrain (CFIT).

AI.XII.F.R5 Distractions, task prioritization, loss of situational awareness, or disorientation.

**Skills:** The applicant demonstrates and simultaneously explains how to:

AI.XII.F.S1 Promptly recognize an engine failure, maintain control, and use appropriate emergency procedures.

AI.XII.F.S2 Establish  $V_{YSE}$ ; if obstructions are present, establish best single-engine angle of climb speed ( $V_{XSE}$ ) or  $V_{MC} + 5$  knots, whichever is greater, until obstructions are cleared. Then transition to  $V_{YSE}$ .

AI.XII.F.S3 Reduce drag by retracting landing gear and flaps in accordance with the manufacturer's guidance.

AI.XII.F.S4 Simulate feathering the propeller on the inoperative engine (evaluator should then establish zero thrust on the inoperative engine).

AI.XII.F.S5 Use flight controls in the proper combination as recommended by the manufacturer, or as required to maintain best performance, and trim as required.

AI.XII.F.S6 Monitor the operating engine and aircraft systems and make adjustments as necessary.

AI.XII.F.S7 Recognize the airplane's performance capabilities. If a climb is not possible at  $V_{YSE}$ , maintain  $V_{YSE}$  and return to the departure airport for landing, or initiate an approach to the most suitable landing area available.

AI.XII.F.S8 Simulate securing the inoperative engine.

AI.XII.F.S9 Maintain heading  $\pm 10^\circ$  and airspeed  $\pm 5$  knots.

AI.XII.F.S10 Complete the appropriate checklist(s).

AI.XII.F.S11 Analyze and correct common errors related to this Task.

### **Task G. Approach and Landing with an Inoperative Engine (Simulated)(AMEL, AMES)**

References: FAA-H-8083-2, FAA-H-8083-3, FAA-H-8083-9, FAA-H-8083-25; FAA-P-8740-66; POH/AFM

**Objective:** To determine the applicant understands approach and landing with an inoperative engine, can apply that knowledge, manage associated risks, demonstrate appropriate skills, and provide effective instruction.

**Note:** See Appendix 2: Safety of Flight and Appendix 3: Aircraft, Equipment, and Operational Requirements & Limitations for information related to this Task.

**Knowledge:** The applicant demonstrates instructional knowledge by describing and explaining:

AI.XII.G.K1 Factors affecting minimum controllable speed ( $V_{MC}$ ).

AI.XII.G.K2  $V_{MC}$  (red line) and best single-engine rate of climb airspeed ( $V_{YSE}$ ) (blue line).

AI.XII.G.K3 How to identify, verify, feather, and secure an inoperative engine.

AI.XII.G.K4 Importance of drag reduction, including propeller feathering, gear and flap retraction, the manufacturer's recommended control input and its relation to zero sideslip.

AI.XII.G.K5 Applicant responsibilities during simulated feathering.

AI.XII.G.K6 Common errors related to this Task.

#### **Risk**

**Management:** The applicant explains and teaches how to identify and manage risk associated with:

AI.XII.G.R1 Potential engine failure after inflight or during an approach.

- AI.XII.G.R2* Collision hazards.
- AI.XII.G.R3* Configuring the airplane.
- AI.XII.G.R4* Low altitude maneuvering, including stall, spin, or controlled flight into terrain (CFIT).
- AI.XII.G.R5* Distractions, task prioritization, loss of situational awareness, or disorientation.
- AI.XII.G.R6* Possible single-engine go-around.

**Skills:**

The applicant demonstrates and simultaneously explains how to:

- AI.XII.G.S1* Promptly recognize an engine failure and maintain positive aircraft control.
- AI.XII.G.S2* Set the engine controls, reduce drag, identify and verify the inoperative engine, and simulate feathering of the propeller on the inoperative engine (evaluator should then establish zero thrust on the inoperative engine).
- AI.XII.G.S3* Follow the manufacturer's recommended emergency procedures and complete the appropriate checklist.
- AI.XII.G.S4* Monitor the operating engine and aircraft systems and make adjustments as necessary.
- AI.XII.G.S5* Maintain the manufacturer's recommended approach airspeed  $\pm 5$  knots in the landing configuration with a stabilized approach, until landing is assured.
- AI.XII.G.S6* Make smooth, timely, and correct control application before, during, and after touchdown.
- AI.XII.G.S7* Touch down on the first one-third of available runway/landing surface, with no drift, and the airplane's longitudinal axis aligned with and over the runway center or landing path.
- AI.XII.G.S8* Maintain directional control and appropriate crosswind correction throughout the approach and landing.
- AI.XII.G.S9* Complete the appropriate checklist(s).
- AI.XII.G.S10* Analyze and correct common errors related to this Task.

## Area of Operation XIII. Multiengine Operations

**Note:** The evaluator must assess all Tasks.

### Task A. Maneuvering with One Engine Inoperative (AMEL, AMES)

References: FAA-H-8083-2, FAA-H-8083-3, FAA-H-8083-9, FAA-H-8083-25; FAA-P-8740-66; POH/AFM

**Objective:** To determine the applicant understands one engine inoperative, can apply that knowledge, manage associated risks, demonstrate appropriate skills, and provide effective instruction.

**Note:** See Appendix 2: Safety of Flight.

**Knowledge:** The applicant demonstrates instructional knowledge by describing and explaining:

- AI.XIII.A.K1 Factors affecting minimum controllable speed ( $V_{MC}$ ).
- AI.XIII.A.K2  $V_{MC}$  (red line) and best single-engine rate of climb airspeed ( $V_{YSE}$ ) (blue line).
- AI.XIII.A.K3 How to identify, verify, feather, and secure an inoperative engine.
- AI.XIII.A.K4 Importance of drag reduction, including propeller feathering, gear and flap retraction, the manufacturer's recommended control input and its relation to zero sideslip.
- AI.XIII.A.K5 Feathering, securing, unfeathering, and restarting.
- AI.XIII.A.K6 Common errors related to this Task.

#### Risk

**Management:** The applicant explains and teaches how to identify and manage risk associated with:

- AI.XIII.A.R1 Potential engine failure during flight.
- AI.XIII.A.R2 Collision hazards.
- AI.XIII.A.R3 Configuring the airplane.
- AI.XIII.A.R4 Low altitude maneuvering, including stall, spin, or controlled flight into terrain (CFIT).
- AI.XIII.A.R5 Distractions, task prioritization, loss of situational awareness, or disorientation.

**Skills:** The applicant demonstrates and simultaneously explains how to:

- AI.XIII.A.S1 Recognize an engine failure, maintain control, use manufacturer's memory item procedures, and use appropriate emergency procedures.
- AI.XIII.A.S2 Set the engine controls, identify and verify the inoperative engine, and feather the appropriate propeller.
- AI.XIII.A.S3 Use flight controls in the proper combination as recommended by the manufacturer, or as required to maintain best performance, and trim as required.
- AI.XIII.A.S4 Attempt to determine and resolve the reason for the engine failure.
- AI.XIII.A.S5 Secure the inoperative engine and monitor the operating engine and make necessary adjustments.
- AI.XIII.A.S6 Restart the inoperative engine using manufacturer's restart procedures.
- AI.XIII.A.S7 Maintain altitude  $\pm 100$  feet or minimum sink rate if applicable, airspeed  $\pm 10$  knots, and selected headings  $\pm 10^\circ$ .
- AI.XIII.A.S8 Complete the appropriate checklist(s).

## Task B. $V_{MC}$ Demonstration (AMEL, AMES)

References: FAA-H-8083-2, FAA-H-8083-3, FAA-H-8083-9, FAA-H-8083-25; FAA-P-8740-66; POH/AFM

**Objective:** To determine the applicant understands VMC demonstration, can apply that knowledge, manage associated risks, demonstrate appropriate skills, and provide effective instruction.

**Note:** See Appendix 2: Safety of Flight and Appendix 3: Aircraft, Equipment, and Operational Requirements & Limitations for information related to this Task.

**Knowledge:** The applicant demonstrates instructional knowledge by describing and explaining:

- AI.XIII.B.K1 Purpose of the maneuver.
- AI.XIII.B.K2 Proper procedures for maneuver entry and safe recovery.
- AI.XIII.B.K3 Factors affecting  $V_{MC}$  and how  $V_{MC}$  differs from stall speed ( $V_S$ ).
- AI.XIII.B.K4  $V_{MC}$  (red line),  $V_{YSE}$  (blue line), and safe single-engine speed ( $V_{SSE}$ ).
- AI.XIII.B.K5 Cause of loss of directional control at airspeeds below  $V_{MC}$ .
- AI.XIII.B.K6 Common errors related to this Task.

### Risk

**Management:** The applicant explains and teaches how to identify and manage risk associated with:

- AI.XIII.B.R1 Configuring the airplane.
- AI.XIII.B.R2 Maneuvering with one engine inoperative.
- AI.XIII.B.R3 Distractions, task prioritization, loss of situational awareness, or disorientation.

**Skills:** The applicant demonstrates and simultaneously explains how to:

- AI.XIII.B.S1 Configure the airplane in accordance with the manufacturer's recommendations, in the absence of the manufacturer's recommendations, then at safe single-engine speed ( $V_{SSE}/V_{YSE}$ ), as appropriate, and:
  - AI.XIII.B.S1a a. Landing gear retracted
  - AI.XIII.B.S1b b. Flaps set for takeoff
  - AI.XIII.B.S1c c. Cowl flaps set for takeoff
  - AI.XIII.B.S1d d. Trim set for takeoff
  - AI.XIII.B.S1e e. Propellers set for high revolutions per minute (rpm)
  - AI.XIII.B.S1f f. Power on critical engine reduced to idle and propeller windmilling
  - AI.XIII.B.S1g g. Power on operating engine set to takeoff or maximum available power
- AI.XIII.B.S2 Establish a single-engine climb attitude with the airspeed at approximately 10 knots above  $V_{SSE}$ .
- AI.XIII.B.S3 Establish a bank angle not to exceed 5° toward the operating engine, as required for best performance and controllability.
- AI.XIII.B.S4 Increase the pitch attitude slowly to reduce the airspeed at approximately 1 knot per second while applying increased rudder pressure as needed to maintain directional control.
- AI.XIII.B.S5 Recognize and recover at the first indication of loss of directional control, stall warning, or buffet.

- AI.XIII.B.S6 Recover promptly by simultaneously reducing power sufficiently on the operating engine, decreasing the angle of attack as necessary to regain airspeed and directional control, and without adding power on the simulated failed engine.
- AI.XIII.B.S7 Recover within 20° of entry heading.
- AI.XIII.B.S8 Advance power smoothly on the operating engine and accelerate to  $V_{SSE}/V_{YSE}$ , as appropriate,  $\pm 5$  knots during recovery.
- AI.XIII.B.S9 Analyze and correct common errors related to this Task.

### **Task C. Demonstration of Effects of Various Airspeeds and Configurations during Engine Inoperative Performance (AMEL and AMES)**

References: FAA-H-8083-2, FAA-H-8083-3, FAA-H-8083-9, FAA-H-8083-25; FAA-P-8740-66; POH/AFM

**Objective:** To determine the applicant understands the effects of various airspeeds and configurations during engine inoperative performance, can apply that knowledge, manage associated risks, demonstrate appropriate skills, and provide effective instruction.

**Note:** See Appendix 2: Safety of Flight and Appendix 3: Aircraft, Equipment, and Operational Requirements & Limitations for information related to this Task.

**Knowledge:** The applicant demonstrates instructional knowledge by describing and explaining:

- AI.XIII.C.K1 Purpose for and elements of demonstration of effects of various airspeeds and configurations during engine inoperative performance.
- AI.XIII.C.K2 Selection of appropriate altitude for the demonstration.
- AI.XIII.C.K3 Proper entry procedure to include pitch attitude, bank attitude, and airspeed.
- AI.XIII.C.K4 Effects on performance of airspeed changes at, above, and below  $V_{YSE}$ .
- AI.XIII.C.K5 Effects on performance of various configurations including:
  - AI.XIII.C.K5a a. Landing gear extended
  - AI.XIII.C.K5b b. Wing flaps extended
  - AI.XIII.C.K5c c. Landing gear and wing flaps extended
  - AI.XIII.C.K5d d. Windmilling propeller on the inoperative engine
- AI.XIII.C.K6 Airspeed control throughout the demonstration.
- AI.XIII.C.K7 Smooth control technique and coordination throughout the demonstration.
- AI.XIII.C.K8 Common errors related to this Task.

#### **Risk**

**Management:** The applicant explains and teaches how to identify and manage risk associated with:

- AI.XIII.C.R1 Altitude selection.
- AI.XIII.C.R2 Entry and recovery procedures.
- AI.XIII.C.R3 Loss of control or stall.
- AI.XIII.C.R4 Configuring the airplane.
- AI.XIII.C.R5 Collision hazards.

*AI.XIII.C.R6* Distractions, task prioritization, loss of situational awareness, or disorientation.

**Skills:**

The applicant demonstrates and simultaneously explains how to:

*AI.XIII.C.S1* Demonstrate, describe, and explain effects of various airspeeds and configurations during engine inoperative performance.

*AI.XIII.C.S2* Demonstrate smooth control inputs when transitioning between various airspeeds and configurations, which include:

*AI.XIII.C.S2a* a. Landing gear extended

*AI.XIII.C.S2b* b. Wing flaps extended

*AI.XIII.C.S2c* c. Landing gear and wing flaps extended

*AI.XIII.C.S2d* d. Windmilling propeller on the inoperative engine

*AI.XIII.C.S3* Maintain appropriate airspeed, attitude, and altitude combinations for the various configurations.

*AI.XIII.C.S4* Return to normal cruise flight at the altitude and heading specified by the evaluator.

*AI.XIII.C.S5* Analyze and correct common errors related to this Task.

## Area of Operation XIV. Postflight Procedures

**Note:** The evaluator must select Task A (ASEL, AMEL) or Task B (ASES, AMES).

### Task A. After Landing, Parking, and Securing (ASEL, AMEL)

References: FAA-H-8083-2, FAA-H-8083-3, FAA-H-8083-9, FAA-H-8083-25; POH/AFM

**Objective:** To determine the applicant understands after landing, parking, and securing procedures, can apply that knowledge, manage associated risks, demonstrate appropriate skills, and provide effective instruction.

**Knowledge:** The applicant demonstrates instructional knowledge by describing and explaining:

- AI.XIV.A.K1 Airplane shutdown, securing, and postflight inspection.
- AI.XIV.A.K2 Documenting in-flight/postflight discrepancies.
- AI.XIV.A.K3 Common errors related to this Task.

#### Risk

**Management:** The applicant explains and teaches how to identify and manage risk associated with:

- AI.XIV.A.R1 Activities and distractions.
- AI.XIV.A.R2 Airport specific security procedures.
- AI.XIV.A.R3 Disembarking passengers safely on the ramp and monitoring passenger movement while on the ramp.

**Skills:** The applicant demonstrates and simultaneously explains how to:

- AI.XIV.A.S1 Park in an appropriate area, considering the safety of nearby persons and property.
- AI.XIV.A.S2 Complete the appropriate checklist(s).
- AI.XIV.A.S3 Conduct a postflight inspection and document discrepancies and servicing requirements, if any.
- AI.XIV.A.S4 Secure the airplane.
- AI.XIV.A.S5 Analyze and correct common errors related to this Task.

### Task B. Seaplane Post-Landing Procedures (ASES, AMES)

References: FAA-H-8083-2, FAA-H-8083-9, FAA-H-8083-23, FAA-H-8083-25; POH/AFM

**Objective:** To determine the applicant understands anchoring, docking, mooring, and ramping/beaching, can apply that knowledge, manage associated risks, demonstrate appropriate skills, and provide effective instruction.

**Knowledge:** The applicant demonstrates instructional knowledge by describing and explaining:

- AI.XIV.B.K1 Mooring.
- AI.XIV.B.K2 Docking.
- AI.XIV.B.K3 Anchoring.
- AI.XIV.B.K4 Beaching/ramping.
- AI.XIV.B.K5 Postflight inspection, recording of in-flight/postflight discrepancies.
- AI.XIV.B.K6 Common errors related to this Task.

## Risk

**Management:** The applicant explains and teaches how to identify and manage risk associated with:

- AI.XIV.B.R1* Activities and distractions.
- AI.XIV.B.R2* Seaplane base specific security procedures, if applicable.
- AI.XIV.B.R3* Disembarking passengers safely on the ramp and monitoring passenger movement while on the ramp.

**Skills:** The applicant demonstrates and simultaneously explains how to:

- AI.XIV.B.S1* If anchoring, select a suitable area considering seaplane movement, water depth, tide, wind, and weather changes. Use an adequate number of anchors and lines of sufficient strength and length to ensure the seaplane's security.
- AI.XIV.B.S2* If not anchoring, approach the dock/mooring buoy or beach/ramp in the proper direction and at a safe speed, considering water depth, tide, current, and wind.
- AI.XIV.B.S3* Complete the appropriate checklist(s).
- AI.XIV.B.S4* Conduct a postflight inspection and document discrepancies and servicing requirements, if any.
- AI.XIV.B.S5* Secure the seaplane considering the effect of wind, waves, and changes in water level, or comply with applicable after landing, parking, and securing procedures if operating an amphibious airplane on land.
- AI.XIV.B.S6* Analyze and correct common errors related to this Task.

## Appendix 1: Practical Test Roles, Responsibilities, and Outcomes

### Eligibility Requirements for a Flight Instructor Certificate

The prerequisite requirements and general eligibility for a practical test and the specific requirements for the issuance of a Flight Instructor Certificate in the airplane category can be found in 14 CFR part 61, sections 61.39(a) and 61.183.

In accordance with 14 CFR part 61, section 61.39, the applicant must pass the airman knowledge test before taking the practical test, if applicable to the certificate or rating sought.

For an initial flight instructor certificate or when adding the airplane category to an existing flight instructor certificate, applicants must pass the knowledge test listed in the table below as a prerequisite for the practical test.

Test Code	Test Name	Number of Questions	Age	Allotted Time	Passing Score
FOI*	Fundamentals of Instructing	50	16	1.5	70
FIA	Flight Instructor – Airplane	100	16	2.5	70
AFA	Flight Instructor – Airplane (Added Rating)	25	16	1.0	70

\*The FOI knowledge test applies unless the applicant meets the criteria listed in 14 CFR part 61, section 61.183(e).

### Use of the ACS During a Practical Test

The practical test is conducted in accordance with the ACS and FAA regulations that are current as of the date of the test.

The Areas of Operation in this ACS align with the Areas of Operation found in 14 CFR part 61, section 61.187(b). Each Area of Operation includes Tasks appropriate to that Area of Operation. Each Task contains an Objective stating what the applicant must know, consider, and/or do. The ACS then lists the aeronautical knowledge, risk management, and skill elements relevant to the specific Task, along with the conditions and standards for acceptable performance. The ACS uses Notes to emphasize special considerations.

During the ground and flight portion of the practical test, the FAA expects evaluators to assess the applicant's mastery of the topic in accordance with the level of learning most appropriate for the specified Task. The oral questioning will continue throughout the entire practical test. 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 knowledge, risk management, flight proficiency, and operational skill in accordance with the ACS.

The elements within each Task in this ACS are coded according to a scheme that includes four components. For example, F.I.I.C.K2:

FI = Applicable ACS I

= Area of Operation

C = Task

K2 = Task element (in this example, Knowledge 2)

There is no requirement for an evaluator to test every knowledge and risk management element in a Task; rather the evaluator has discretion to sample as needed to ensure the applicant's mastery of that Task. The required minimum elements to be tested from each applicable Task include:

- any elements in which the applicant was shown to be deficient on the knowledge test, as applicable;
- at least one knowledge element;
- at least one risk management element; and
- all skill elements unless otherwise noted.

The Airman Knowledge Test Report (AKTR) lists ACS codes that correlate to a specific Task element for a given Area of

Operation for any incorrect responses on the knowledge test.

Knowledge and risk management elements are primarily evaluated during the knowledge testing phase of the airman certification process. The evaluator administering the practical test has the discretion to combine Tasks/elements as appropriate to testing scenarios.

Unless otherwise noted in the Task, the evaluator must test each item in the skills section by observing the applicant perform each one. As safety of flight conditions permit, the evaluator should use questions during flight to test knowledge and risk management elements not evident in the demonstrated skills. To the greatest extent practicable, evaluators should test the applicant's ability to apply and correlate information and use rote questions only when they are appropriate for the material being tested.

If the Task includes a knowledge or risk element with sub-elements, the evaluator may choose the primary element and select at least one sub-element to satisfy the requirement. Selection of the sub-element satisfies the requirement for one element unless otherwise noted.

For example, an evaluator who chooses FI.I.F.K2 may select a sub-element such as FI.I.F.K2b to satisfy the requirement to select one knowledge element.

The References for each Task indicate the source material for Task elements. For example, in the Task element "Acceptable weather products and resources required for preflight planning, current and forecast weather for departure, en route, and arrival phases of flight such as:" (AI.III.C.K2), the applicant should be prepared for questions on any weather product presented in the references for that Task.

**Note:** *When administering a test, the Tasks appropriate to the class airplane (ASEL, ASES, AMEL, or AMES) used for the test must be included in the plan of action.*

The FAA encourages applicants and instructors to use the ACS when preparing for the airman knowledge tests and practical tests. Evaluators must conduct the practical test in accordance with the current ACS and FAA regulations pursuant to 14 CFR part 61, section 61.43. If an applicant is entitled to credit for Areas of Operation previously passed as indicated on a Notice of Disapproval of Application or Letter of Discontinuance, evaluators shall use the ACS currently in effect on the date of the test.

The ground 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 applicant must pass the ground portion of the practical test before beginning the flight portion. The oral questioning will continue throughout the entire practical test.

## Instructor Responsibilities

The instructor trains and qualifies the applicant to meet the established standards for knowledge, risk management, and skill elements in all Tasks appropriate to the certificate and rating sought. The instructor should use this ACS and its references when preparing the applicant to take the practical test and when retraining the applicant to proficiency in any subject(s) missed on the knowledge test.

## Evaluator Responsibilities

An evaluator includes the following:

- Aviation Safety Inspector (ASI);
- Pilot examiner (other than administrative pilot examiners);
- Training center evaluator (TCE);
- Chief instructor, assistant chief instructor, or check instructor of pilot school holding examining authority; or
- Instrument Flight Instructor (CFII) conducting an instrument proficiency check (IPC).

The evaluator who conducts the practical test verifies the applicant has met the aeronautical experience requirements specified for a certificate or rating before administering the test. During the practical test, the evaluator determines whether the applicant meets the established standards of aeronautical knowledge, risk management, and skills for the Tasks in the appropriate ACS.

The evaluator must develop a plan of action (POA) that includes all required Areas of Operation and Tasks and administer each practical test in English. The POA must include scenario(s) that evaluate as many of the required Areas of Operation and Tasks as possible. As a scenario unfolds during the test, the evaluator will introduce problems and simulate emergencies

that test the applicant's ability. The evaluator has the discretion to modify the POA to accommodate unexpected situations as they arise or suspend and later resume a scenario to assess certain Tasks.

Prior to and throughout the evaluation, the evaluator ensures the applicant meets the FAA Aviation English Language Standard (AELS). An applicant must be able to communicate in English in a discernible and understandable manner with air traffic control (ATC), pilots, and others involved in preparing an aircraft for flight and operating an aircraft in flight. This communication may or may not involve radio communications. An applicant for an FAA certificate or rating issued in accordance with 14 CFR parts 61, 63, 65, or 107 who cannot hear or speak due to a medical deficiency may be eligible for an FAA certificate with specific operational limitations.

If the applicant's ability to meet the FAA AELS comes into question before starting the practical test, the evaluator will not begin the practical test. An evaluator other than an ASI will check the box, "Referred to FSO for Aviation English Language Standard Determination," located on the bottom of page 2 of the applicant's FAA Form 8710-1, Airman Certificate and/or Rating Application, or FAA Form 8710-11, Airman Certificate and/or Rating Application - Sport Pilot, as applicable. The evaluator will refer the applicant to the appropriate Flight Standards Office (FSO).

If the applicant's ability to meet the FAA AELS comes into question after the practical test begins, an evaluator other than an ASI will discontinue the practical test and check the box, "Referred to FSO for Aviation English Language Standard Determination," on the application. The evaluator will also issue FAA Form 8060-5, Notice of Disapproval of Application, with the comment "Does Not Demonstrate FAA AELS" in addition to any unsatisfactory Task(s). The evaluator will refer the applicant to the appropriate FSO. ASIs conducting the practical test may assess an applicant's English language proficiency in accordance with FAA Order 8900.1.

In either case, the evaluator must complete and submit the application file through normal application procedures and evaluators other than an ASI notify the appropriate FSO of the referral.

If the ability of an FAA certificated airman comes into question prior to or during a required regulatory check (e.g., proficiency check) the evaluator other than an ASI will not continue the check or provide an endorsement indicating completion. The evaluator will refer the airman to the jurisdictional FAA field office for further determination of ability to meet the FAA AELS.

For additional information, reference AC 60-28, FAA English Language Standard for an FAA Certificate issued under 14 CFR parts 61, 63, 65, and 107, as amended.

The abbreviation(s) within parentheses immediately following a Task refers to the category and/or class airplane appropriate to that Task. The absence of a class indicates the Task is for all classes. The meaning of each abbreviation is as follows:

- ASEL—Airplane – Single-Engine Land
- ASES—Airplane – Single-Engine Sea
- AMEL—Airplane – Multiengine Land
- AMES—Airplane – Multiengine Sea

The evaluator conducting the practical test must determine that the applicant meets acceptable standards of teaching ability in the selected Tasks. The evaluator makes this determination by confirming the applicant's:

- Ability to apply the fundamentals of instructing;
- Knowledge of and ability to teach the subject matter, procedures, and maneuvers covered in the Tasks;
- Ability to perform the Tasks at the level of a commercial pilot while giving effective flight instruction; and
- Ability to analyze and correct common errors related to the procedures and maneuvers covered in the Tasks.

During the flight portion of the practical test, the evaluator may act as a student during selected maneuvers. This gives the evaluator an opportunity to evaluate the flight instructor applicant's ability to analyze and correct simulated common errors related to these maneuvers.

### Possible Outcomes of the Test

A practical test has three possible outcomes: (1) Temporary Airman Certificate (satisfactory), (2) Notice of Disapproval of Application (unsatisfactory), or (3) Letter of Discontinuance.

If the evaluator determines that a Task is incomplete, or the outcome is uncertain, the evaluator must require the applicant to repeat that Task, or portions of that Task. This provision does not mean that instruction, practice, or the repetition of an unsatisfactory Task is permitted during the practical test.

### *Satisfactory Performance*

Refer to 14 CFR part 61, section 61.43, for satisfactory performance requirements.

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

### *Unsatisfactory Performance*

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, and the evaluator issues a Notice of Disapproval of Application. The evaluator lists the Area(s) of Operation in which the applicant did not meet the standard, any Area(s) of Operation not tested, and the number of practical test failures. The evaluator should also list the Tasks failed or Tasks not tested within any unsatisfactory or partially completed Area(s) of Operation. 14 CFR part 61, section 61.43(c)-(f) provides additional unsatisfactory performance requirements and parameters.

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 evaluator 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 skill elements of the Task.
- Failure to take prompt corrective action when tolerances are exceeded.
- Failure to exercise risk management.
- Failure to provide effective instruction while demonstrating a procedure or maneuver.

The evaluator or the applicant may end the test if the applicant fails a Task. The evaluator may continue the test only with the consent of the applicant. The applicant receives credit only for those Areas of Operation and the associated Tasks performed satisfactorily.

### *Letter of Discontinuance*

Refer to 14 CFR part 61, section 61.43(e)(2) for conditions to issue a letter of discontinuance.

If discontinuing a practical test for reasons other than unsatisfactory performance (e.g., equipment failure, weather, illness), the evaluator must return all 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 period remaining to complete the test to receive credit for previously completed Areas of Operation. 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.

### *Time Limit and Credit after a Discontinued Practical Test*

Refer to 14 CFR part 61, sections 61.39(f) and 61.43(f) after issuance of a Letter of Discontinuance or Notice of Disapproval of Application.

### *Additional Rating Task Table*

For an applicant who holds a Flight Instructor Certificate and seeks an additional Airplane category and/or class rating at the Flight Instructor level, the evaluator must evaluate that applicant in the Areas of Operation and Tasks listed in the Additional Rating Task Table. The evaluator may 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 the flight instructor level, and the ratings table indicates different Task requirements, the least restrictive entry applies. For example, if an asterisk (\*) and "None" are indicated for one Area of Operation, the "None" entry applies. If the table indicates "B" and "B, C" the "B" entry applies.

## Addition of an Airplane Single-Engine Rating to an Existing Flight Instructor Certificate

The table below indicates the required Tasks for each Area of Operation tested in accordance with this ACS.

Legend	
AME	Airplane – Multiengine
RH	Rotorcraft – Helicopter
RG	Rotorcraft – Gyroplane
PL	Powered-Lift
IA	Instrument Rating – Airplane
IH	Instrument Rating – Helicopter
IP	Instrument Rating – Powered-Lift

Area of Operation	Flight Instructor Certificate and Rating(s) Held							
	AME	RH	RG	PL	Glider	IA	IH	IP
I	None	None	None	None	None	None	None	None
II	C,K	*	*	*	*	*	*	*
III	None	B	B	B	B	*	*	*
IV	None	None	None	None	None	None	None	None
V	None	*	*	*	*	*	*	*
VI	None	*	None	None	*	*	*	*
VII	*	*	*	*	*	*	*	*
VIII	None	*	*	None	*	*	*	*
IX	B and F, C or D	*	*	B and F, C or D	*	*	*	*
X	*	*	*	*	*	*	*	*
XI	None	*	*	None	*	None	*	None
XII	*	*	*	*	*	*	*	*
XIII	None	None	None	None	None	None	None	None
XIV	None	*	*	*	*	*	*	*

**Note:** An asterisk directs the evaluator to refer to the Note under the respective Area of Operation for Task requirements.

## Addition of an Airplane Multiengine Rating to an Existing Flight Instructor Certificate

The table below indicates the required Tasks for each Area of Operation tested in accordance with this ACS.

Legend	
ASE	Airplane – Single-Engine
RH	Rotorcraft – Helicopter
RG	Rotorcraft – Gyroplane
PL	Powered-Lift
IA	Instrument Rating – Airplane
IH	Instrument Rating – Helicopter
IP	Instrument Rating – Powered-Lift

Area of Operation	Flight Instructor Certificate and Rating(s) Held							
	ASE	RH	RG	PL	Glider	IA	IH	IP
I	None	None	None	None	None	None	None	None
II	C,K,P	*	*	*	*	*	*	*
III	None	B	B	B	B	*	*	*
IV	None	None	None	None	None	None	None	None
V	*	*	*	*	*	*	*	*
VI	None	*	None	None	*	*	*	*
VII	*	*	*	*	*	*	*	*
VIII	None	*	*	None	*	*	*	*
IX	A	*	*	A	*	*	*	*
X	*	*	*	*	*	*	*	*
XI	None	*	*	None	*	None	*	None
XII	*	*	*	*	*	*	*	*
XIII	*	*	*	*	*	*	*	*
XIV	None	*	*	*	*	*	*	*

**Note:** An asterisk directs the evaluator to refer to the Note under the respective Area of Operation for Task requirements.

## Flight Instructor Renewal/Reinstatement

In accordance with 14 CFR part 61, section 61.199(a), the renewal or reinstatement of one rating on a Flight Instructor Certificate renews or reinstates all privileges existing on the certificate.

Required Area of Operation	Airplane Single-Engine	Airplane Multiengine
I	**	**
II	C,K, and 1 other Task	C,K,P, and 1 other Task
III	1 Task	1 Task
IV	1 Task	1 Task
V	1 Task	1 Task
VI	None	None
VII	2 Takeoffs 2 Landings	2 Takeoffs 2 Landings
VIII	None	None
IX	Ground Reference - 1 Task Performance - 1 Task	Ground Reference - 1 Task Performance - 1 Task
X	2 Tasks	1 Task
XI	None	None
XII	1 Task	2 Tasks
XIII	None	1 Task
XIV	1 Task	1 Task

**Note:** A double asterisk directs the evaluator to consider the period of inactivity. The evaluator may test FOI Tasks for any reinstatement.

## Appendix 2: Safety of Flight

### General

Safety of flight must be the prime consideration at all times. The evaluator, applicant, and crew must be continually alert for other traffic. 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. The evaluator will assess the applicant's use of visual scanning and collision avoidance procedures throughout the entire test.

### Stall and Spin Awareness

During flight training and testing, the applicant and the instructor or evaluator must always recognize and avoid operations that could lead to an inadvertent stall or spin and inadvertent loss of control.

### Use of Checklists

Throughout the practical test, the applicant is evaluated on the use of an appropriate checklist.

Assessing proper checklist use depends upon the specific Task. In all cases, the evaluator should determine whether the applicant demonstrates CRM, 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 their review of the appropriate checklist once conditions permit.

In a single-pilot aircraft, the applicant should demonstrate the crew resource management (CRM) principles described as single-pilot resource management (SRM). Proper use depends on the specific Task being evaluated. If the use of the checklist while accomplishing elements of an Objective would be either unsafe or impractical in a single-pilot operation, the applicant should review the checklist after accomplishing the elements.

### Positive Exchange of Flight Controls

A clear understanding of who has control of the aircraft must exist. 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, they 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," and visually confirms the exchange.

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. Doubt as to who is flying the aircraft should not occur.

### Use of Distractions

Numerous studies indicate that many accidents have occurred when the pilot has been distracted during critical phases of flight. The evaluator should incorporate realistic distractions during the flight portion of the practical test to evaluate the pilot's situational awareness and ability to utilize proper control technique while dividing attention both inside and outside the flight deck.

### Aeronautical Decision-Making, Risk Management, Crew Resource Management, and Single-Pilot Resource Management

Throughout the practical test, the evaluator must assess the applicant's ability to use sound aeronautical decision-making procedures in order to identify hazards and mitigate risk. The evaluator must accomplish this requirement by reference to the risk management elements of the given Task(s), and by developing scenarios that incorporate and combine Tasks appropriate to assessing the applicant's risk management in making safe aeronautical decisions. For example, the evaluator may develop a scenario that incorporates weather decisions and performance planning.

In assessing the applicant's performance, the evaluator should take note of the applicant's use of CRM and, if appropriate,

SRM. CRM/SRM is the set of competencies that includes situational awareness, communication skills, teamwork, task allocation, and decision-making within a comprehensive framework of standard operating procedures (SOP). SRM specifically refers to the management of all resources onboard the aircraft, as well as outside resources available to the single pilot.

If an applicant fails to use aeronautical decision-making (ADM), including SRM/CRM, as applicable in any Task, the evaluator will note that Task as failed. The evaluator will also include the ADM Skill element from the Flight Deck Management Task on the Notice of Disapproval of Application.

### Multiengine Considerations

On multiengine practical tests, where the failure of the most critical engine after liftoff is required, the evaluator must consider local atmospheric conditions, terrain, and type of aircraft used. The evaluator must not simulate failure of an engine until attaining an altitude of at least 400 feet AGL and at least minimum single-engine speed ( $V_{SSE}$ ), best single-engine angle-of-climb speed ( $V_{XSE}$ ), or best single-engine rate-of-climb ( $V_{YSE}$ ).

The applicant must supply an airplane that does not prohibit the demonstration of feathering the propeller in flight. However, an applicant holding an unrestricted AMEL rating may take a practical test for the addition of an AMES rating in an AMES without propeller feathering capability. Practical tests conducted in a flight simulation training device (FSTD) can only be accomplished as part of an approved curriculum or training program pursuant to 14 CFR part 61, section 61.64. Any limitations or powerplant failure will be noted in that program.

For safety reasons, when the practical test is conducted in an airplane, the applicant must perform Tasks that require feathering or shutdown only under conditions and at a position and altitude where it is possible to make a safe landing on an established airport if there is difficulty in unfeathering the propeller or restarting the engine. The evaluator must select an entry altitude that will allow the single-engine demonstration Tasks to be completed no lower than 3,000 feet AGL or the manufacturer's recommended altitude (whichever is higher). If it is not possible to unfeather the propeller or restart the engine while airborne, the applicant and the evaluator should treat the situation as an emergency. At altitudes lower than 3,000 feet AGL, engine failure should be simulated by reducing throttle to idle and then establishing zero thrust.

Engine failure (simulated) during takeoff should be accomplished prior to reaching 50 percent of the calculated  $V_{MC}$ .

### Single-Engine Considerations

For safety reasons, the evaluator will not request a simulated powerplant failure in a single-engine airplane unless it is possible to safely complete a landing.

## Appendix 3: Aircraft, Equipment, and Operational Requirements & Limitations

### Aircraft Requirements & Limitations

If the aircraft has inoperative equipment and can be operated in accordance with 14 CFR part 91, section 91.213, it must be determined if any inoperative instruments or equipment are required to complete the practical test. The inoperative equipment must not interfere with practical test requirements.

### Equipment Requirements & Limitations

The aircraft must meet the requirements as outlined in 14 CFR part 61, section 61.45.

To assist in management of the aircraft during the practical test, the applicant is expected to demonstrate automation management skills by utilizing installed, available, or airborne equipment such as autopilot, avionics and systems displays, and/or a flight management system (FMS). The evaluator is expected to test the applicant's knowledge of the systems that are available or installed and operative during both the ground and flight portions of the practical test. If the applicant has trained using a portable electronic flight bag (EFB) to display charts and data and wishes to use the EFB during the practical test, the applicant is expected to demonstrate appropriate knowledge, risk management, and skill appropriate to its use.

If the practical test involves maneuvering the aircraft solely by reference to instruments, the applicant is required by 14 CFR part 61, section 61.45(d)(2) to provide an appropriate view limiting device acceptable to the Administrator. The applicant and the evaluator should establish a procedure as to when and how this device should be donned and removed and brief this procedure before the flight. This device must prevent the applicant from having visual reference outside the aircraft, but it must not restrict the evaluator's ability to see and avoid other traffic. The use of the device does not apply to specific elements within a Task when there is a requirement for visual references.

### Use of Flight Simulation Training Devices (FSTD)

Applicants for a pilot certificate or rating can accomplish all or part of a practical test or proficiency check in an FSTD qualified under 14 CFR part 60, which includes full flight simulators (FFS) or flight training devices (FTD), only when conducted within an FAA-approved training program. Each operational rule part identifies additional requirements for the approval and use of FSTDs in an FAA-approved training program.

### Credit for Pilot Time in an FSTD

14 CFR part 61 and part 141 specify the minimum experience requirements for each certificate or rating sought. 14 CFR part 61 and the appendices to part 141 specify the maximum amount of FFS or FTD flight training time an applicant can apply toward those experience requirements.

### Use of Aviation Training Devices (ATD)

Applicants for a pilot certificate or rating cannot use an ATD to accomplish a practical test, a 14 CFR part 61, section 61.58 proficiency check, or the flight portion of a 14 CFR part 61, section 61.57 flight review. An ATD is defined in 14 CFR part 61, section 61.1.

The FAA's General Aviation and Commercial Division evaluates and approves ATDs as permitted under 14 CFR part 61, section 61.4(c) and FAA Order 8900.1. Each ATD is then issued an FAA letter of authorization (LOA) that is valid for 60 calendar months. The LOA for each ATD lists the pilot time credit allowances and associated limitations.

The Pilot Training and Certification Group public website provides [a list of the FAA-approved ATDs](#) and the associated manufacturer.

### Credit for Pilot Time in an ATD

14 CFR part 61 and part 141 specify the minimum experience requirements for each certificate or rating sought. 14 CFR part 61 and the appendices to part 141 specify the maximum amount of ATD flight training time an applicant can apply toward those experience requirements. The LOA for each FAA-approved ATD lists the pilot time credit allowances and the associated limitations.

Evaluators must request an applicant to provide a copy of the manufacturer's LOA when using ATD flight training time credit

to meet the minimum experience requirements for an airman pilot certificate, rating, or privilege.

## Operational Requirements, Limitations, & Task Information

### *VIII. Takeoffs, Landings, and Go-Arounds*

#### *Task M. Power-Off 180° Accuracy Approach and Landing (ASEL, ASES)*

Note that certain single-engine turboprop airplanes experience an excessive rate of descent if the power is set to flight idle. In some cases, if the powerplant failed, the manufacturer's checklist calls for feathering the propeller during a power-off glide. During flight training in these airplanes, the propeller is not feathered as would be the case in an emergency or true power-off glide. During training and pilot certification, where the manufacturer's checklist calls for propeller feathering in a power-off situation, the pilot should set sufficient power to provide the performance that would be expected with the propeller feathered.

Initiating a go-around as a result of an applicant's inability to complete this Task within the tolerances specified in the skill elements is considered unsatisfactory. Runway safety concerns beyond the control of the applicant or evaluator that necessitate a go-around would not be considered unsatisfactory. The applicant and evaluator must not sacrifice the safety of flight and force a landing to complete this Task.

#### *X. Slow Flight, Stalls, and Spins (Spins apply to ASEL)*

Some stall Tasks allow for demonstration or teaching of full stalls. With the exception of Task H - Secondary Stalls (where a full stall occurs) and Task E - Accelerated Stall (where the recovery occurs at the first indication), the evaluator has discretion to ask for recovery at the first indication of a stall or after a full stall occurs. Applicants should train and prepare to demonstrate or teach full stalls where appropriate; however, the applicant and the evaluator must review this area of operation during the preflight briefing.

The flight instructor normally demonstrates stall Tasks F, G, and H to learners for the purposes of familiarization and stall/spin awareness. Private and commercial pilot certification does not include these Tasks.

#### *Task A. Maneuvering During Slow Flight and Task B. Demonstration of Flight Characteristics at Various Configurations and Airspeeds*

Evaluation criteria for this Task should recognize that environmental factors (e.g., turbulence) may result in a momentary activation of stall warning indicators such as the stall horn. If the applicant recognizes the stall warning indication and promptly makes an appropriate correction, a momentary activation does not constitute unsatisfactory performance on this Task. As with other Tasks, unsatisfactory performance would arise from an applicant's continual deviation from the standard, lack of correction, and/or lack of recognition.

#### *Task C. Power-Off Stalls*

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 that affect the recovery altitude.

#### *Task D. Power-On Stalls*

In some high-performance airplanes, the power setting may have to be reduced below the ACS guidelines power setting to prevent pitch attitudes greater than 30° nose up. Evaluation criteria for a recovery from an approach to stall does not mandate a predetermined value for altitude loss and does not mandate maintaining altitude during recovery. Proper evaluation criteria considers the multitude of external and internal variables that affect the recovery altitude.

#### *Task E. Accelerated Stalls*

Pilots must set power for airspeed at or below the design maneuvering speed ( $V_A$ ) for the airplane. In a multiengine airplane a successful recovery occurs at the first indication of a stall. Delaying application of power until the airplane reaches a wings level altitude, attains a speed that exceeds  $V_{MC}$ , and responds normally to control inputs is acceptable. A pilot should delay application of high power if the aircraft is not above  $V_{MC}$  and responding as expected.

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 that affect the recovery altitude.

#### *Task G. Elevator Trim Stalls*

The applicant and evaluator must brief the recovery prior to stall execution. A realistic scenario includes a simulated short-field approach at altitude trimmed for approach airspeed, low power, and full flaps.

#### *Task H. Secondary Stalls*

Secondary stalls include a full stall.

### ***XII. Emergency Operations***

#### *Task B. Emergency Approach and Landing (Simulated) (ASEL, ASES)*

Execution must allow for a safe landing in the event of an actual engine failure.

#### *Task D. Emergency Equipment and Survival Gear*

For airplanes that include a ballistic parachute, applicants must follow the manufacturer's procedures for arming and disarming the system before and after flight. Testing of an applicant's knowledge regarding how and when to use the system and how to manage associated risks may include simulation and briefing of procedures but not actual deployment of the system.

#### *Task E. Engine Failure During Takeoff Before $V_{MC}$ (Simulated) [Airplane, Multiengine Land (AMEL); Airplane, Multiengine Sea (AMES)]*

Engine failure (simulated) during takeoff should be accomplished prior to reaching 50 percent of the calculated  $V_{MC}$ .

#### *Task F. Engine Failure After Liftoff (Simulated) (AMEL, AMES)*

The evaluator must not simulate failure of an engine until attaining an altitude of at least 400 feet AGL and at least minimum single-engine speed ( $V_{SSE}$ ), best single-engine angle-of-climb speed ( $V_{XSE}$ ), or best single-engine rate-of-climb ( $V_{YSE}$ ).

#### *Task G. Approach and Landing with an Inoperative Engine (Simulated) [Airplane, Multiengine Land (AMEL); Airplane, Multiengine Sea (AMES)]*

For tests conducted in a propeller-driven airplane (other than those that require a type rating), the evaluator shall require the instructor applicant to simultaneously demonstrate and explain procedures for landing with a simulated feathered propeller with the engine set to zero thrust .

The applicant must simultaneously demonstrate and explain at least one landing with a simulated feathered propeller with the powerplant set to zero thrust. For all other airplanes, follow the manufacturer's recommended procedures.

### ***XIII. Multiengine Operations***

Airplanes 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  $V_{MC}$  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.

# HELP CENTER

**If you have any question,  
we are here to help!**



Reach a Support representative Monday through Friday 8 am to 7 pm ET.

800

## Phone

International 352.375.0772 ext.212

Toll Free 800.874.5346 ext.212



## Email

AviationCITS@gleim.com

**Gleim** AVIATION

GleimAviation.com

