FAA-S-ACS-7B

U.S. Department
of Transportation

**Federal Aviation
Administration**

Commercial Pilot for Airplane Category
Airman Certification Standards

Flight Standards Service
Washington, DC 20591

Foreword

The U.S. Department of Transportation, Federal Aviation Administration (FAA), Office of Safety Standards, Regulatory Support Division, Airman Testing Standards Branch, has published the Commercial Pilot – Airplane Airman Certification Standards (ACS) to communicate the aeronautical knowledge, risk management, and flight proficiency standards for the commercial rating in the airplane category, single-engine land and sea; and multiengine land and sea classes.

This ACS is available for download, in PDF format, from www.faa.gov.

Comments regarding this ACS may be emailed to afs630comments@faa.gov.

Material in FAA-S-ACS-7B supersedes FAA-S-ACS-7A, Commercial Pilot – Airplane Airman Certification Standards, Change 1.

The FAA created FAA-G-ACS-2, Airman Certification Standards Companion Guide for Pilots, to provide guidance considered relevant and useful to the community. FAA-G-ACS-2 is available for download, in PDF format, from www.faa.gov.

Revision History

Document #	Description	Date
FAA-S-8081-12C	Commercial Pilot Practical Test Standards for Airplane (Changes 1-4)	November 2011
FAA-S-ACS-7	Commercial Pilot – Airplane Airman Certification Standards (Changes 1 & 2)	June 12, 2017
FAA-S-ACS-7	Commercial Pilot – Airplane Airman Certification Standards (Changes 1, 2, & 3)	April 19, 2018
FAA-S-ACS-7A	Commercial Pilot – Airplane Airman Certification Standards	June 11, 2018
FAA-S-ACS-7A	Commercial Pilot – Airplane Airman Certification Standards (Change 1)	June 6, 2019
FAA-S-ACS-7B	Commercial Pilot for Airplane Category Airman Certification Standards	TBD

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Introduction

Airman Certification Standards 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. Preflight Preparation

Task A. Pilot Qualifications

References: 14 CFR parts 61, 68, 91; AC 68-1; FAA-H-8083-2, FAA-H-8083-25

Objective: To determine the applicant exhibits satisfactory knowledge, risk management, and skills associated with airman and medical certificates including privileges, limitations, currency, and operating as pilot-in-command as a commercial pilot.

Knowledge:	The applicant demonstrates understanding of:
CA.I.A.K1	Certification requirements, recent flight experience, and recordkeeping.
CA.I.A.K2	Privileges and limitations.
CA.I.A.K3	Medical certificates: class, expiration, privileges, temporary disqualifications.
CA.I.A.K4	Documents required to exercise commercial pilot privileges.
CA.I.A.K5	Part 68 BasicMed privileges and limitations.
Risk Management:	The applicant is able to identify, assess, and mitigate risk associated with:
CA.I.A.R1	Proficiency versus currency.
CA.I.A.R2	Flying unfamiliar aircraft or operating with unfamiliar flight display systems and avionics.
Skills:	The applicant exhibits the skill to:
CA.I.A.S1	Apply requirements to act as pilot-in-command (PIC) under visual flight rules (VFR) in a scenario given by the evaluator.

Task B. Airworthiness Requirements

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

Objective: To determine the applicant exhibits satisfactory knowledge, risk management, and skills associated with airworthiness requirements, including airplane certificates.

Knowledge:	The applicant demonstrates understanding of:
CA.I.B.K1	General airworthiness requirements and compliance for airplanes, including:
CA.I.B.K1a	a. Location and expiration dates of required aircraft certificates
CA.I.B.K1b	b. Required inspections and airplane logbook documentation
CA.I.B.K1c	c. Airworthiness Directives and Special Airworthiness Information Bulletins
CA.I.B.K1d	d. Purpose and procedure for obtaining a special flight permit
CA.I.B.K2	Pilot-performed preventive maintenance.
CA.I.B.K3	Equipment requirements for day and night VFR flight, including:
CA.I.B.K3a	a. Flying with inoperative equipment
CA.I.B.K3b	b. Using an approved Minimum Equipment List (MEL)
CA.I.B.K3c	c. Kinds of Operation Equipment List (KOL)
CA.I.B.K3d	d. Required discrepancy records or placards
CA.I.B.K4	Special airworthiness certificate aircraft operating limitations, if applicable.

Risk Management:	The applicant is able to identify, assess, and mitigate risk associated with:
CA.I.B.R1	Inoperative equipment discovered prior to flight.

Skills:	The applicant exhibits the skill to:
CA.I.B.S1	Locate and describe airplane airworthiness and registration information.
CA.I.B.S2	Determine the airplane is airworthy in the scenario given by the evaluator.
CA.I.B.S3	Apply appropriate procedures for operating with inoperative equipment in the scenario given by the evaluator.

Task C. Weather Information

References: 14 CFR part 91; AC 00-6, AC 00-45, AC 91-92; AIM; FAA-H-8083-25

Objective: To determine the applicant exhibits satisfactory knowledge, risk management, and skills associated with weather information for a flight under VFR.

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

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

Knowledge:	The applicant demonstrates understanding of:
CA.I.C.K1	Sources of weather data (e.g., National Weather Service, Flight Service) for flight planning purposes.
CA.I.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:
CA.I.C.K2a	a. Aviation routine weather reports (METARs) and pilot reports (PIREPs)
CA.I.C.K2b	b. Terminal aerodrome forecasts (TAFs) and graphical forecasts for aviation (GFAs)
CA.I.C.K2c	c. In-flight weather advisories including Airman's Meteorological Information (AIRMET) and Significant Meteorological Information (SIGMET)
CA.I.C.K2d	d. Wind and temperature aloft forecast (FB)
CA.I.C.K2e	e. Surface analysis and weather depiction charts
CA.I.C.K2f	f. Significant weather prognostic charts
CA.I.C.K2g	g. Thunderstorm watches, warnings, and convective activity forecast charts
CA.I.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:
CA.I.C.K3a	a. Atmospheric composition and stability
CA.I.C.K3b	b. Wind (e.g., windshear, mountain wave, factors affecting wind, etc.)
CA.I.C.K3c	c. Temperature and heat exchange
CA.I.C.K3d	d. Moisture/precipitation
CA.I.C.K3e	e. Weather system formation, including air masses and fronts
CA.I.C.K3f	f. Clouds
CA.I.C.K3g	g. Turbulence
CA.I.C.K3h	h. Thunderstorms and microbursts
CA.I.C.K3i	i. Icing and freezing level information
CA.I.C.K3j	j. Fog/mist
CA.I.C.K3k	k. Frost
CA.I.C.K3l	l. Obstructions to visibility (e.g., smoke, haze, volcanic ash, etc.)
CA.I.C.K4	Flight deck instrument displays of digital weather and aeronautical information.

Risk Management:	The applicant is able to identify, assess, and mitigate risk associated with:
CA.I.C.R1	Making the go/no-go and continue/divert decisions, including:

CA.I.C.R1a	a. Circumstances that would make diversion prudent
CA.I.C.R1b	b. Personal weather minimums
CA.I.C.R1c	c. Hazardous weather conditions, including known or forecast icing or turbulence aloft
CA.I.C.R2	Use and limitations of:
CA.I.C.R2a	a. Installed onboard weather equipment
CA.I.C.R2b	b. Aviation weather reports and forecasts
CA.I.C.R2c	c. Inflight weather resources

Skills:	The applicant exhibits the skill to:
CA.I.C.S1	Use available aviation weather resources to obtain an adequate weather briefing.
CA.I.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.
CA.I.C.S3	Correlate weather information to make a go/no-go decision.

Task D. Cross-Country Flight Planning

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

Objective: To determine the applicant exhibits satisfactory knowledge, risk management, and skills associated with cross-country flights and VFR flight planning.

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

Knowledge:	The applicant demonstrates understanding of:
CA.I.D.K1	Route planning, including consideration of different classes and special use airspace (SUA) and selection of appropriate and available navigation/communication systems and facilities.
CA.I.D.K1a	a. Use of an electronic flight bag (EFB), if used
CA.I.D.K2	Altitude selection accounting for terrain and obstacles, glide distance of airplane, VFR cruising altitudes, and effect of wind.
CA.I.D.K3	Calculating:
CA.I.D.K3a	a. Time, climb and descent rates, course, distance, heading, true airspeed, and groundspeed
CA.I.D.K3b	b. Estimated time of arrival, including conversion to universal coordinated time (UTC)
CA.I.D.K3c	c. Fuel requirements, including reserve
CA.I.D.K4	Elements of a VFR flight plan.
CA.I.D.K5	Procedures for filing, activating, and closing a VFR flight plan.
CA.I.D.K6	Inflight intercept procedures.

Risk Management:	The applicant is able to identify, assess, and mitigate risk associated with:
CA.I.D.R1	Pilot.
CA.I.D.R2	Aircraft.
CA.I.D.R3	Environment (e.g., weather, airports, airspace, terrain, obstacles).
CA.I.D.R4	External pressures.
CA.I.D.R5	Limitations of air traffic control (ATC) services.
CA.I.D.R6	Fuel planning.
CA.I.D.R7	Use of an electronic flight bag (EFB), if used.

Skills:	The applicant exhibits the skill to:
CA.I.D.S1	Prepare, present and explain a cross-country flight plan assigned by the evaluator, including a risk analysis based on real-time weather, to the first fuel stop.
CA.I.D.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.
CA.I.D.S3	Create a navigation log and prepare a VFR flight plan.
CA.I.D.S4	Recalculate fuel reserves based on a scenario provided by the evaluator.
CA.I.D.S5	Use an electronic flight bag (EFB), if applicable.

Task E. National Airspace System

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

Objective: To determine the applicant exhibits satisfactory knowledge, risk management, and skills associated with National Airspace System (NAS) operating under VFR as a commercial pilot.

Knowledge:	The applicant demonstrates understanding of:
CA.I.E.K1	Airspace classes and associated requirements and limitations.
CA.I.E.K2	Chart symbols.
CA.I.E.K3	Special use airspace (SUA), special flight rules areas (SFRA), temporary flight restrictions (TFR), and other airspace areas.
CA.I.E.K4	Special visual flight rules (VFR) requirements.
Risk Management:	The applicant is able to identify, assess, and mitigate risk associated with:
CA.I.E.R1	Various classes and types of airspace.
Skills:	The applicant exhibits the skill to:
CA.I.E.S1	Identify and comply with the requirements for basic VFR weather minimums and flying in particular classes of airspace.
CA.I.E.S2	Correctly identify airspace and operate in accordance with associated communication and equipment requirements.
CA.I.E.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 F. Performance and Limitations

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

Objective: To determine the applicant exhibits satisfactory knowledge, risk management, and skills associated with operating an airplane safely within the parameters of its performance capabilities and limitations.

Knowledge:	The applicant demonstrates understanding of:
CA.I.F.K1	Elements related to performance and limitations by explaining the use of charts, tables, and data to determine performance.
CA.I.F.K2	Factors affecting performance, including:
CA.I.F.K2a	a. Atmospheric conditions
CA.I.F.K2b	b. Pilot technique
CA.I.F.K2c	c. Airplane configuration
CA.I.F.K2d	d. Airport environment
CA.I.F.K2e	e. Loading and weight and balance
CA.I.F.K3	Aerodynamics.

Risk Management:	The applicant is able to identify, assess, and mitigate risk associated with:
CA.I.F.R1	Use of performance charts, tables, and data.
CA.I.F.R2	Airplane limitations.
CA.I.F.R3	Possible differences between calculated performance and actual performance.

Skills:	The applicant exhibits the skill to:
CA.I.F.S1	Compute the weight and balance, correct out-of-CG loading errors and determine if the weight and balance remains within limits during all phases of flight.
CA.I.F.S2	Use the appropriate airplane performance charts, tables, and data.

Task G. Operation of Systems

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

Objective: To determine the applicant exhibits satisfactory knowledge, risk management, and skills associated with safe operation of systems on the airplane provided for the flight test.

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

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

Risk Management:	The applicant is able to identify, assess, and mitigate risk associated with:
CA.I.G.R1	Detection of system malfunctions or failures.
CA.I.G.R2	Management of a system failure.
CA.I.G.R3	Monitoring and management of automated systems.

Skills:	The applicant exhibits the skill to:
CA.I.G.S1	Operate at least three of the systems listed in K1a through K1l appropriately.
CA.I.G.S2	Complete the appropriate checklist(s).

Task H. Human Factors

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

Objective: To determine the applicant exhibits satisfactory knowledge, risk management, and skills associated with personal health, flight physiology, and aeromedical and human factors related to safety of flight.

Knowledge:	The applicant demonstrates understanding of:
CA.I.H.K1	Symptoms, recognition, causes, effects, and corrective actions associated with aeromedical and physiological issues, including:
CA.I.H.K1a	a. Hypoxia
CA.I.H.K1b	b. Hyperventilation
CA.I.H.K1c	c. Middle ear and sinus problems
CA.I.H.K1d	d. Spatial disorientation
CA.I.H.K1e	e. Motion sickness
CA.I.H.K1f	f. Carbon monoxide poisoning
CA.I.H.K1g	g. Stress
CA.I.H.K1h	h. Fatigue
CA.I.H.K1i	i. Dehydration and nutrition
CA.I.H.K1j	j. Hypothermia
CA.I.H.K1k	k. Optical illusions
CA.I.H.K1l	l. Dissolved nitrogen in the bloodstream after scuba dives
CA.I.H.K2	Regulations regarding use of alcohol and drugs.
CA.I.H.K3	Effects of alcohol, drugs, and over-the-counter medications.
CA.I.H.K4	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:
CA.I.H.R1	Aeromedical and physiological issues.
CA.I.H.R2	Hazardous attitudes.
CA.I.H.R3	Distractions, task prioritization, loss of situational awareness, or disorientation.
CA.III.H.R4	Confirmation and expectation bias.

Skills:	The applicant exhibits the skill to:
CA.I.H.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).
CA.I.H.S2	Perform self-assessment, including fitness for flight and personal minimums, for actual flight or a scenario given by the evaluator.

Task I. 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-8083-23; POH/AFM; USCG Navigation Rules

Objective: To determine the applicant exhibits satisfactory knowledge, risk management, and skills associated with water and seaplane characteristics, seaplane bases, maritime rules, and aids to marine navigation.

Knowledge:	The applicant demonstrates understanding of:
CA.I.I.K1	The characteristics of a water surface as affected by features, such as:
CA.I.I.K1a	a. Size and location
CA.I.I.K1b	b. Protected and unprotected areas
CA.I.I.K1c	c. Surface wind
CA.I.I.K1d	d. Direction and strength of water current
CA.I.I.K1e	e. Floating and partially submerged debris
CA.I.I.K1f	f. Sandbars, islands, and shoals
CA.I.I.K1g	g. Vessel traffic and wakes
CA.I.I.K1h	h. Direction and height of waves
CA.I.I.K1i	i. Other characteristics specific to the area
CA.I.I.K2	Float and hull construction, and its effect on seaplane performance.
CA.I.I.K3	Causes of porpoising and skipping, and the pilot action needed to prevent or correct these occurrences.
CA.I.I.K4	How to locate and identify seaplane bases on charts or in directories.
CA.I.I.K5	Operating restrictions at various bases.
CA.I.I.K6	Right-of-way, steering, and sailing rules pertinent to seaplane operation.
CA.I.I.K7	Marine navigation aids, such as buoys, beacons, lights, sound signals, and range markers.
CA.I.I.K8	Naval vessel protection zones.
CA.I.I.K9	No wake zones.

Risk Management:	The applicant is able to identify, assess, and mitigate risk associated with:
CA.I.I.R1	Local conditions.
CA.I.I.R2	Impact of marine traffic.
CA.1.I.R3	Right-of-way and sailing rules pertinent to seaplane operations.
CA.1.I.R4	Limited services and assistance available at seaplane bases.

Skills:	The applicant exhibits the skill to:
CA.I.I.S1	Explain how float and hull construction can affect seaplane performance.
CA.I.I.S2	Describe how to correct for porpoising and skipping.
CA.I.I.S3	Identify marine navigation aids.

CA.I.I.S4	Describe correct right-of-way, steering, and sailing operations.
CA.I.I.S5	Assess the water surface characteristics for the proposed flight.
CA.I.I.S6	Identify restrictions at local seaplane bases.

Area of Operation II. Preflight Procedures

Task A. Preflight Assessment

References: AC 00-6; FAA-H-8083-2, FAA-H-8083-3, FAA-H-8083-23; POH/AFM

Objective: To determine the applicant exhibits satisfactory knowledge, risk management, and skills associated with preparation for safe flight.

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

Risk Management:	The applicant is able to identify, assess, and mitigate risk associated with:
CA.II.A.R1	Pilot.
CA.II.A.R2	Aircraft.
CA.II.A.R3	Environment (e.g., weather, airports, airspace, terrain, obstacles).
CA.II.A.R4	External pressures.
CA.II.A.R5	Aviation security concerns.

Skills:	The applicant exhibits the skill to:
CA.II.A.S1	Inspect the airplane with reference to an appropriate checklist.
CA.II.A.S2	Verify the airplane is in condition for safe flight and conforms to its type design.
CA.II.A.S3	Perform self-assessment.
CA.II.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; POH/AFM

Objective: To determine the applicant exhibits satisfactory knowledge, risk management, and skills associated with flight deck management practices.

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

Knowledge:	The applicant demonstrates understanding of:
CA.II.B.K1	Passenger briefing requirements, including operation and required use of safety restraint systems.
CA.II.B.K2	Use of appropriate checklists.
CA.II.B.K3	Requirements for current and appropriate navigation data.
CA.II.B.K4	Securing items and cargo.
Risk Management:	The applicant is able to identify, assess, and mitigate risk associated with:
CA.II.B.R1	Use of systems or equipment, including automation and portable electronic devices.
CA.II.B.R2	Inoperative equipment.
CA.II.B.R3	Passenger distractions.
Skills:	The applicant exhibits the skill to:
CA.II.B.S1	Secure all items in the aircraft.
CA.II.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.
CA.II.B.S3	Properly program and manage the aircraft's automation, as applicable.
CA.II.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-8083-25; POH/AFM

Objective: To determine the applicant exhibits satisfactory knowledge, risk management, and skills associated with recommended engine starting procedures.

Knowledge:	The applicant demonstrates understanding of:
CA.II.C.K1	Starting under various conditions.
CA.II.C.K2	Starting the engine(s) by use of external power.
CA.II.C.K3	Engine limitations as they relate to starting.
Risk Management:	The applicant is able to identify, assess, and mitigate risk associated with:
CA.II.C.R1	Propeller safety.
Skills:	The applicant exhibits the skill to:
CA.II.C.S1	Position the airplane properly considering structures, other aircraft, wind, and the safety of nearby persons and property.
CA.II.C.S2	Complete the appropriate checklist(s).

Task D. Taxiing [Airplane, Single-Engine Land (ASEL), Airplane, Multiengine Land (AMEL)]

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

Objective: To determine the applicant exhibits satisfactory knowledge, risk management, and skills associated with taxi operations, including runway incursion avoidance.

Knowledge:	The applicant demonstrates understanding of:
CA.II.D.K1	Current airport aeronautical references and information resources such as the Chart Supplement, airport diagram, and Notices to Air Missions (NOTAMs).
CA.II.D.K2	Taxi instructions/clearances.
CA.II.D.K3	Airport markings, signs, and lights.
CA.II.D.K4	Visual indicators for wind.
CA.II.D.K5	Aircraft lighting, as appropriate.
CA.II.D.K6	Procedures for:
CA.II.D.K6a	a. Appropriate flight deck activities prior to taxi, including route planning and identifying the location of Hot Spots
CA.II.D.K6b	b. Radio communications at towered and nontowered airports
CA.II.D.K6c	c. Entering or crossing runways
CA.II.D.K6d	d. Night taxi operations
CA.II.D.K6e	e. Low visibility taxi operations
Risk Management:	The applicant is able to identify, assess, and mitigate risk associated with:
CA.II.D.R1	Activities and distractions.
CA.II.D.R2	Confirmation or expectation bias as related to taxi instructions.
CA.II.D.R3	A taxi route or departure runway change.
CA.II.D.R4	Runway incursion.
Skills:	The applicant exhibits the skill to:
CA.II.D.S1	Receive and correctly read back clearances/instructions, if applicable.
CA.II.D.S2	Use an airport diagram or taxi chart during taxi, if published, and maintain situational awareness.
CA.II.D.S3	Position the flight controls for the existing wind, if applicable.
CA.II.D.S4	Complete the appropriate checklist(s).
CA.II.D.S5	Perform a brake check immediately after the airplane begins moving.
CA.II.D.S6	Maintain positive control of the airplane during ground operations by controlling direction and speed without excessive use of brakes.
CA.II.D.S7	Comply with airport/taxiway markings, signals, and air traffic control (ATC) clearances and instructions.
CA.II.D.S8	Position the airplane properly relative to hold lines.

Task E. Taxiing and Sailing [Airplane, Single-Engine Sea (ASES); Airplane, Multiengine Sea (AMES)]

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

Objective: To determine the applicant exhibits satisfactory knowledge, risk management, and skills associated with taxiing and sailing operations, including runway incursion avoidance.

Knowledge:	The applicant demonstrates understanding of:
CA.II.E.K1	Airport information resources, including Chart Supplements, airport diagram, and appropriate references.
CA.II.E.K2	Taxi instructions/clearances.
CA.II.E.K3	Airport/seaplane base markings, signs, and lights.
CA.II.E.K4	Visual indicators for wind.
CA.II.E.K5	Airplane lighting.
CA.II.E.K6	Procedures for:
CA.II.E.K6a	a. Appropriate flight deck activities during taxiing or sailing
CA.II.E.K6b	b. Radio communications at towered and nontowered seaplane bases

Risk Management:	The applicant is able to identify, assess, and mitigate risk associated with:
CA.II.E.R1	Activities and distractions.
CA.II.E.R2	Porpoising and skipping.
CA.II.E.R3	Low visibility taxi and sailing operations.
CA.II.E.R4	Other aircraft, vessels, and hazards.
CA.II.E.R5	Confirmation or expectation bias as related to taxi instructions.

Skills:	The applicant exhibits the skill to:
CA.II.E.S1	Receive and correctly read back clearances/instructions, if applicable.
CA.II.E.S2	Use an appropriate airport diagram or taxi chart, if published.
CA.II.E.S3	Comply with seaplane base/airport/taxiway markings, signals, and signs.
CA.II.E.S4	Depart the dock/mooring buoy or beach/ramp in a safe manner, considering wind, current, traffic, and hazards.
CA.II.E.S5	Complete the appropriate checklist(s).
CA.II.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.
CA.II.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.
CA.II.E.S8	Plan and follow the most favorable taxi or sailing course for current conditions.
CA.II.E.S9	Abide by right-of-way rules, maintain positive airplane control, proper speed, and separation between other aircraft, vessels, and persons.
CA.II.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-8083-23; POH/AFM

Objective: To determine the applicant exhibits satisfactory knowledge, risk management, and skills associated with before takeoff check.

Knowledge:	The applicant demonstrates understanding of:
CA.II.F.K1	Purpose of before takeoff checklist items, including:
CA.II.F.K1a	a. Reasons for checking each item
CA.II.F.K1b	b. Detecting malfunctions
CA.II.F.K1c	c. Ensuring the aircraft is in safe operating condition as recommended by the manufacturer

Risk Management:	The applicant is able to identify, assess, and mitigate risk associated with:
CA.II.F.R1	Division of attention while conducting before takeoff checks.
CA.II.F.R2	Unexpected runway changes by air traffic control (ATC).
CA.II.F.R3	Wake turbulence.
CA.II.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 exhibits the skill to:
CA.II.F.S1	Review takeoff performance.
CA.II.F.S2	Complete the appropriate checklist(s).
CA.II.F.S3	Position the airplane appropriately considering wind direction and the presence of any aircraft, vessels, or buildings as applicable.
CA.II.F.S4	Divide attention inside and outside the flight deck.
CA.II.F.S5	Verify that engine parameters and airplane configuration are suitable.

Area of Operation III. Airport and Seaplane Base Operations

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-8083-25

Objective: To determine the applicant exhibits satisfactory knowledge, risk management, and skills associated with normal and emergency radio communications, air traffic control (ATC) light signals, and runway lighting systems.

Knowledge:	The applicant demonstrates understanding of:
CA.III.A.K1	How to obtain appropriate radio frequencies.
CA.III.A.K2	Proper radio communication procedures and air traffic control (ATC) phraseology.
CA.III.A.K3	ATC light signal recognition.
CA.III.A.K4	Appropriate use of transponder(s).
CA.III.A.K5	Lost communication procedures.
CA.III.A.K6	Equipment issues that could cause loss of communication.
CA.III.A.K7	Radar assistance.
CA.III.A.K8	National Transportation Safety Board (NTSB) accident/incident reporting.
CA.III.A.K9	Runway Status Lighting Systems.

Risk Management:	The applicant is able to identify, assess, and mitigate risk associated with:
CA.III.A.R1	Communication.
CA.III.A.R2	Deciding if and when to declare an emergency.
CA.III.A.R3	Use of non-standard phraseology.

Skills:	The applicant exhibits the skill to:
CA.III.A.S1	Select and activate appropriate frequencies.
CA.III.A.S2	Transmit using standard phraseology and procedures as specified in the aeronautical information manual (AIM) and Pilot/Controller Glossary.
CA.III.A.S3	Acknowledge radio communications and comply with ATC instructions or as directed by the evaluator.

Task B. Traffic Patterns

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

Objective: To determine the applicant exhibits satisfactory knowledge, risk management, and skills associated with traffic patterns.

Knowledge:	The applicant demonstrates understanding of:
CA.III.B.K1	Towered and nontowered airport operations.
CA.III.B.K2	Traffic pattern selection for the current conditions.
CA.III.B.K3	Right-of-way rules.
CA.III.B.K4	Use of automated weather and airport information.
Risk Management:	The applicant is able to identify, assess, and mitigate risk associated with:
CA.III.B.R1	Collision hazards.
CA.III.B.R2	Distractions, task prioritization, loss of situational awareness, or disorientation.
CA.III.B.R3	Windshear and wake turbulence.
Skills:	The applicant exhibits the skill to:
CA.III.B.S1	Identify and interpret airport/seaplane base runways, taxiways, markings, signs, and lighting.
CA.III.B.S2	Comply with recommended traffic pattern procedures.
CA.III.B.S3	Correct for wind drift to maintain the proper ground track.
CA.III.B.S4	Maintain orientation with the runway/landing area in use.
CA.III.B.S5	Maintain traffic pattern altitude, ±100 feet, and the appropriate airspeed, ±10 knots.
CA.III.B.S6	Maintain situational awareness and proper spacing from other aircraft in the traffic pattern.

Area of Operation IV. Takeoffs, Landings, and Go-Arounds

Task A. Normal Takeoff and Climb

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

Objective: To determine the applicant exhibits satisfactory knowledge, risk management, and skills associated with normal takeoff, climb operations, and rejected takeoff procedures.

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 understanding of:
CA.IV.A.K1	Effects of atmospheric conditions, including wind, on takeoff and climb performance.
CA.IV.A.K2	Best angle of climb speed (V_X) and best rate of climb speed (V_Y).
CA.IV.A.K3	Appropriate airplane configuration.
Risk Management:	The applicant is able to identify, assess, and mitigate risk associated with:
CA.IV.A.R1	Selection of runway or takeoff path based on aircraft performance and limitations, available distance, and wind.
CA.IV.A.R2	Effects of:
CA.IV.A.R2a	a. Crosswind
CA.IV.A.R2b	b. Windshear
CA.IV.A.R2c	c. Tailwind
CA.IV.A.R2d	d. Wake turbulence
CA.IV.A.R2e	e. Takeoff surface/condition
CA.IV.A.R3	Abnormal operations, including planning for:
CA.IV.A.R3a	a. Rejected takeoff
CA.IV.A.R3b	b. Potential engine failure in takeoff/climb phase of flight
CA.IV.A.R4	Collision hazards.
CA.IV.A.R5	Low altitude maneuvering, including stall, spin, or controlled flight into terrain (CFIT).
CA.IV.A.R6	Distractions, task prioritization, loss of situational awareness, or disorientation.
CA.IV.A.R7	Runway incursion.
Skills:	The applicant exhibits the skill to:
CA.IV.A.S1	Complete the appropriate checklist(s).
CA.IV.A.S2	Make radio calls as appropriate.
CA.IV.A.S3	Verify assigned/correct runway or takeoff path.
CA.IV.A.S4	Determine wind direction with or without visible wind direction indicators.
CA.IV.A.S5	Position the flight controls for the existing wind, if applicable.

CA.IV.A.S6	Clear the area, taxi into takeoff position and align the airplane on the runway centerline [Airplane, Single-Engine Land (ASEL); Airplane, Multiengine Land (AMEL)] or takeoff path Airplane, Single-Engine Sea (ASES), Airplane, Multiengine Sea (AMES)].
CA.IV.A.S7	Retract the water rudders, as appropriate (ASES, AMES).
CA.IV.A.S8	Advance the throttle smoothly to takeoff power and confirm proper engine and flight instrument indications prior to rotation.
CA.IV.A.S9	Avoid excessive water spray on the propeller(s) (ASES, AMES).
CA.IV.A.S10	Establish and maintain the most efficient planing/lift-off attitude, and correct for porpoising or skipping (ASES, AMES).
CA.IV.A.S11	Rotate and lift off at the recommended airspeed and accelerate to V_Y.
CA.IV.A.S12	Establish a pitch attitude to maintain the manufacturer's recommended speed or V_Y, ±5 knots.
CA.IV.A.S13	Configure the airplane in accordance with manufacturer's guidance.
CA.IV.A.S14	Maintain V_Y ±5 knots to a safe maneuvering altitude.
CA.IV.A.S15	Maintain directional control and proper wind-drift correction throughout takeoff and climb.
CA.IV.A.S16	Comply with noise abatement procedures, as applicable.

Task B. Normal Approach and Landing

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

Objective: To determine the applicant exhibits satisfactory knowledge, risk management, and skills associated with normal approach and landing with emphasis on proper use and coordination of flight controls.

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

Knowledge:	The applicant demonstrates understanding of:
CA.IV.B.K1	A stabilized approach, including energy management concepts.
CA.IV.B.K2	Effects of atmospheric conditions, including wind, on approach and landing performance.
CA.IV.B.K3	Wind correction techniques on approach and landing.
Risk Management:	The applicant is able to identify, assess, and mitigate risk associated with:
CA.IV.B.R1	Selection of runway/landing surface, approach path, and touchdown area based on pilot capability, aircraft performance and limitations, available distance, and wind.
CA.IV.B.R2	Effects of:
CA.IV.B.R2a	a. Crosswind
CA.IV.B.R2b	b. Windshear
CA.IV.B.R2c	c. Tailwind
CA.IV.B.R2d	d. Wake turbulence
CA.IV.B.R2e	e. Landing surface/condition
CA.IV.B.R3	Planning for:
CA.IV.B.R3a	a. Rejected landing and go-around
CA.IV.B.R3b	b. Land and hold short operations (LAHSO)
CA.IV.B.R4	Collision hazards.
CA.IV.B.R5	Low altitude maneuvering, including stall, spin, or controlled flight into terrain (CFIT).
CA.IV.B.R6	Distractions, task prioritization, loss of situational awareness, or disorientation.
Skills:	The applicant exhibits the skill to:
CA.IV.B.S1	Complete the appropriate checklist(s).
CA.IV.B.S2	Make radio calls as appropriate.
CA.IV.B.S3	Ensure the airplane is aligned with the correct/assigned runway or landing surface.
CA.IV.B.S4	Scan the runway or landing surface and adjoining area for traffic and obstructions.
CA.IV.B.S5	Select and aim for a suitable touchdown point considering the wind conditions, landing surface, and obstructions.
CA.IV.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.

CA.IV.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}), ±5 knots with gust factor applied.
CA.IV.B.S8	Maintain directional control and appropriate crosswind correction throughout the approach and landing.
CA.IV.B.S9	Make smooth, timely, and correct control application during round out and touchdown.
CA.IV.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.
CA.IV.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.
CA.IV.B.S12	Use runway incursion avoidance procedures, if applicable.

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

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

Objective: To determine the applicant exhibits satisfactory knowledge, risk management, and skills associated with soft-field takeoff, climb operations, and rejected takeoff procedures.

Knowledge:	The applicant demonstrates understanding of:
CA.IV.C.K1	Effects of atmospheric conditions, including wind, on takeoff and climb performance.
CA.IV.C.K2	Best angle of climb speed (V_X) and best rate of climb speed (V_Y).
CA.IV.C.K3	Appropriate airplane configuration.
CA.IV.C.K4	Ground effect.
CA.IV.C.K5	Importance of weight transfer from wheels to wings.
CA.IV.C.K6	Left turning tendencies.

Risk Management:	The applicant is able to identify, assess, and mitigate risk associated with:
CA.IV.C.R1	Selection of runway based on pilot capability, airplane performance and limitations, available distance, and wind.
CA.IV.C.R2	Effects of:
CA.IV.C.R2a	a. Crosswind
CA.IV.C.R2b	b. Windshear
CA.IV.C.R2c	c. Tailwind
CA.IV.C.R2d	d. Wake turbulence
CA.IV.C.R2e	e. Takeoff surface/condition
CA.IV.C.R3	Abnormal operations, including planning for:
CA.IV.C.R3a	a. Rejected takeoff
CA.IV.C.R3b	b. Potential engine failure in takeoff/climb phase of flight
CA.IV.C.R4	Collision hazards.
CA.IV.C.R5	Low altitude maneuvering, including stall, spin, or controlled flight into terrain (CFIT).
CA.IV.C.R6	Distractions, task prioritization, loss of situational awareness, or disorientation.

Skills:	The applicant exhibits the skill to:
CA.IV.C.S1	Complete the appropriate checklist(s).
CA.IV.C.S2	Make radio calls as appropriate.
CA.IV.C.S3	Verify assigned/correct runway.
CA.IV.C.S4	Determine wind direction with or without visible wind direction indicators.
CA.IV.C.S5	Position the flight controls for the existing wind, if applicable.
CA.IV.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.

CA.IV.C.S7	Confirm takeoff power and proper engine and flight instrument indications.
CA.IV.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.
CA.IV.C.S9	Lift off at the lowest possible airspeed and remain in ground effect while accelerating to V_X or V_Y, as appropriate.
CA.IV.C.S10	Establish a pitch attitude for V_X or V_Y, as appropriate, and maintain selected airspeed ±5 knots during the climb.
CA.IV.C.S11	Configure the airplane after a positive rate of climb has been verified or in accordance with airplane manufacturer's instructions.
CA.IV.C.S12	Maintain V_X or V_Y, as appropriate, ±5 knots to a safe maneuvering altitude.
CA.IV.C.S13	Maintain directional control and proper wind-drift correction throughout takeoff and climb.
CA.IV.C.S14	Comply with noise abatement procedures, as applicable.

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

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

Objective: To determine the applicant exhibits satisfactory knowledge, risk management, and skills associated with soft-field approach and landing with emphasis on proper use and coordination of flight controls.

Knowledge:	The applicant demonstrates understanding of:
CA.IV.D.K1	A stabilized approach, including energy management concepts.
CA.IV.D.K2	Effects of atmospheric conditions, including wind, on approach and landing performance.
CA.IV.D.K3	Wind correction techniques on approach and landing.
Risk Management:	The applicant is able to identify, assess, and mitigate risk associated with:
CA.IV.D.R1	Selection of runway based on pilot capability, airplane performance and limitations, available distance, and wind.
CA.IV.D.R2	Effects of:
CA.IV.D.R2a	a. Crosswind
CA.IV.D.R2b	b. Windshear
CA.IV.D.R2c	c. Tailwind
CA.IV.D.R2d	d. Wake turbulence
CA.IV.D.R2e	e. Landing surface/condition
CA.IV.D.R3	Planning for:
CA.IV.D.R3a	a. Rejected landing and go-around
CA.IV.D.R3b	b. Land and hold short operations (LAHSO)
CA.IV.D.R4	Collision hazards.
CA.IV.D.R5	Low altitude maneuvering, including stall, spin, or controlled flight into terrain (CFIT).
CA.IV.D.R6	Distractions, task prioritization, loss of situational awareness, or disorientation.
Skills:	The applicant exhibits the skill to:
CA.IV.D.S1	Complete the appropriate checklist(s).
CA.IV.D.S2	Make radio calls as appropriate.
CA.IV.D.S3	Ensure the airplane is aligned with the correct/assigned runway.
CA.IV.D.S4	Scan the landing runway and adjoining area for traffic and obstructions.
CA.IV.D.S5	Select and aim for a suitable touchdown point considering the wind conditions, landing surface, and obstructions.
CA.IV.D.S6	Establish the recommended approach and landing configuration, airspeed, and trim, and adjust pitch attitude and power as required to maintain a stabilized approach.
CA.IV.D.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}), ±5 knots with gust factor applied.

CA.IV.D.S8	Maintain directional control and appropriate crosswind correction throughout the approach and landing.
CA.IV.D.S9	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.
CA.IV.D.S10	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.
CA.IV.D.S11	Maintain elevator as recommended by manufacturer during rollout and exit the "soft" area at a speed that would preclude sinking into the surface.
CA.IV.D.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.
CA.IV.D.S13	Maintain proper position of the flight controls and sufficient speed to taxi while on the soft surface.

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

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

Objective: To determine the applicant exhibits satisfactory knowledge, risk management, and skills associated with short-field takeoff, maximum performance climb operations, and rejected takeoff procedures.

Knowledge:	The applicant demonstrates understanding of:
CA.IV.E.K1	Effects of atmospheric conditions, including wind, on approach and landing performance.
CA.IV.E.K2	Best angle of climb speed (V_X) and best rate of climb speed (V_Y).
CA.IV.E.K3	Appropriate airplane configuration.
Risk Management:	The applicant is able to identify, assess, and mitigate risk associated with:
CA.IV.E.R1	Selection of runway based on pilot capability, airplane performance and limitations, available distance, and wind.
CA.IV.E.R2	Effects of:
CA.IV.E.R2a	a. Crosswind
CA.IV.E.R2b	b. Windshear
CA.IV.E.R2c	c. Tailwind
CA.IV.E.R2d	d. Wake turbulence
CA.IV.E.R2e	e. Takeoff surface/condition
CA.IV.E.R3	Abnormal operations, including planning for:
CA.IV.E.R3a	a. Rejected takeoff
CA.IV.E.R3b	b. Potential engine failure in takeoff/climb phase of flight
CA.IV.E.R4	Collision hazards.
CA.IV.E.R5	Low altitude maneuvering, including stall, spin, or controlled flight into terrain (CFIT).
CA.IV.E.R6	Distractions, task prioritization, loss of situational awareness, or disorientation.
Skills:	The applicant exhibits the skill to:
CA.IV.E.S1	Complete the appropriate checklist(s).
CA.IV.E.S2	Make radio calls as appropriate.
CA.IV.E.S3	Verify assigned/correct runway.
CA.IV.E.S4	Determine wind direction with or without visible wind direction indicators.
CA.IV.E.S5	Position the flight controls for the existing wind, if applicable.
CA.IV.E.S6	Clear the area, taxi into takeoff position and align the airplane on the runway centerline utilizing maximum available takeoff area.
CA.IV.E.S7	Apply brakes while setting engine power to achieve maximum performance.
CA.IV.E.S8	Confirm takeoff power prior to brake release and verify proper engine and flight instrument indications prior to rotation.

CA.IV.E.S9	Rotate and lift off at the recommended airspeed and accelerate to the recommended obstacle clearance airspeed or V_X, ±5 knots.
CA.IV.E.S10	Establish a pitch attitude to maintain the recommended obstacle clearance airspeed or V_X, ±5 knots until the obstacle is cleared or until the airplane is 50 feet above the surface.
CA.IV.E.S11	Establish a pitch attitude for V_Y and accelerate to V_Y ±5 knots after clearing the obstacle or at 50 feet above ground level (AGL) if simulating an obstacle.
CA.IV.E.S12	Configure the airplane in accordance with the manufacturer's guidance after a positive rate of climb has been verified.
CA.IV.E.S13	Maintain V_Y ±5 knots to a safe maneuvering altitude.
CA.IV.E.S14	Maintain directional control and proper wind-drift correction throughout takeoff and climb.
CA.IV.E.S15	Comply with noise abatement procedures, as applicable.

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

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

Objective: To determine the applicant exhibits satisfactory knowledge, risk management, and skills associated with short-field approach and landing with emphasis on proper use and coordination of flight controls.

Knowledge:	The applicant demonstrates understanding of:
CA.IV.F.K1	A stabilized approach, including energy management concepts.
CA.IV.F.K2	Effects of atmospheric conditions, including wind, on approach and landing performance.
CA.IV.F.K3	Wind correction techniques on approach and landing.
Risk Management:	The applicant is able to identify, assess, and mitigate risk associated with:
CA.IV.F.R1	Selection of runway based on pilot capability, airplane performance and limitations, available distance, and wind.
CA.IV.F.R2	Effects of:
CA.IV.F.R2a	a. Crosswind
CA.IV.F.R2c	b. Tailwind
CA.IV.F.R2d	c. Wake turbulence
CA.IV.F.R2b	d. Windshear
CA.IV.F.R2e	e. Landing surface/condition
CA.IV.F.R3	Planning for:
CA.IV.F.R3a	a. Rejected landing and go-around
CA.IV.F.R3b	b. Land and hold short operations (LAHSO)
CA.IV.F.R4	Collision hazards.
CA.IV.F.R5	Low altitude maneuvering, including stall, spin, or controlled flight into terrain (CFIT).
CA.IV.F.R6	Distractions, task prioritization, loss of situational awareness, or disorientation.
Skills:	The applicant exhibits the skill to:
CA.IV.F.S1	Complete the appropriate checklist(s).
CA.IV.F.S2	Make radio calls as appropriate.
CA.IV.F.S3	Ensure the airplane is aligned with the correct/assigned runway.
CA.IV.F.S4	Scan the landing runway and adjoining area for traffic and obstructions.
CA.IV.F.S5	Select and aim for a suitable touchdown point considering the wind conditions, landing surface, and obstructions.
CA.IV.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.
CA.IV.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}), ±5 knots with gust factor applied.

CA.IV.F.S8	Maintain directional control and appropriate crosswind correction throughout the approach and landing.
CA.IV.F.S9	Make smooth, timely, and correct control application before, during, and after touchdown.
CA.IV.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.
CA.IV.F.S11	Use manufacturer's recommended procedures for airplane configuration and braking.
CA.IV.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.
CA.IV.F.S13	Use runway incursion avoidance procedures, if applicable.

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

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

Objective: To determine the applicant exhibits satisfactory knowledge, risk management, and skills associated with confined area takeoff and maximum performance climb.

Knowledge:	The applicant demonstrates understanding of:
CA.IV.G.K1	Effects of atmospheric conditions, including wind, on takeoff and climb performance.
CA.IV.G.K2	Best angle of climb speed (V_X) and best rate of climb speed (V_Y).
CA.IV.G.K3	Appropriate airplane configuration.
CA.IV.G.K4	Effects of water surface.
Risk Management:	The applicant is able to identify, assess, and mitigate risk associated with:
CA.IV.G.R1	Selection of takeoff path based on pilot capability, airplane performance and limitations, available distance, and wind.
CA.IV.G.R2	Effects of:
CA.IV.G.R2a	a. Crosswind
CA.IV.G.R2b	b. Windshear
CA.IV.G.R2c	c. Tailwind
CA.IV.G.R2d	d. Wake turbulence
CA.IV.G.R2e	e. Water surface/condition
CA.IV.G.R3	Abnormal operations, including planning for:
CA.IV.G.R3a	a. Rejected takeoff
CA.IV.G.R3b	b. Potential engine failure in takeoff/climb phase of flight
CA.IV.G.R4	Collision hazards.
CA.IV.G.R5	Low altitude maneuvering, including stall, spin, or controlled flight into terrain (CFIT).
CA.IV.G.R6	Distractions, task prioritization, loss of situational awareness, or disorientation.
Skills:	The applicant exhibits the skill to:
CA.IV.G.S1	Complete the appropriate checklist(s).
CA.IV.G.S2	Make radio calls as appropriate.
CA.IV.G.S3	Verify assigned/correct takeoff path.
CA.IV.G.S4	Determine wind direction with or without visible wind direction indicators.
CA.IV.G.S5	Position the flight controls for the existing wind, if applicable.
CA.IV.G.S6	Clear the area, taxi into takeoff position utilizing maximum available takeoff area and align the airplane on the takeoff path.
CA.IV.G.S7	Retract the water rudders, as appropriate.

CA.IV.G.S8 Establish a pitch attitude that maintains the most efficient planing/lift-off attitude and correct for porpoising and skipping.

CA.IV.G.S9 Advance the throttle smoothly to takeoff power and confirm proper engine and flight instrument indications prior to rotation.

CA.IV.G.S10 Avoid excessive water spray on the propeller(s).

CA.IV.G.S11 Rotate and lift off at the recommended airspeed, and accelerate to the recommended obstacle clearance airspeed or V_X.

CA.IV.G.S12 Establish a pitch attitude to maintain the recommended obstacle clearance airspeed or V_X, ±5 knots until the obstacle is cleared or until the airplane is 50 feet above the surface.

CA.IV.G.S13 Establish a pitch attitude for V_Y and accelerate to V_Y ±5 knots after clearing the obstacle or at 50 feet above ground level (AGL) if simulating an obstacle.

CA.IV.G.S14 Retract flaps, if extended, after a positive rate of climb has been verified or in accordance with airplane manufacturer's guidance.

CA.IV.G.S15 Maintain V_Y ±5 knots to a safe maneuvering altitude.

CA.IV.G.S16 Maintain directional control and proper wind-drift correction throughout takeoff and climb.

CA.IV.G.S17 Comply with noise abatement procedures, as applicable.

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

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

Objective: To determine the applicant exhibits satisfactory knowledge, risk management, and skills associated with confined area approach and landing.

Knowledge:	The applicant demonstrates understanding of:
CA.IV.H.K1	A stabilized approach, including energy management concepts.
CA.IV.H.K2	Effects of atmospheric conditions, including wind, on approach and landing performance.
CA.IV.H.K3	Wind correction techniques on approach and landing.
Risk Management:	The applicant is able to identify, assess, and mitigate risk associated with:
CA.IV.H.R1	Selection of approach path and touchdown area based on pilot capability, airplane performance and limitations, available distance, and wind.
CA.IV.H.R2	Effects of:
CA.IV.H.R2a	a. Crosswind
CA.IV.H.R2b	b. Windshear
CA.IV.H.R2c	c. Tailwind
CA.IV.H.R2d	d. Wake turbulence
CA.IV.H.R2e	e. Water surface/condition
CA.IV.H.R3	Planning for a go-around and rejected landing.
CA.IV.H.R4	Collision hazards.
CA.IV.H.R5	Low altitude maneuvering, including stall, spin, or controlled flight into terrain (CFIT).
CA.IV.H.R6	Distractions, task prioritization, loss of situational awareness, or disorientation.
Skills:	The applicant exhibits the skill to:
CA.IV.H.S1	Complete the appropriate checklist(s).
CA.IV.H.S2	Make radio calls as appropriate.
CA.IV.H.S3	Ensure the airplane is aligned for an approach to the correct/assigned landing surface.
CA.IV.H.S4	Scan the landing area for traffic and obstructions.
CA.IV.H.S5	Select and aim for a suitable touchdown point considering the wind conditions, landing surface, and obstructions.
CA.IV.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.
CA.IV.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.
CA.IV.H.S8	Maintain directional control and appropriate crosswind correction throughout the approach and landing.
CA.IV.H.S9	Make smooth, timely, and correct control application before, during, and after touchdown.

CA.IV.H.S10	Contact the water at the recommended airspeed with a proper pitch attitude for the surface conditions.
CA.IV.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.
CA.IV.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.
CA.IV.H.S13	Apply elevator control as necessary to stop in the shortest distance consistent with safety.

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

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

Objective: To determine the applicant exhibits satisfactory knowledge, risk management, and skills associated with glassy water takeoff and climb.

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

Knowledge:	The applicant demonstrates understanding of:
CA.IV.I.K1	Effects of atmospheric conditions, including wind, on takeoff and climb performance.
CA.IV.I.K2	Best angle of climb speed (V_X) and best rate of climb speed (V_Y).
CA.IV.I.K3	Appropriate airplane configuration.
CA.IV.I.K4	Appropriate use of glassy water takeoff and climb technique.
Risk Management:	The applicant is able to identify, assess, and mitigate risk associated with:
CA.IV.I.R1	Selection of takeoff path based on pilot capability, airplane performance and limitations, and available distance.
CA.IV.I.R2	Water surface/condition.
CA.IV.I.R3	Abnormal operations, including planning for:
CA.IV.I.R3a	a. Rejected takeoff
CA.IV.I.R3b	b. Potential engine failure in takeoff/climb phase of flight
CA.IV.I.R4	Collision hazards.
CA.IV.I.R5	Low altitude maneuvering, including stall, spin, or controlled flight into terrain (CFIT).
CA.IV.I.R6	Distractions, task prioritization, loss of situational awareness, or disorientation.
CA.IV.I.R7	Gear position in an amphibious airplane.
Skills:	The applicant exhibits the skill to:
CA.IV.I.S1	Complete the appropriate checklist(s).
CA.IV.I.S2	Make radio calls as appropriate.
CA.IV.I.S3	Position flight controls and configure the aircraft for the existing conditions.
CA.IV.I.S4	Clear the area, select appropriate takeoff path considering surface hazards or vessels and surface conditions.
CA.IV.I.S5	Retract the water rudders, as appropriate.
CA.IV.I.S6	Advance the throttle smoothly to takeoff power and confirm proper engine and flight instrument indications prior to rotation.
CA.IV.I.S7	Establish and maintain an appropriate planing attitude, directional control, and correct for porpoising, skipping, and increase in water drag.
CA.IV.I.S8	Avoid excessive water spray on the propeller(s).
CA.IV.I.S9	Use appropriate techniques to lift seaplane from the water considering surface conditions.
CA.IV.I.S10	Establish proper attitude/airspeed and accelerate to V_Y ±5 knots during the climb.

CA.IV.I.S11	Configure the airplane after a positive rate of climb has been verified or in accordance with airplane manufacturer's instructions.
CA.IV.I.S12	Maintain V_Y ±5 knots to a safe maneuvering altitude.
CA.IV.I.S13	Maintain directional control throughout takeoff and climb.

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

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

Objective: To determine the applicant exhibits satisfactory knowledge, risk management, and skills associated with glassy water approach and landing.

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

Knowledge:	The applicant demonstrates understanding of:
CA.IV.J.K1	A stabilized approach, including energy management concepts.
CA.IV.J.K2	Effects of atmospheric conditions, including wind, on approach and landing performance.
CA.IV.J.K3	When and why glassy water techniques are used.
CA.IV.J.K4	How a glassy water approach and landing is executed.
Risk Management:	The applicant is able to identify, assess, and mitigate risk associated with:
CA.IV.J.R1	Selection of approach path and touchdown area based on pilot capability, airplane performance and limitations, and available distance.
CA.IV.J.R2	Water surface/condition.
CA.IV.J.R3	Planning for a go-around and rejected landing.
CA.IV.J.R4	Collision hazards.
CA.IV.J.R5	Low altitude maneuvering, including stall, spin, or controlled flight into terrain (CFIT).
CA.IV.J.R6	Distractions, task prioritization, loss of situational awareness, or disorientation.
CA.IV.J.R7	Gear position in an amphibious airplane.
Skills:	The applicant exhibits the skill to:
CA.IV.J.S1	Complete the appropriate checklist(s).
CA.IV.J.S2	Make radio calls as appropriate.
CA.IV.J.S3	Scan the landing area for traffic and obstructions.
CA.IV.J.S4	Select a proper approach and landing path considering the landing surface, visual attitude references, water depth, and collision hazards.
CA.IV.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.
CA.IV.J.S6	Maintain manufacturer's published approach airspeed or in its absence not more than 1.3 V_{SO}, ±5 knots.
CA.IV.J.S7	Make smooth, timely, and correct power and control adjustments to maintain proper pitch attitude and rate of descent to touchdown.
CA.IV.J.S8	Contact the water in a proper pitch attitude, and slow to idle taxi speed.
CA.IV.J.S9	Maintain directional control throughout the approach and landing.

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

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

Objective: To determine the applicant exhibits satisfactory knowledge, risk management, and skills associated with rough water takeoff and climb.

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

Knowledge:	The applicant demonstrates understanding of:
CA.IV.K.K1	Effects of atmospheric conditions, including wind, on takeoff and climb performance.
CA.IV.K.K2	Best angle of climb speed (V_X) and best rate of climb speed (V_Y).
CA.IV.K.K3	Appropriate airplane configuration.
CA.IV.K.K4	Appropriate use of rough water takeoff and climb technique.
Risk Management:	The applicant is able to identify, assess, and mitigate risk associated with:
CA.IV.K.R1	Selection of takeoff path based on pilot capability, airplane performance and limitations, available distance, and wind.
CA.IV.K.R2	Effects of:
CA.IV.K.R2a	a. Crosswind
CA.IV.K.R2b	b. Windshear
CA.IV.K.R2c	c. Tailwind
CA.IV.K.R2d	d. Wake turbulence
CA.IV.K.R2e	e. Water surface/condition
CA.IV.K.R3	Abnormal operations, including planning for:
CA.IV.K.R3a	a. Rejected takeoff
CA.IV.K.R3b	b. Potential engine failure in takeoff/climb phase of flight
CA.IV.K.R4	Collision hazards.
CA.IV.K.R5	Low altitude maneuvering, including stall, spin, or controlled flight into terrain (CFIT).
CA.IV.K.R6	Distractions, task prioritization, loss of situational awareness, or disorientation.
CA.IV.K.R7	Gear position in an amphibious airplane.
Skills:	The applicant exhibits the skill to:
CA.IV.K.S1	Complete the appropriate checklist(s).
CA.IV.K.S2	Make radio calls as appropriate.
CA.IV.K.S3	Verify assigned/correct takeoff path.
CA.IV.K.S4	Determine wind direction with or without visible wind direction indicators.
CA.IV.K.S5	Position flight controls and configure the airplane for the existing conditions.
CA.IV.K.S6	Clear the area, select an appropriate takeoff path considering wind, swells, surface hazards, or vessels.

CA.IV.K.S7 Retract the water rudders, as appropriate.

CA.IV.K.S8 Advance the throttle smoothly to takeoff power and confirm proper engine and flight instrument indications prior to rotation.

CA.IV.K.S9 Establish and maintain an appropriate planing attitude, directional control, and correct for porpoising, skipping, and increase in water drag.

CA.IV.K.S10 Avoid excessive water spray on the propeller(s).

CA.IV.K.S11 Lift off at minimum airspeed and accelerate to V_Y ±5 knots before leaving ground effect.

CA.IV.K.S12 Configure the airplane after a positive rate of climb has been verified or in accordance with airplane manufacturer's instructions.

CA.IV.K.S13 Maintain V_Y ±5 knots to a safe maneuvering altitude.

CA.IV.K.S14 Maintain directional control and proper wind-drift correction throughout takeoff and climb.

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

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

Objective: To determine the applicant exhibits satisfactory knowledge, risk management, and skills associated with rough water approach and landing.

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

Knowledge:	The applicant demonstrates understanding of:
CA.IV.L.K1	A stabilized approach, including energy management concepts.
CA.IV.L.K2	Effects of atmospheric conditions, including wind, on approach and landing performance.
CA.IV.L.K3	Wind correction techniques on approach and landing.
CA.IV.L.K4	When and why rough water techniques are used.
CA.IV.L.K5	How to perform a proper rough water approach and landing.
Risk Management:	The applicant is able to identify, assess, and mitigate risk associated with:
CA.IV.L.R1	Selection of approach path and touchdown area based on pilot capability, airplane performance and limitations, available distance, and wind.
CA.IV.L.R2	Effects of:
CA.IV.L.R2a	a. Crosswind
CA.IV.L.R2b	b. Windshear
CA.IV.L.R2c	c. Tailwind
CA.IV.L.R2d	d. Wake turbulence
CA.IV.L.R2e	e. Water surface/condition
CA.IV.L.R3	Planning for a go-around and rejected landing.
CA.IV.L.R4	Collision hazards.
CA.IV.L.R5	Low altitude maneuvering, including stall, spin, or controlled flight into terrain (CFIT).
CA.IV.L.R6	Distractions, task prioritization, loss of situational awareness, or disorientation.
CA.IV.L.R7	Gear position in an amphibious airplane.
Skills:	The applicant exhibits the skill to:
CA.IV.L.S1	Complete the appropriate checklist(s).
CA.IV.L.S2	Make radio calls as appropriate.
CA.IV.L.S3	Ensure the airplane is aligned with the correct/assigned waterway.
CA.IV.L.S4	Scan the landing area for traffic and obstructions.
CA.IV.L.S5	Select and aim for a suitable touchdown point considering the wind conditions, landing surface, and obstructions.
CA.IV.L.S6	Establish the recommended approach and landing configuration, airspeed, and trim, and adjust pitch attitude and power as required to maintain a stabilized approach.

CA.IV.L.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}), ±5 knots with gust factor applied.
CA.IV.L.S8	Maintain directional control and appropriate crosswind correction throughout the approach and landing.
CA.IV.L.S9	Make smooth, timely, and correct power and control adjustments to maintain proper pitch attitude and rate of descent to touchdown.
CA.IV.L.S10	Contact the water in a proper pitch attitude, considering the type of rough water.

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

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

Objective: To determine the applicant exhibits satisfactory knowledge, risk management, and skills associated with power-off 180° accuracy approach and landing.

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

Knowledge:	The applicant demonstrates understanding of:
CA.IV.M.K1	A stabilized approach, including energy management concepts.
CA.IV.M.K2	Effects of atmospheric conditions, including wind, on approach and landing.
CA.IV.M.K3	Wind correction techniques on approach and landing.
CA.IV.M.K4	Purpose of power-off accuracy approach.
Risk Management:	The applicant is able to identify, assess, and mitigate risk associated with:
CA.IV.M.R1	Selection of runway/landing surface, approach path, and touchdown area based on pilot capability, aircraft performance and limitations, available distance, and wind.
CA.IV.M.R2	Effects of:
CA.IV.M.R2a	a. Crosswind
CA.IV.M.R2b	b. Windshear
CA.IV.M.R2c	c. Tailwind
CA.IV.M.R2d	d. Wake turbulence
CA.IV.M.R2e	e. Landing surface/condition
CA.IV.M.R3	Planning for:
CA.IV.M.R3a	a. Rejected landing and go-around
CA.IV.M.R3b	b. Land and hold short operations (LAHSO)
CA.IV.M.R4	Collision hazards.
CA.IV.M.R5	Low altitude maneuvering, including stall, spin, or controlled flight into terrain (CFIT).
CA.IV.M.R6	Distractions, task prioritization, loss of situational awareness, or disorientation.
CA.IV.M.R7	Forward slip operations, including fuel flowage, tail stalls with flaps, and airspeed control.
Skills:	The applicant exhibits the skill to:
CA.IV.M.S1	Complete the appropriate checklist(s).
CA.IV.M.S2	Make radio calls as appropriate.
CA.IV.M.S3	Plan and follow a flightpath to the selected landing area considering altitude, wind, terrain, and obstructions.
CA.IV.M.S4	Select the most suitable touchdown point based on wind, landing surface, obstructions, and aircraft limitations.
CA.IV.M.S5	Position airplane on downwind leg, parallel to landing runway.

CA.IV.M.S6	Correctly configure the airplane.
CA.IV.M.S7	As necessary, correlate crosswind with direction of forward slip and transition to side slip before touchdown.
CA.IV.M.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.

Task N. Go-Around/Rejected Landing

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

Objective: To determine the applicant exhibits satisfactory knowledge, risk management, and skills associated with go-around/rejected landing with emphasis on factors that contribute to landing conditions that may require a go-around.

Knowledge:	The applicant demonstrates understanding of:
CA.IV.N.K1	A stabilized approach, including energy management concepts.
CA.IV.N.K2	Effects of atmospheric conditions, including wind and density altitude, on a go-around or rejected landing.
CA.IV.N.K3	Wind correction techniques on takeoff/departure and approach/landing.
CA.IV.N.K4	Go-around/rejected landing procedures, the importance of a timely decision, and appropriate airspeeds for the maneuver.

Risk Management:	The applicant is able to identify, assess, and mitigate risk associated with:
CA.IV.N.R1	Delayed recognition of the need for a go-around/rejected landing.
CA.IV.N.R2	Delayed performance of a go-around at low altitude.
CA.IV.N.R3	Power application.
CA.IV.N.R4	Configuring the airplane.
CA.IV.N.R5	Collision hazards.
CA.IV.N.R6	Low altitude maneuvering, including stall, spin, or controlled flight into terrain (CFIT).
CA.IV.N.R7	Distractions, task prioritization, loss of situational awareness, or disorientation.
CA.IV.N.R8	Runway incursion.
CA.IV.N.R9	Managing a go-around/rejected landing after accepting a LAHSO clearance.

Skills:	The applicant exhibits the skill to:
CA.IV.N.S1	Complete the appropriate checklist(s).
CA.IV.N.S2	Make radio calls as appropriate.
CA.IV.N.S3	Make a timely decision to discontinue the approach to landing.
CA.IV.N.S4	Apply takeoff power immediately and transition to climb pitch attitude for V_X or V_Y as appropriate ±5 knots.
CA.IV.N.S5	Configure the airplane after a positive rate of climb has been verified or in accordance with airplane manufacturer's instructions.
CA.IV.N.S6	Maneuver to the side of the runway/landing area when necessary to clear and avoid conflicting traffic.
CA.IV.N.S7	Maintain V_Y ±5 knots to a safe maneuvering altitude.
CA.IV.N.S8	Maintain directional control and proper wind-drift correction throughout the climb.
CA.IV.N.S9	Use runway incursion avoidance procedures, if applicable.

Area of Operation V. Performance Maneuvers and Ground Reference Maneuvers

Task A. Steep Turns

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

Objective: To determine the applicant exhibits satisfactory knowledge, risk management, and skills associated with steep turns.

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

Knowledge:	The applicant demonstrates understanding of:
CA.V.A.K1	How to conduct a proper steep turn.
CA.V.A.K2	Aerodynamics associated with steep turns, including:
CA.V.A.K2a	a. Maintaining coordinated flight
CA.V.A.K2b	b. Overbanking tendencies
CA.V.A.K2c	c. Maneuvering speed, including the impact of weight changes
CA.V.A.K2d	d. Load factor and accelerated stalls
CA.V.A.K2e	e. Rate and radius of turn

Risk Management:	The applicant is able to identify, assess, and mitigate risk associated with:
CA.V.A.R1	Division of attention between aircraft control and orientation.
CA.V.A.R2	Collision hazards.
CA.V.A.R3	Low altitude maneuvering, including stall, spin, or controlled flight into terrain (CFIT).
CA.V.A.R4	Distractions, task prioritization, loss of situational awareness, or disorientation.
CA.V.A.R5	Uncoordinated flight.

Skills:	The applicant exhibits the skill to:
CA.V.A.S1	Clear the area.
CA.V.A.S2	Establish the manufacturer's recommended airspeed; or if one is not available, an airspeed not to exceed maneuvering speed (V_A).
CA.V.A.S3	Roll into a coordinated 360° steep turn with approximately a 50° bank.
CA.V.A.S4	Perform the Task in the opposite direction.
CA.V.A.S5	Maintain the entry altitude ±100 feet, airspeed ±10 knots, bank ±5°, and roll out on the entry heading ±10°.

Task B. Steep Spiral [Airplane, Single-Engine Land (ASEL); Airplane, Single-Engine Sea (ASES)]

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

Objective: To determine the applicant exhibits satisfactory knowledge, risk management, and skills associated with steep spirals.

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

Knowledge:	The applicant understands and explains:
CA.V.B.K1	Relationship to emergency landing procedures.
CA.V.B.K2	Maintaining a constant radius about a point.
CA.V.B.K3	Effects of wind on ground track and relation to a ground reference.
Risk Management:	The applicant is able to identify, assess, and mitigate risk associated with:
CA.V.B.R1	Division of attention between aircraft control and orientation.
CA.V.B.R2	Collision hazards.
CA.V.B.R3	Low altitude maneuvering, including stall, spin, or controlled flight into terrain (CFIT).
CA.V.B.R4	Distractions, task prioritization, loss of situational awareness, or disorientation.
CA.V.B.R5	Uncoordinated flight.
CA.V.B.R6	Effects of wind.
CA.V.B.R7	Airframe or airspeed limitations.
Skills:	The applicant exhibits the skill to:
CA.V.B.S1	Clear the area.
CA.V.B.S2	Select an altitude sufficient to continue through a series of at least three, 360° turns.
CA.V.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.
CA.V.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.
CA.V.B.S5	Divide attention between airplane control, traffic avoidance and the ground track while maintaining coordinated flight.
CA.V.B.S6	Maintain the specified airspeed, ±10 knots and roll out toward an object or specified heading, ±10°, and complete the maneuver no lower than 1,500 feet above ground level (AGL).

Task C. Chandelles (ASEL, ASES)

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

Objective: To determine the applicant exhibits satisfactory knowledge, risk management, and skills associated with chandelles.

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

Knowledge:	The applicant demonstrates understanding of:
CA.V.C.K1	How to conduct proper chandelles.
CA.V.C.K2	Aerodynamics associated with chandelles, including:
CA.V.C.K2a	a. Maintaining coordinated flight
CA.V.C.K2b	b. Overbanking tendencies
CA.V.C.K2c	c. Maneuvering speed, including the impact of weight changes
CA.V.C.K2d	d. Accelerated stalls
CA.V.C.K3	Appropriate airplane configuration for maximum performance climb.
CA.V.C.K4	Proper pitch control required for continuously decreasing airspeed.

Risk Management:	The applicant is able to identify, assess, and mitigate risk associated with:
CA.V.C.R1	Division of attention between aircraft control and orientation.
CA.V.C.R2	Collision hazards.
CA.V.C.R3	Low altitude maneuvering, including stall, spin, or controlled flight into terrain (CFIT).
CA.V.C.R4	Distractions, task prioritization, loss of situational awareness, or disorientation.
CA.V.C.R5	Uncoordinated flight.
CA.V.C.R6	Energy management.
CA.V.C.R7	Rate and radius of turn with confined area operations.

Skills:	The applicant exhibits the skill to:
CA.V.C.S1	Clear the area.
CA.V.C.S2	Select an altitude that allows the maneuver to be performed no lower than 1,500 feet above ground level (AGL).
CA.V.C.S3	Establish the appropriate entry configuration, power, and airspeed.
CA.V.C.S4	Establish the angle of bank at approximately 30°.
CA.V.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.
CA.V.C.S6	Begin a coordinated constant rate rollout from the 90° point to the 180° point maintaining power and a constant pitch attitude.
CA.V.C.S7	Complete rollout at the 180° point, ±10° just above a stall airspeed, and maintaining that airspeed momentarily avoiding a stall.
CA.V.C.S8	Resume a straight-and-level flight with minimum loss of altitude.

Task D. Lazy Eights [Airplane, Single-Engine Land (ASEL); Airplane, Single-Engine Sea (ASES)]

References: FAA-H-8083-3

Objective: To determine the applicant exhibits satisfactory knowledge, risk management, and skills associated with lazy eights.

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

Knowledge:	The applicant demonstrates understanding of:
CA.V.D.K1	How to conduct proper lazy eights.
CA.V.D.K2	Aerodynamics associated with lazy eights, including how to maintain coordinated flight.
CA.V.D.K3	Performance and airspeed limitations.
CA.V.D.K4	Phases of the lazy eight maneuver from entry to recovery.
Risk Management:	The applicant is able to identify, assess, and mitigate risk associated with:
CA.V.D.R1	Division of attention between aircraft control and orientation.
CA.V.D.R2	Collision hazards.
CA.V.D.R3	Low altitude maneuvering, including stall, spin, or controlled flight into terrain (CFIT).
CA.V.D.R4	Distractions, task prioritization, loss of situational awareness, or disorientation.
CA.V.D.R5	Uncoordinated flight.
CA.V.D.R6	Energy management.
CA.V.D.R7	Accelerated stalls.
Skills:	The applicant exhibits the skill to:
CA.V.D.S1	Clear the area.
CA.V.D.S2	Select an altitude that allows the maneuver to be performed no lower than 1,500 feet above ground level (AGL).
CA.V.D.S3	Establish the recommended entry configuration, power, and airspeed.
CA.V.D.S4	Maintain coordinated flight throughout the maneuver.
CA.V.D.S5	Complete the maneuver in accordance with the following:
CA.V.D.S5a	a. Approximately 30° bank at the steepest point
CA.V.D.S5b	b. Constant change of pitch and roll rate and airspeed
CA.V.D.S5c	c. Altitude at 180° point, ±100 feet from entry altitude
CA.V.D.S5d	d. Airspeed at the 180° point, ±10 knots from entry airspeed
CA.V.D.S5e	e. Heading at the 180° point, ±10°
CA.V.D.S6	Continue the maneuver through the number of symmetrical loops specified, then resume straight-and-level flight.

Task E. Eights on Pylons (ASEL, ASES)

References: FAA-H-8083-2; FAA-H-8083-3

Objective: To determine the applicant exhibits satisfactory knowledge, risk management, and skills associated with eights on pylons.

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

Knowledge:	The applicant demonstrates understanding of:
CA.V.E.K1	Purpose of eights on pylons.
CA.V.E.K2	Aerodynamics associated with the eights on pylons, including coordinated and uncoordinated flight.
CA.V.E.K3	Pivotal altitude and factors that affect it.
CA.V.E.K4	Effect of wind on ground track.
CA.V.E.K5	Phases of the eights on pylons maneuver from entry to recovery.
Risk Management:	The applicant is able to identify, assess, and mitigate risk associated with:
CA.V.E.R1	Division of attention between aircraft control and orientation.
CA.V.E.R2	Collision hazards.
CA.V.E.R3	Low altitude maneuvering, including stall, spin, or controlled flight into terrain (CFIT).
CA.V.E.R4	Distractions, task prioritization, loss of situational awareness, or disorientation.
CA.V.E.R5	Uncoordinated flight.
CA.V.E.R6	Energy management.
CA.V.E.R7	Emergency landing considerations.
Skills:	The applicant exhibits the skill to:
CA.V.E.S1	Clear the area.
CA.V.E.S2	Determine the approximate pivotal altitude.
CA.V.E.S3	Select suitable pylons that permits straight-and-level flight between the pylons.
CA.V.E.S4	Enter the maneuver in the correct direction and position using an appropriate altitude and airspeed.
CA.V.E.S5	Establish the correct bank angle for the conditions, not to exceed 40°.
CA.V.E.S6	Apply smooth and continuous corrections so that the line-of-sight reference line remains on the pylon.
CA.V.E.S7	Divide attention between accurate, coordinated airplane control and outside visual references.
CA.V.E.S8	Maintain pylon position using appropriate pivotal altitude, avoiding slips and skids.

Area of Operation VI. Navigation

Task A. Pilotage and Dead Reckoning

References: FAA-H-8083-2, FAA-H-8083-25; VFR Navigation Charts

Objective: To determine the applicant exhibits satisfactory knowledge, risk management, and skills associated with pilotage and dead reckoning.

Knowledge:	The applicant demonstrates understanding of:
CA.VI.A.K1	Pilotage and dead reckoning.
CA.VI.A.K2	Magnetic compass errors.
CA.VI.A.K3	Topography.
CA.VI.A.K4	Selection of appropriate:
CA.VI.A.K4a	a. Route
CA.VI.A.K4b	b. Altitude(s)
CA.VI.A.K4c	c. Checkpoints
CA.VI.A.K5	Plotting a course, including:
CA.VI.A.K5a	a. Determining heading, speed, and course
CA.VI.A.K5b	b. Wind correction angle
CA.VI.A.K5c	c. Estimating time, speed, and distance
CA.VI.A.K5d	d. True airspeed and density altitude
CA.VI.A.K6	Power setting selection.
CA.VI.A.K7	Planned calculations versus actual results and required corrections.

Risk Management:	The applicant is able to identify, assess, and mitigate risk associated with:
CA.VI.A.R1	Collision hazards.
CA.VI.A.R2	Distractions, task prioritization, loss of situational awareness, or disorientation.
CA.VI.A.R3	Unplanned fuel/energy consumption, if applicable.

Skills:	The applicant exhibits the skill to:
CA.VI.A.S1	Prepare and use a flight log.
CA.VI.A.S2	Navigate by pilotage.
CA.VI.A.S3	Navigate by means of pre-computed headings, groundspeeds, elapsed time, and reference to landmarks or checkpoints.
CA.VI.A.S4	Use the magnetic direction indicator in navigation, including turns to headings.
CA.VI.A.S5	Verify position within 2 nautical miles of the flight-planned route.
CA.VI.A.S6	Arrive at the en route checkpoints within 3 minutes of the initial or revised estimated time of arrival (ETA) and provide a destination estimate.
CA.VI.A.S7	Maintain the selected altitude, ±100 feet and heading, ±10°.

Task B. Navigation Systems and Radar Services

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

Objective: To determine the applicant exhibits satisfactory knowledge, risk management, and skills associated with navigation systems and radar services.

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

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

Risk Management:	The applicant is able to identify, assess, and mitigate risk associated with:
CA.VI.B.R1	Management of automated navigation and autoflight systems.
CA.VI.B.R2	Distractions, task prioritization, loss of situational awareness, or disorientation.
CA.VI.B.R3	Limitations of the navigation system in use.
CA.VI.B.R4	Loss of a navigation signal.
CA.VI.B.R5	Use of an electronic flight bag (EFB), if used.

Skills:	The applicant exhibits the skill to:
CA.VI.B.S1	Use an airborne electronic navigation system.
CA.VI.B.S2	Determine the airplane's position using the navigation system.
CA.VI.B.S3	Intercept and track a given course, radial, or bearing.
CA.VI.B.S4	Recognize and describe the indication of station or waypoint passage.
CA.VI.B.S5	Use proper communication procedures when utilizing radar services.
CA.VI.B.S6	Maintain the appropriate altitude, ±100 feet and heading, ±10°.

Task C. Diversion

References: AIM; FAA-H-8083-2, FAA-H-8083-25; VFR Navigation Charts

Objective: To determine the applicant exhibits satisfactory knowledge, risk management, and skills associated with diversion.

Knowledge:	The applicant demonstrates understanding of:
CA.VI.C.K1	Selecting an alternate destination.
CA.VI.C.K2	Situations that require deviations from flight plan or air traffic control (ATC) instructions.
Risk Management:	The applicant is able to identify, assess, and mitigate risk associated with:
CA.VI.C.R1	Collision hazards.
CA.VI.C.R2	Distractions, task prioritization, loss of situational awareness, or disorientation.
CA.VI.C.R3	Circumstances that would make diversion prudent.
CA.VI.C.R4	Selecting an appropriate airport or seaplane base.
CA.VI.C.R5	Using available resources (e.g., automation, ATC, and flight deck planning aids).
Skills:	The applicant exhibits the skill to:
CA.VI.C.S1	Select a suitable destination and route for diversion.
CA.VI.C.S2	Make a reasonable estimate of heading, groundspeed, arrival time, and fuel required to the “divert to” destination.
CA.VI.C.S3	Maintain the appropriate altitude, ±100 feet and heading, ±10°.
CA.VI.C.S4	Promptly divert toward the destination.
CA.VI.C.S5	Update/interpret weather in flight.
CA.VI.C.S6	Use displays of digital weather and aeronautical information, as applicable to maintain situational awareness.

Task D. Lost Procedures

References: AIM; FAA-H-8083-2, FAA-H-8083-25; VFR Navigation Charts

Objective: To determine the applicant exhibits satisfactory knowledge, risk management, and skills associated with lost procedures and can take appropriate steps to achieve a satisfactory outcome if lost.

Knowledge:	The applicant demonstrates understanding of:
CA.VI.D.K1	Methods to determine position.
CA.VI.D.K2	Assistance available if lost (e.g., radar services, communication procedures).
Risk Management:	The applicant is able to identify, assess, and mitigate risk associated with:
CA.VI.D.R1	Collision hazards.
CA.VI.D.R2	Distractions, task prioritization, loss of situational awareness, or disorientation.
CA.VI.D.R3	Recording times over waypoints.
CA.VI.D.R4	When to seek assistance or declare an emergency in a deteriorating situation.
Skills:	The applicant exhibits the skill to:
CA.VI.D.S1	Select an appropriate course of action.
CA.VI.D.S2	Use an appropriate method to determine position.
CA.VI.D.S3	Maintain an appropriate heading and climb as necessary.
CA.VI.D.S4	Identify prominent landmarks.
CA.VI.D.S5	Use navigation systems/facilities or contact an ATC facility for assistance.

Area of Operation VII. Slow Flight and Stalls

Task A. Maneuvering During Slow Flight

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

Objective: To determine the applicant exhibits satisfactory knowledge, risk management, and skills associated with maneuvering during slow flight in cruise configuration.

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 understanding of:
CA.VII.A.K1	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.

Risk Management:	The applicant is able to identify, assess, and mitigate risk associated with:
CA.VII.A.R1	Inadvertent slow flight and flight with a stall warning, which could lead to loss of control.
CA.VII.A.R2	Range and limitations of stall warning indicators (e.g., aircraft buffet, stall horn, etc.).
CA.VII.A.R3	Uncoordinated flight.
CA.VII.A.R4	Effect of environmental elements on airplane performance (e.g., turbulence, microbursts, and high-density altitude).
CA.VII.A.R5	Collision hazards.
CA.VII.A.R6	Distractions, task prioritization, loss of situational awareness, or disorientation.

Skills:	The applicant exhibits the skill to:
CA.VII.A.S1	Clear the area.
CA.VII.A.S2	Select an entry altitude that allows the Task to be completed no lower than 1,500 feet above ground level (AGL) [Airplane, Single-Engine Land (ASEL); Airplane, Single-Engine Sea (ASES) or 3,000 feet AGL Airplane, Multiengine Land (AMEL); Airplane, Multiengine Sea (AMES)].
CA.VII.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.).
CA.VII.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.).
CA.VII.A.S5	Maintain the specified altitude, ±50 feet; specified heading, ±10°; airspeed, +5/-0 knots; and specified angle of bank, ±5°.

Task B. Power-Off Stalls

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

Objective: To determine the applicant exhibits satisfactory knowledge, risk management, and skills associated with power-off stalls.

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 understanding of:
CA.VII.B.K1	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.
CA.VII.B.K2	Stall characteristics as they relate to airplane design, and recognition impending stall and full stall indications using sight, sound, or feel.
CA.VII.B.K3	Factors and situations that can lead to a power-off stall and actions that can be taken to prevent it.
CA.VII.B.K4	Fundamentals of stall recovery.

Risk Management:	The applicant is able to identify, assess, and mitigate risk associated with:
CA.VII.B.R1	Factors and situations that could lead to an inadvertent power-off stall, spin, and loss of control.
CA.VII.B.R2	Range and limitations of stall warning indicators (e.g., aircraft buffet, stall horn, etc.).
CA.VII.B.R3	Stall warning(s) during normal operations.
CA.VII.B.R4	Stall recovery procedure.
CA.VII.B.R5	Secondary stalls, accelerated stalls, and cross-control stalls.
CA.VII.B.R6	Effect of environmental elements on airplane performance related to power-off stalls (e.g., turbulence, microbursts, and high-density altitude).
CA.VII.B.R7	Collision hazards.
CA.VII.B.R8	Distractions, task prioritization, loss of situational awareness, or disorientation.

Skills:	The applicant exhibits the skill to:
CA.VII.B.S1	Clear the area.
CA.VII.B.S2	Select an entry altitude that allows the Task to be completed no lower than 1,500 feet above ground level (AGL) [Airplane, Single-Engine Land (ASEL); Airplane, Single-Engine Sea (ASES) or 3,000 feet AGL Airplane, Multiengine Land (AMEL); Airplane, Multiengine Sea (AMES)].
CA.VII.B.S3	Configure the airplane in the approach or landing configuration, as specified by the evaluator, and maintain coordinated flight throughout the maneuver.
CA.VII.B.S4	Establish a stabilized descent.
CA.VII.B.S5	Transition smoothly from the approach or landing attitude to a pitch attitude that induces a stall.
CA.VII.B.S6	Maintain a specified heading, ±10° if in straight flight; maintain a specified angle of bank not to exceed 20°, ±5° if in turning flight, until an impending or full stall occurs, as specified by the evaluator.
CA.VII.B.S7	Acknowledge the cues at the first indication of a stall (e.g., aircraft buffet, stall horn, etc.).
CA.VII.B.S8	Recover at the first indication of a stall or after a full stall has occurred, as specified by the evaluator.

CA.VII.B.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).

CA.VII.B.S10 Return to the altitude, heading, and airspeed specified by the evaluator.

Task C. Power-On Stalls

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

Objective: To determine the applicant exhibits satisfactory knowledge, risk management, and skills associated with power-on stalls.

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 understanding of:
CA.VII.C.K1	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.
CA.VII.C.K2	Stall characteristics as they relate to airplane design, and recognition impending stall and full stall indications using sight, sound, or feel.
CA.VII.C.K3	Factors and situations that can lead to a power-on stall and actions that can be taken to prevent it.
CA.VII.C.K4	Fundamentals of stall recovery.

Risk Management:	The applicant is able to identify, assess, and mitigate risk associated with:
CA.VII.C.R1	Factors and situations that could lead to an inadvertent power-on stall, spin, and loss of control.
CA.VII.C.R2	Range and limitations of stall warning indicators (e.g., aircraft buffet, stall horn, etc.).
CA.VII.C.R3	Stall warning(s) during normal operations.
CA.VII.C.R4	Stall recovery procedure.
CA.VII.C.R5	Secondary stall, accelerated stall, elevator stall, and cross-controlled stalls.
CA.VII.C.R6	Effect of environmental elements on airplane performance related to power-on stalls (e.g., turbulence, microbursts, and high-density altitude).
CA.VII.C.R7	Collision hazards.
CA.VII.C.R8	Distractions, task prioritization, loss of situational awareness, or disorientation.

Skills:	The applicant exhibits the skill to:
CA.VII.C.S1	Clear the area.
CA.VII.C.S2	Select an entry altitude that allows the Task to be completed no lower than 1,500 feet above ground level (AGL) [Airplane, Single-Engine Land (ASEL); Airplane, Single-Engine Sea (ASES) or 3,000 feet AGL Airplane, Multiengine Land (AMEL); Airplane, Multiengine Sea (AMES)].
CA.VII.C.S3	Establish the takeoff, departure, or cruise configuration, as specified by the evaluator, and maintain coordinated flight throughout the maneuver.
CA.VII.C.S4	Set power to no less than 65 percent power.
CA.VII.C.S5	Transition smoothly from the takeoff or departure attitude to the pitch attitude that induces a stall.
CA.VII.C.S6	Maintain a specified heading ±10° if in straight flight; maintain a specified angle of bank not to exceed 20°, ±10° if in turning flight, until an impending or full stall is reached, as specified by the evaluator.
CA.VII.C.S7	Acknowledge the cues at the first indication of a stall (e.g., aircraft buffet, stall horn, etc.).
CA.VII.C.S8	Recover at the first indication of a stall or after a full stall has occurred, as specified by the evaluator.

CA.VII.C.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).

CA.VII.C.S10 Return to the altitude, heading, and airspeed specified by the evaluator.

Task D. Accelerated Stalls

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

Objective: To determine the applicant exhibits satisfactory knowledge, risk management, and skills associated with accelerated stalls (power-on or power-off).

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 understanding of:
CA.VII.D.K1	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.
CA.VII.D.K2	Stall characteristics as they relate to airplane design, and recognition impending stall and full stall indications using sight, sound, or feel.
CA.VII.D.K3	Factors leading to an accelerated stall and preventive actions.
CA.VII.D.K4	Fundamentals of stall recovery.

Risk Management:	The applicant is able to identify, assess, and mitigate risk associated with:
CA.VII.D.R1	Factors and situations that could lead to an inadvertent accelerated stall, spin, and loss of control.
CA.VII.D.R2	Range and limitations of stall warning indicators (e.g., aircraft buffet, stall horn, etc.).
CA.VII.D.R3	Stall warning(s) during normal operations.
CA.VII.D.R4	Stall recovery procedure.
CA.VII.D.R5	Secondary stalls, cross-control stalls, and spins.
CA.VII.D.R6	Effect of environmental elements on airplane performance related to accelerated stalls (e.g., turbulence, microbursts, and high-density altitude).
CA.VII.D.R7	Collision hazards.
CA.VII.D.R8	Distractions, task prioritization, loss of situational awareness, or disorientation.

Skills:	The applicant exhibits the skill to:
CA.VII.D.S1	Clear the area.
CA.VII.D.S2	Select an entry altitude that allows the Task to be completed no lower than 3,000 feet above ground level (AGL).
CA.VII.D.S3	Establish the configuration as specified by the evaluator.
CA.VII.D.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.
CA.VII.D.S5	Establish and maintain a coordinated turn in a 45° bank, increasing elevator back pressure smoothly and firmly until an impending stall is reached.
CA.VII.D.S6	Acknowledge the cues at the first indication of a stall (e.g., aircraft buffet, stall horn, etc.).
CA.VII.D.S7	Execute a stall recovery in accordance with procedures set forth in the Pilot's Operating Handbook (POH)/Flight Manual (FM).

CA.VII.D.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).
CA.VII.D.S9	Return to the altitude, heading, and airspeed specified by the evaluator.

Task E. Spin Awareness

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

Objective: To determine the applicant exhibits satisfactory knowledge of the causes and procedures for recovery from unintentional spins and understands the risk associated with unintentional spins.

Knowledge:	The applicant demonstrates understanding of:
CA.VII.E.K1	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.
CA.VII.E.K2	What causes a spin and how to identify the entry, incipient, and developed phases of a spin.
CA.VII.E.K3	Spin recovery procedure.

Risk Management:	The applicant is able to identify, assess, and mitigate risk associated with:
CA.VII.E.R1	Factors and situations that could lead to inadvertent spin and loss of control.
CA.VII.E.R2	Range and limitations of stall warning indicators (e.g., aircraft buffet, stall horn, etc.).
CA.VII.E.R3	Spin recovery procedure.
CA.VII.E.R4	Effect of environmental elements on airplane performance related to spins (e.g., turbulence, microbursts, and high-density altitude).
CA.VII.E.R5	Collision hazards.
CA.VII.E.R6	Distractions, task prioritization, loss of situational awareness, or disorientation.

Skills:	The applicant exhibits the skill to: [Intentionally left blank].

Area of Operation VIII. High-Altitude Operations

Task A. Supplemental Oxygen

References: 14 CFR part 91; AC 61-107; AIM; FAA-H-8083-2, 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.

Knowledge: The applicant demonstrates understanding of:

CA.VIII.A.K1 Regulatory requirements for supplemental oxygen use by flight crew and passengers.

CA.VIII.A.K2 Physiological factors, including:

CA.VIII.A.K2a a. Impairment

CA.VIII.A.K2b b. Symptoms of hypoxia

CA.VIII.A.K2c c. Time of useful consciousness (TUC)

CA.VIII.A.K3 Operational factors, including:

CA.VIII.A.K3a a. Characteristics, limitations, and applicability of continuous flow, demand, and pressure-demand oxygen systems

CA.VIII.A.K3b b. Differences between and identification of “aviator’s breathing oxygen” and other types of oxygen

CA.VIII.A.K3c c. Precautions when using supplemental oxygen systems

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

CA.VIII.A.R1 High altitude flight.

CA.VIII.A.R2 Use of supplemental oxygen.

CA.VIII.A.R3 Management of compressed gas containers.

CA.VIII.A.R4 Combustion hazards in an oxygen-rich environment.

Skills: The applicant exhibits the skill to:

CA.VIII.A.S1 Determine the quantity of supplemental oxygen required in a scenario given by the evaluator.

CA.VIII.A.S2 Operate or simulate operation of the installed or portable oxygen equipment in the airplane, if installed or available.

CA.VIII.A.S3 Brief passengers on use of supplemental oxygen equipment in a scenario given by the evaluator.

CA.VIII.A.S4 Use single-pilot resource management (SRM) or crew resource management (CRM), as appropriate.

Task B. Pressurization

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

Objective: To determine the applicant exhibits satisfactory knowledge, risk management, and skills associated with flight in pressurized aircraft at high altitudes.

Knowledge: The applicant demonstrates understanding of:

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

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

CA.VIII.B.R1	High altitude flight.
CA.VIII.B.R2	Malfunction of pressurization system, if equipment is installed.

Skills: The applicant exhibits the skill to:

CA.VIII.B.S1	Operate the pressurization system, if equipment is installed.
CA.VIII.B.S2	Respond appropriately to simulated pressurization malfunctions, if equipment is installed.
CA.VIII.B.S3	Brief passengers on use of supplemental oxygen in the case of pressurization malfunction, if equipment is installed.
CA.VIII.B.S4	Use single-pilot resource management (SRM) or crew resource management (CRM), as appropriate.

Area of Operation IX. Emergency Operations

Task A. Emergency Descent

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

Objective: To determine the applicant exhibits satisfactory knowledge, risk management, and skills associated with emergency descent.

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

Knowledge:	The applicant demonstrates understanding of:
CA.IX.A.K1	Situations that would require an emergency descent (e.g., depressurization, smoke, or engine fire).
CA.IX.A.K2	Immediate action items and emergency procedures.
CA.IX.A.K3	Airspeed, including airspeed limitations.
CA.IX.A.K4	Aircraft performance and limitations.
Risk Management:	The applicant is able to identify, assess, and mitigate risk associated with:
CA.IX.A.R1	Altitude, wind, terrain, obstructions, gliding distance, and available landing distance considerations.
CA.IX.A.R2	Collision hazards.
CA.IX.A.R3	Configuring the airplane.
CA.IX.A.R4	Distractions, task prioritization, loss of situational awareness, or disorientation.
Skills:	The applicant exhibits the skill to:
CA.IX.A.S1	Clear the area.
CA.IX.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.
CA.IX.A.S3	Maintain orientation, divide attention appropriately, and plan and execute a smooth recovery.
CA.IX.A.S4	Use bank angle between 30° and 45° to maintain positive load factors during the descent.
CA.IX.A.S5	Maintain appropriate airspeed +0/-10 knots, and level off at a specified altitude ±100 feet.
CA.IX.A.S6	Complete the appropriate checklist(s).
CA.IX.A.S7	Use single-pilot resource management (SRM) or crew resource management (CRM), as appropriate.

Task B. Emergency Approach and Landing (Simulated) [Airplane, Single-Engine Land (ASEL); Airplane, Single-Engine Sea (ASES)]

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

Objective: To determine the applicant exhibits satisfactory knowledge, risk management, and skills associated with emergency approach and landing procedures.

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

Knowledge:	The applicant demonstrates understanding of:
CA.IX.B.K1	Immediate action items and emergency procedures.
CA.IX.B.K2	Airspeed, including:
CA.IX.B.K2a	a. Importance of best glide speed and its relationship to distance
CA.IX.B.K2b	b. Difference between best glide speed and minimum sink speed
CA.IX.B.K2c	c. Effects of wind on glide distance
CA.IX.B.K3	Effects of atmospheric conditions on emergency approach and landing.
CA.IX.B.K4	A stabilized approach, including energy management concepts.
CA.IX.B.K5	Emergency Locator Transmitters (ELTs) and other emergency locating devices.
CA.IX.B.K6	Air traffic control (ATC) services to aircraft in distress.

Risk Management:	The applicant is able to identify, assess, and mitigate risk associated with:
CA.IX.B.R1	Altitude, wind, terrain, obstructions, gliding distance, and available landing distance considerations.
CA.IX.B.R2	Following or changing the planned flightpath to the selected landing area.
CA.IX.B.R3	Collision hazards.
CA.IX.B.R4	Configuring the airplane.
CA.IX.B.R5	Low altitude maneuvering, including stall, spin, or controlled flight into terrain (CFIT).
CA.IX.B.R6	Distractions, task prioritization, loss of situational awareness, or disorientation.

Skills:	The applicant exhibits the skill to:
CA.IX.B.S1	Establish and maintain the recommended best glide airspeed, ±10 knots.
CA.IX.B.S2	Configure the airplane in accordance with the Pilot's Operating Handbook (POH)\Airplane Flight Manual (AFM) and existing conditions.
CA.IX.B.S3	Select a suitable landing area considering altitude, wind, terrain, obstructions, and available glide distance.
CA.IX.B.S4	Plan and follow a flightpath to the selected landing area considering altitude, wind, terrain, and obstructions.
CA.IX.B.S5	Prepare for landing as specified by the evaluator.
CA.IX.B.S6	Complete the appropriate checklist(s).

Task C. Systems and Equipment Malfunctions

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

Objective: To determine the applicant exhibits satisfactory knowledge, risk management, and skills associated with system and equipment malfunctions appropriate to the airplane provided for the practical test.

Knowledge:	The applicant demonstrates understanding of:
CA.IX.C.K1	Causes of partial or complete power loss related to the specific type of powerplant(s).
CA.IX.C.K2	System and equipment malfunctions specific to the aircraft, including:
CA.IX.C.K2a	a. Electrical malfunction
CA.IX.C.K2b	b. Vacuum/pressure and associated flight instrument malfunctions
CA.IX.C.K2c	c. Pitot-static system malfunction
CA.IX.C.K2d	d. Electronic flight deck display malfunction
CA.IX.C.K2e	e. Landing gear or flap malfunction
CA.IX.C.K2f	f. Inoperative trim
CA.IX.C.K3	Causes and remedies for smoke or fire onboard the aircraft.
CA.IX.C.K4	Any other system specific to the aircraft (e.g., supplemental oxygen, deicing).
CA.IX.C.K5	Inadvertent door or window opening.

Risk Management:	The applicant is able to identify, assess, and mitigate risk associated with:
CA.IX.C.R1	Startle response.
CA.IX.C.R2	Checklist usage for a system or equipment malfunction.
CA.IX.C.R3	Distractions, task prioritization, loss of situational awareness, or disorientation.
CA.IX.C.R4	Undesired aircraft state.

Skills:	The applicant exhibits the skill to:
CA.IX.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.
CA.IX.C.S2	Complete the appropriate checklist(s).

Task D. Emergency Equipment and Survival Gear

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

Objective: To determine the applicant exhibits satisfactory knowledge, risk management, and skills associated with emergency equipment, and survival gear appropriate to the airplane and environment encountered during flight.

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

Knowledge:	The applicant demonstrates understanding of:
CA.IX.D.K1	Emergency Locator Transmitter (ELT) operations, limitations, and testing requirements.
CA.IX.D.K2	Fire extinguisher operations and limitations.
CA.IX.D.K3	Emergency equipment and survival gear needed for:
CA.IX.D.K3a	a. Climate extremes (hot/cold)
CA.IX.D.K3b	b. Mountainous terrain
CA.IX.D.K3c	c. Overwater operations
CA.IX.D.K4	When to deploy a ballistic parachute and associated passenger briefings, if equipped.
CA.IX.D.K5	When to activate an emergency auto-land system and brief passengers, if equipped.

Risk Management:	The applicant is able to identify, assess, and mitigate risk associated with:
CA.IX.D.R1	Survival gear (water, clothing, shelter) for 48 to 72 hours.
CA.IX.D.R2	Use of a ballistic parachute system.
CA.IX.D.R3	Use of an emergency auto-land system, if installed.

Skills:	The applicant exhibits the skill to:
CA.IX.D.S1	Identify appropriate equipment and personal gear.
CA.IX.D.S2	Brief passengers on proper use of on-board emergency equipment and survival gear.
CA.IX.D.S3	Simulate ballistic parachute deployment procedures, if equipped.

Task E. Engine Failure During Takeoff Before V_{MC} (Simulated) [Airplane, Multiengine Land (AMEL); Airplane, Multiengine Sea (AMES)]

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

Objective: To determine the applicant exhibits satisfactory knowledge, risk management, and skills associated with engine failure during takeoff before minimum controllable airspeed (V_{MC}).

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 understanding of:
CA.IX.E.K1	Factors affecting minimum controllable speed (V_{MC}).
CA.IX.E.K2	V_{MC} (red line) and best single-engine rate of climb airspeed (V_{YSE}) (blue line).
CA.IX.E.K3	Accelerate/stop distance.
Risk Management:	The applicant is able to identify, assess, and mitigate risk associated with:
CA.IX.E.R1	Potential engine failure during takeoff.
CA.IX.E.R2	Configuring the airplane.
CA.IX.E.R3	Distractions, task prioritization, loss of situational awareness, or disorientation.
Skills:	The applicant exhibits the skill to:
CA.IX.E.S1	Close the throttles smoothly and promptly when a simulated engine failure occurs.
CA.IX.E.S2	Maintain directional control and apply brakes (AMEL), or flight controls (AMES), as necessary.

Task F. Engine Failure After Liftoff (Simulated) (AMEL, AMES)

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

Objective: To determine the applicant exhibits satisfactory knowledge, risk management, and skills associated with engine failure after liftoff.

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 understanding of:
CA.IX.F.K1	Factors affecting minimum controllable speed (V_{MC}).
CA.IX.F.K2	V_{MC} (red line), V_{YSE} (blue line), and safe single-engine speed (V_{SSE}).
CA.IX.F.K3	Accelerate/stop and accelerate/go distances.
CA.IX.F.K4	How to identify, verify, feather, and secure an inoperative engine.
CA.IX.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.
CA.IX.F.K6	Simulated propeller feathering and the evaluator's zero-thrust procedures and responsibilities.
Risk Management:	The applicant is able to identify, assess, and mitigate risk associated with:
CA.IX.F.R1	Potential engine failure after lift-off.
CA.IX.F.R2	Collision hazards.
CA.IX.F.R3	Configuring the airplane.
CA.IX.F.R4	Low altitude maneuvering, including stall, spin, or controlled flight into terrain (CFIT).
CA.IX.F.R5	Distractions, task prioritization, loss of situational awareness, or disorientation.
Skills:	The applicant exhibits the skill to:
CA.IX.F.S1	Promptly recognize an engine failure, maintain control, and use appropriate emergency procedures.
CA.IX.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}.
CA.IX.F.S3	Reduce drag by retracting landing gear and flaps in accordance with the manufacturer's guidance.
CA.IX.F.S4	Simulate feathering the propeller on the inoperative engine (evaluator should then establish zero thrust on the inoperative engine).
CA.IX.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.
CA.IX.F.S6	Monitor the operating engine and aircraft systems and make adjustments as necessary.
CA.IX.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.
CA.IX.F.S8	Simulate securing the inoperative engine.
CA.IX.F.S9	Maintain heading ±10° and airspeed ±5 knots.
CA.IX.F.S10	Complete the appropriate checklist(s).

Task G. Approach and Landing with an Inoperative Engine (Simulated) [Airplane, Multiengine Land (AMEL); Airplane, Multiengine Sea (AMES)]

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

Objective: To determine the applicant exhibits satisfactory knowledge, risk management, and skills associated with approach and landing with an engine inoperative, including engine failure on final approach.

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 understanding of:
CA.IX.G.K1	Factors affecting minimum controllable speed (V_{MC}).
CA.IX.G.K2	V_{MC} (red line) and best single-engine rate of climb airspeed (V_{YSE}) (blue line).
CA.IX.G.K3	How to identify, verify, feather, and secure an inoperative engine.
CA.IX.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.
CA.IX.G.K5	Applicant responsibilities during simulated feathering.

Risk Management:	The applicant is able to identify, assess, and mitigate risk associated with:
CA.IX.G.R1	Potential engine failure inflight or during an approach.
CA.IX.G.R2	Collision hazards.
CA.IX.G.R3	Configuring the airplane.
CA.IX.G.R4	Low altitude maneuvering, including stall, spin, or controlled flight into terrain (CFIT).
CA.IX.G.R5	Distractions, task prioritization, loss of situational awareness, or disorientation.
CA.IX.G.R6	Possible single-engine go-around.

Skills:	The applicant exhibits the skill to:
CA.IX.G.S1	Promptly recognize an engine failure and maintain positive aircraft control.
CA.IX.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).
CA.IX.G.S3	Use flight controls in the proper combination as recommended by the manufacturer, or as required to maintain best performance, and trim as required.
CA.IX.G.S4	Follow the manufacturer's recommended emergency procedures and complete the appropriate checklist.
CA.IX.G.S5	Monitor the operating engine and aircraft systems and make adjustments as necessary.
CA.IX.G.S6	Maintain the manufacturer's recommended approach airspeed ±5 knots in the landing configuration with a stabilized approach, until landing is assured.
CA.IX.G.S7	Make smooth, timely, and correct control application before, during, and after touchdown.
CA.IX.G.S8	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.

CA.IX.G.S9	Maintain directional control and appropriate crosswind correction throughout the approach and landing.
CA.IX.G.S10	Complete the appropriate checklist(s).

Area of Operation X. Multiengine Operations

Task A. Maneuvering with One Engine Inoperative [Airplane, Multiengine Land (AMEL); Airplane, Multiengine Sea (AMES)]

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

Objective: To determine the applicant exhibits satisfactory knowledge, risk management, and skills associated with maneuvering with one engine inoperative.

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 understanding of:
CA.X.A.K1	Factors affecting minimum controllable speed (V_{MC}).
CA.X.A.K2	V_{MC} (red line) and best single-engine rate of climb airspeed (V_{YSE}) (blue line).
CA.X.A.K3	How to identify, verify, feather, and secure an inoperative engine.
CA.X.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.
CA.X.A.K5	Feathering, securing, unfeathering, and restarting.
Risk Management:	The applicant is able to identify, assess, and mitigate risk associated with:
CA.X.A.R1	Potential engine failure during flight.
CA.X.A.R2	Collision hazards.
CA.X.A.R3	Configuring the airplane.
CA.X.A.R4	Low altitude maneuvering, including stall, spin, or controlled flight into terrain (CFIT).
CA.X.A.R5	Distractions, task prioritization, loss of situational awareness, or disorientation.
Skills:	The applicant exhibits the skill to:
CA.X.A.S1	Recognize an engine failure, maintain control, use manufacturer’s memory item procedures, and use appropriate emergency procedures.
CA.X.A.S2	Set the engine controls, identify and verify the inoperative engine, and feather the appropriate propeller.
CA.X.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.
CA.X.A.S4	Attempt to determine and resolve the reason for the engine failure.
CA.X.A.S5	Secure the inoperative engine and monitor the operating engine and make necessary adjustments.
CA.X.A.S6	Restart the inoperative engine using manufacturer’s restart procedures.
CA.X.A.S7	Maintain altitude ±100 feet or minimum sink rate if applicable, airspeed ±10 knots, and selected headings ±10°.
CA.X.A.S8	Complete the appropriate checklist(s).

Task B. V_{MC} Demonstration (AMEL, AMES)

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

Objective: To determine the applicant exhibits satisfactory knowledge, risk management, and skills associated with V_{MC} demonstration.

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 understanding of:
CA.X.B.K1	Factors affecting V_{MC} and how V_{MC} differs from stall speed (V_S).
CA.X.B.K2	V_{MC} (red line), V_{YSE} (blue line), and safe single-engine speed (V_{SSE}).
CA.X.B.K3	Cause of loss of directional control at airspeeds below V_{MC}.
CA.X.B.K4	Proper procedures for maneuver entry and safe recovery.
Risk Management:	The applicant is able to identify, assess, and mitigate risk associated with:
CA.X.B.R1	Configuring the airplane.
CA.X.B.R2	Maneuvering with one engine inoperative.
CA.X.B.R3	Distractions, task prioritization, loss of situational awareness, or disorientation.
Skills:	The applicant exhibits the skill to:
CA.X.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:
CA.X.B.S1a	a. Landing gear retracted
CA.X.B.S1b	b. Flaps set for takeoff
CA.X.B.S1c	c. Cowl flaps set for takeoff
CA.X.B.S1d	d. Trim set for takeoff
CA.X.B.S1e	e. Propellers set for high revolutions per minute (rpm)
CA.X.B.S1f	f. Power on critical engine reduced to idle and propeller windmilling
CA.X.B.S1g	g. Power on operating engine set to takeoff or maximum available power
CA.X.B.S2	Establish a single-engine climb attitude with the airspeed at approximately 10 knots above V_{SSE}.
CA.X.B.S3	Establish a bank angle not to exceed 5° toward the operating engine, as required for best performance and controllability.
CA.X.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.
CA.X.B.S5	Recognize and recover at the first indication of loss of directional control, stall warning, or buffet.
CA.X.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.
CA.X.B.S7	Recover within 20° of entry heading.
CA.X.B.S8	Advance power smoothly on the operating engine and accelerate to V_{SSE}/V_{YSE}, as appropriate, ±5 knots during recovery.

Task C. One Engine Inoperative (Simulated) (solely by Reference to Instruments) During Straight-and-Level Flight and Turns (AMEL, AMES)

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

Objective: To determine the applicant exhibits satisfactory knowledge, risk management, and skills associated with flight solely by reference to instruments with one engine inoperative.

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 understanding of:
CA.X.C.K1	Procedures used if engine failure occurs during straight-and-level flight and turns while on instruments.
Risk Management:	The applicant is able to identify, assess, and mitigate risk associated with:
CA.X.C.R1	Identification of the inoperative engine.
CA.X.C.R2	Inability to climb or maintain altitude with an inoperative engine.
CA.X.C.R3	Low altitude maneuvering, including stall, spin, or controlled flight into terrain (CFIT).
CA.X.C.R4	Distractions, task prioritization, loss of situational awareness, or disorientation.
CA.X.C.R5	Fuel management during single-engine operation.
Skills:	The applicant exhibits the skill to:
CA.X.C.S1	Promptly recognize an engine failure and maintain positive aircraft control.
CA.X.C.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).
CA.X.C.S3	Establish the best engine-inoperative airspeed and trim the airplane.
CA.X.C.S4	Use flight controls in the proper combination as recommended by the manufacturer, or as required to maintain best performance, and trim as required.
CA.X.C.S5	Verify the prescribed checklist procedures used for securing the inoperative engine.
CA.X.C.S6	Attempt to determine and resolve the reason for the engine failure.
CA.X.C.S7	Monitor engine functions and make necessary adjustments.
CA.X.C.S8	Maintain the specified altitude ±100 feet or minimum sink rate if applicable, airspeed ±10 knots, and the specified heading ±10°.
CA.X.C.S9	Assess the aircraft's performance capability and decide an appropriate action to ensure a safe landing.
CA.X.C.S10	Avoid loss of airplane control or attempted flight contrary to the engine-inoperative operating limitations of the airplane.
CA.X.C.S11	Use Single-pilot Resource Management (SRM) or Crew Resource Management (CRM), as appropriate.

Task D. Instrument Approach and Landing with an Inoperative Engine (Simulated) (AMEL, AMES)

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

Objective: To determine the applicant exhibits satisfactory knowledge, risk management, and skills associated with executing a published instrument approach solely by reference to instruments with one engine inoperative.

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

Note: *For non-amphibious seaplanes, this task applies only when the applicant has immediate access to an instrument approach to a waterway.*

Knowledge:	The applicant demonstrates understanding of:
CA.X.D.K1	Instrument approach procedures with one engine inoperative.
Risk Management:	The applicant is able to identify, assess, and mitigate risk associated with:
CA.X.D.R1	Potential engine failure during approach and landing.
CA.X.D.R2	Collision hazards.
CA.X.D.R3	Configuring the airplane.
CA.X.D.R4	Low altitude maneuvering, including stall, spin, or controlled flight into terrain (CFIT).
CA.X.D.R5	Distractions, task prioritization, loss of situational awareness, or disorientation.
CA.X.D.R6	Performing a go-around/rejected landing with an engine failure.
Skills:	The applicant exhibits the skill to:
CA.X.D.S1	Promptly recognize an engine failure and maintain positive aircraft control.
CA.X.D.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).
CA.X.D.S3	Use flight controls in the proper combination as recommended by the manufacturer, or as required to maintain best performance, and trim as required.
CA.X.D.S4	Follow the manufacturer's recommended emergency procedures and complete the appropriate checklist.
CA.X.D.S5	Monitor the operating engine and aircraft systems and make adjustments as necessary.
CA.X.D.S6	Request and follow an actual or a simulated air traffic control (ATC) clearance for an instrument approach.
CA.X.D.S7	Maintain altitude ±100 feet or minimum sink rate if applicable, airspeed ±10 knots, and selected heading ±10°.
CA.X.D.S8	Establish a rate of descent that ensures arrival at the minimum descent altitude (MDA) or decision altitude (DA)/decision height (DH) with the airplane in a position from which a descent to a landing on the intended runway can be made, either straight in or circling as appropriate.
CA.X.D.S9	On final approach segment, maintain vertical (as applicable) and lateral guidance within ¾-scale deflection.
CA.X.D.S10	Avoid loss of airplane control or attempted flight contrary to the operating limitations of the airplane.

CA.X.D.S11 Comply with the published criteria for the aircraft approach category if circling.

CA.X.D.S12 Execute a landing.

CA.X.D.S13 Complete the appropriate checklist(s).

Area of Operation XI. Postflight Procedures

Task A. After Landing, Parking, and Securing [Airplane, Single-Engine Land (ASEL); Airplane, Multiengine Land (AMEL)]

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

Objective: To determine the applicant exhibits satisfactory knowledge, risk management, and skills associated with after landing, parking, and securing procedures.

Knowledge:	The applicant demonstrates understanding of:
CA.XI.A.K1	Airplane shutdown, securing, and postflight inspection.
CA.XI.A.K2	Documenting in-flight/postflight discrepancies.
Risk Management:	The applicant is able to identify, assess, and mitigate risk associated with:
CA.XI.A.R1	Activities and distractions.
CA.XI.A.R2	Airport specific security procedures.
CA.XI.A.R3	Disembark passengers safely and monitor passenger movement while on the ramp.
Skills:	The applicant exhibits the skill to:
CA.XI.A.S1	Park in an appropriate area, considering the safety of nearby persons and property.
CA.XI.A.S2	Complete the appropriate checklist(s).
CA.XI.A.S3	Conduct a postflight inspection and document discrepancies and servicing requirements, if any.
CA.XI.A.S4	Secure the airplane.

Task B. Seaplane Post-Landing Procedures [Airplane, Single-Engine Sea (ASES); Airplane, Multiengine Sea (AMES)]

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

Objective: To determine the applicant exhibits satisfactory knowledge, risk management, and skills associated with anchoring, docking, mooring, and ramping/beaching.

Note: *The evaluator must select at least one after-landing procedure (anchoring, docking and mooring, or ramping/beaching).*

Knowledge:	The applicant demonstrates understanding of:
CA.XI.B.K1	Mooring.
CA.XI.B.K2	Docking.
CA.XI.B.K3	Anchoring.
CA.XI.B.K4	Beaching/ramping.
CA.XI.B.K5	Postflight inspection, recording of in-flight/postflight discrepancies.
Risk Management:	The applicant is able to identify, assess, and mitigate risk associated with:
CA.XI.B.R1	Activities and distractions.
CA.XI.B.R2	Seaplane base specific security procedures, if applicable.
CA.XI.B.R3	Disembark passengers safely and monitor passenger movement while on the ramp.
Skills:	The applicant exhibits the skill to:
CA.XI.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.
CA.XI.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.
CA.XI.B.S3	Complete the appropriate checklist(s).
CA.XI.B.S4	Conduct a postflight inspection and document discrepancies and servicing requirements, if any.
CA.XI.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.

Appendix 1: Practical Test Roles, Responsibilities, and Outcomes

Eligibility Requirements for a Commercial Pilot Certificate

The prerequisite requirements and general eligibility for a practical test and the specific requirements for the original issuance of a Commercial Pilot Certificate in the airplane category can be found in 14 CFR part 61, sections 61.39(a) and 61.123.

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.

An applicant seeking to add an additional category or class to an existing certificate must comply with 14 CFR part 61, section 61.63, as applicable.

Commercial Pilot Airplane Airman Knowledge Test Table

For an initial commercial certificate, applicants must pass the knowledge test listed in the following table as a prerequisite for the practical test.

Test Code	Test Name	Number of Questions	Age	Allotted Time	Passing Score
CAX	Commercial Pilot Airplane	100	16	3.0	70

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 61.127(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, CA.I.C.K2:

CA = 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;
- 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 CA.I.H.K1 may select a sub-element such as CA.I.H.K1e 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:" (CA.I.C.K2), the applicant should be prepared for questions on any weather product presented in the references for that Task.

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 is:

- 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 determines whether the applicant meets the established standards of aeronautical knowledge, risk management, and skills for the Tasks in the appropriate ACS. This responsibility also includes verifying the experience requirements specified for a certificate or rating.

The evaluator must determine that the applicant meets FAA Aviation English Language Standard (AELS). An applicant for an FAA certificate or rating 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 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. 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.

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 who is not 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 who is not 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, Flight Standards Information Management System (FSIMS).

In either case, the evaluator must complete and submit the application file through normal application procedures and notify the appropriate FSO of the referral.

The evaluator must develop a plan of action (POA) and administer each practical test in English that includes all required Areas of Operation and Tasks. The POA must include scenario(s) that evaluate as many of the required Areas of Operation and Tasks as possible. As the scenario(s) unfolds during the test, the evaluator will introduce problems and emergencies that test the applicant’s ability. The evaluator has the discretion to modify the POA in order to accommodate unexpected situations as they arise. For example, the evaluator may elect to suspend and later resume a scenario in order to assess certain Tasks.

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

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.*

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.

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 at least a Commercial Pilot Certificate and seeks an additional Airplane category and/or class rating at the Commercial Pilot 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 commercial level, and the ratings table indicates different Task requirements, the “least restrictive” entry applies. For example, if “All” 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 Land Rating to an Existing Commercial Pilot Certificate

The following table indicates the required Tasks for each Area of Operation tested in accordance with this ACS.

	Commercial Pilot Rating(s) Held								
Area of Operation	**ASES**	**AMEL**	**AMES**	**RH**	**RG**	**PL**	**Glider**	**Balloon**	**Airship**
I	F,G	F,G	F,G	F,G	F,G	F,G	D,F,G	D,F,G	D,F,G
II	A,B,D,F	A,B,F	A,B,D,F	A,B,C,D,F	A,B,C,D,F	A,B,C,D,F	A,B,C,D,F	A,B,C,D,F	A,B,C,D,F
III	B	None	B	B	B	B	B	B	B
IV	A,B,C, D,E,F	A,B,C, D,E,F,M	A,B,C, D,E,F,M	A,B,C,D, E,F,M,N	A,B,C,D, E,F,M,N	A,B,C,D, E,F,M,N	A,B,C,D, E,F,M,N	A,B,C,D, E,F,M,N	A,B,C,D, E,F,M,N
V	None	B,C or D,E	B,C or D,E	A or B,C or D,E	A or B,C or D,E	A or B,C or D,E	A or B,C or D,E	A or B,C or D,E	A or B,C or D,E
VI	None	None	None	None	None	None	All	All	None
VII	None	None	None	All	All	All	All	All	All
VIII	None	None	None	All	All	None	All	All	All
IX	B	B,C	B,C	A,B,C	A,B,C	A,B,C	A,B,C	A,B,C	A,B,C
X	None	None	None	None	None	None	None	None	None
XI	A	None	A	A	A	A	A	A	A

Note: *If the applicant does not hold an airman certificate with an airplane single-engine class rating, and is applying for a commercial certificate in the airplane category with a single-engine class rating (ASEL or ASES), evaluators must also test the Forward Slip to a Landing Task in accordance with the Private Pilot for Airplane Category ACS (FAA-S-ACS-6 as amended), Area of Operation IV, Task M.*

Addition of an Airplane Single-Engine Sea Rating to an Existing Commercial Pilot Certificate

The following table indicates the required Tasks for each Area of Operation tested in accordance with this ACS.

	Commercial Pilot Rating(s) Held								
Area of Operation	**ASEL**	**AMEL**	**AMES**	**RH**	**RG**	**PL**	**Glider**	**Balloon**	**Airship**
I	F,G,I	F,G,I	F,G	F,G,I	F,G,I	F,G,I	D,F,G,I	D,F,G,I	D,F,G,I
II	A,B,E,F	A,B,E,F	A,B,F	A,B,C,E,F	A,B,C,E,F	A,B,C,E,F	A,B,C,E,F	A,B,C,E,F	A,B,C,E,F
III	B	B	None	B	B	B	B	B	B
IV	A,B,G,H, I,J,K,L	A,B,G,H, I,J,K,L,M	A,B,M	A,B,G,H,I, J,K,L,M,N	A,B,G,H,I, J,K,L,M,N	A,B,G,H,I, J,K,L,M,N	A,B,G,H,I, J,K,L,M,N	A,B,G,H,I, J,K,L,M,N	A,B,G,H,I, J,K,L,M,N
V	None	B,C or D,E	B,C or D,E	A or B,C or D,E	A or B,C or D,E	A or B,C or D,E	A or B,C or D,E	A or B,C or D,E	A or B,C or D,E
VI	None	None	None	None	None	None	All	All	None
VII	None	None	None	All	All	All	All	All	All
VIII	None	None	None	All	All	All	All	All	All
IX	None	B,C	B,C	A,B,C	A,B,C	A,B,C	A,B,C	A,B,C	A,B,C
X	None	None	None	None	None	None	None	None	None
XI	B	B	None	B	B	B	B	B	B

Note: *If the applicant does not hold an airman certificate with an airplane single-engine class rating, and is applying for a commercial certificate in the airplane category with a single-engine class rating (ASEL or ASES), evaluators must also test the Forward Slip to a Landing Task in accordance with the Private Pilot for Airplane Category ACS (FAA-S-ACS-6 as amended), Area of Operation IV, Task M.*

Addition of an Airplane Multiengine Land Rating to an Existing Commercial Pilot Certificate

The following table indicates the required Tasks for each Area of Operation tested in accordance with this ACS.

	Commercial Pilot Rating(s) Held								
Area of Operation	**ASEL**	**ASES**	**AMES**	**RH**	**RG**	**PL**	**Glider**	**Balloon**	**Airship**
I	F,G	F,G	F,G	F,G	F,G	F,G	D,F,G	D,F,G	F,G
II	A,B,C,D,F	A,B,C,D,F	A,D	A,B,C,D,F	A,B,C,D,F	A,B,C,D,F	A,B,C,D,F	A,B,C,D,F	A,B,C,D,F
III	None	B	B	B	D,F	B	B	B	B
IV	A,B,E,F	A,B,E,F	A,B,E,F	A,B,E,F,N	B	A,B,E,F,N	A,B,E,F,N	A,B,E,F,N	A,B,E,F,N
V	A	A	None	A	A	A	A	A	A
VI	None	None	None	None	A	None	All	All	None
VII	All	All	None	All	All	All	All	All	All
VIII	None	None	None	All	All	None	All	All	All
IX	E,F,G	E,F,G	None	A,C,E,F,G	A,C,E,F,G	A,C,E,F,G	A,C,E,F,G	A,C,E,F,G	A,C,E,F,G
X*	All	All	None	All	All	All	All	All	All
XI	None	A	A	A	A	A	A	A	A

**Tasks C and D requirements do not apply to applicants who do not hold an instrument rating or who have previously demonstrated instrument proficiency in a multiengine airplane.*

Addition of an Airplane Multiengine Sea Rating to an Existing Commercial Pilot Certificate

The following table indicates the required Tasks for each Area of Operation tested in accordance with this ACS.

	Commercial Pilot Rating(s) Held								
Area of Operation	**ASEL**	**ASES**	**AMEL**	**RH**	**RG**	**PL**	**Glider**	**Balloon**	**Airship**
I	F,G,I	F,G	F,G,I	F,G,I	F,G,I	F,G,I	D,F,G,I	D,F,G,I	F,G,I
II	A,B,E,F	A,B,E,F	A,B,E,F	A,B,C,E,F	A,B,C,E,F	A,B,C,E,F	A,B,C,E,F	A,B,C,E,F	A,B,C,E,F
III	None	None	None	B	B	B	B	B	B
IV	A,B,G,H, I,J,K,L	A,B	A,B,G,H, I,J,K,L	A,B,G,H, I,J,K,L,N	A,B,G,H, I,J,K,L,N	A,B,G,H, I,J,K,L,N	A,B,G,H, I,J,K,L,N	A,B,G,H, I,J,K,L,N	A,B,G,H, I,J,K,L,N
V	A	A	None	A	A	A	A	A	A
VI	None	None	None	None	None	None	All	All	None
VII	All	All	None	All	All	All	All	All	All
VIII	None	None	None	All	All	None	All	All	All
IX	E,F,G	E,F,G	None	A,C,E,F,G	A,C,E,F,G	A,C,E,F,G	A,C,E,F,G	A,C,E,F,G	A,C,E,F,G
X*	All	All	None	All	All	All	All	All	All
XI	B	None	B	B	B	B	B	B	B

**Tasks C and D requirements do not apply to applicants who do not hold an instrument rating or who have previously demonstrated instrument proficiency in a multiengine airplane.*

Note: *An applicant who holds a Commercial Airplane Multiengine Land Rating (AMEL) without a center thrust limitation is not required to supply a seaplane with propeller feathering capability when testing to add a Commercial Airplane Multiengine Sea Rating (AMES).*

Removal of the "Airplane Multiengine VFR Only" Limitation

The removal of the "Airplane Multiengine VFR Only" limitation, at the commercial pilot certificate level, requires an applicant to satisfactorily perform the following Area of Operation and Tasks from the Commercial – Airplane ACS in a multiengine airplane that has a manufacturer's published minimum control speed (V_{MC}).

X. Multiengine Operations
Task C: Engine Failure During Flight (Simulated)(solely by Reference to Instruments) (AMEL, AMES)
Task D: Instrument Approach and Landing with an Inoperative Engine (Simulated)(solely by Reference to Instruments) (AMEL, AMES)

Removal of the "Limited to Center Thrust" Limitation

Applicants who complete the practical test for the AMEL rating in an aircraft that does not have a manufacturer's published V_{MC} receive a certificate with a "Limited to Center Thrust" limitation. When conducting a practical test for the purpose of removing the "Limited to Center Thrust" limitation, the evaluator must test the applicant on the multiengine Tasks identified in the table below in a multiengine airplane that has a manufacturer's published V_{MC} speed. This speed appears on the type certificate data sheet (TCDS) or in the Airplane Flight Manual (AFM). Removal of the limitation under 14 CFR parts 121, 135, or 142 occurs in accordance with an approved curriculum or training program. An applicant who holds an airplane instrument rating and has not demonstrated instrument proficiency in a multiengine airplane with a published V_{MC} shall complete the additional Tasks listed under Removal of the "Airplane Multiengine VFR Only" Limitation section.

IX. Emergency Operations
Task E: Engine Failure During Takeoff Before V_{MC} (Simulated) (AMEL)
Task F: Engine Failure After Liftoff (Simulated) (AMEL, AMES)
Task G: Approach and Landing with an Inoperative Engine (Simulated) (AMEL, AMES)
X. Multiengine Operations
Task A: Maneuvering with One Engine Inoperative (AMEL, AMES)
Task B: V_{MC} Demonstration (AMEL, AMES)

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 his or her review of the appropriate checklist once conditions permit.

In a single-pilot airplane, 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 multiengine airplane used for the practical test does not publish a V_{MC}, then the "Limited to Center Thrust" limitation will be added to the certificate issued from this check, unless the applicant has previously demonstrated competence in a multiengine airplane with a published V_{MC}.

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.

A complex airplane as defined in 14 CFR part 61, section 61.1 must be used for Airplane Multiengine Land (AMEL) or Airplane Multiengine Sea (AMES) tests.

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 (FSS) or flight training devices (FTD), only when conducted within an FAA-approved training program provided by an operator utilizing a part 119 air carrier or commercial operator certificate or an operator that holds a part 141 or 142 air agency certificate. Each operational rule part identifies additional requirements for the approval and use of FSTDs in an FAA-approved training program. Reference part 61, section 61.64(a)(2).

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

IV. 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.

V. Performance and Ground Reference Maneuvers

For multiengine applicants, only Task A is required.

For initial commercial applicants seeking an ASEL or ASES rating, the evaluator must select:

- Task A, Steep Turns, or Task B, Steep Spiral;
- Task C, Chandelles, or Task D, Lazy Eights; and
- Task E, Eights on Pylons.

VII. Slow Flight and Stalls

Task A. Maneuvering During Slow Flight

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 B. 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 C. 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 D. 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.

IX. Emergency Operations

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}).

X. Multiengine Operations

Task B. V_{MC} Demonstration (AMEL, AMES)

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.

Task C. One Engine Inoperative (Simulated) (solely by Reference to Instruments) During Straight-and-Level Flight and Turns (AMEL, AMES)

This Task is not required if an instrument-rated applicant has previously demonstrated instrument proficiency in a multiengine airplane, or if the applicant does not hold an Instrument Airplane Rating. If an applicant holds both a single- and multiengine rating on a pilot certificate, but has not demonstrated instrument proficiency in a multiengine aircraft, that airman's certificate must bear a limitation indicating that multiengine flight is permitted in visual flight rules (VFR) conditions only.

Task D. Instrument Approach and Landing with an Inoperative Engine (Simulated) (solely by Reference to Instruments) (AMEL, AMES)

This Task is not required if an instrument-rated applicant has previously demonstrated instrument proficiency in a multiengine airplane, or if the applicant does not hold an Instrument Airplane Rating. If an applicant holds both a single- and multiengine rating on a pilot certificate, but has not demonstrated instrument proficiency in a multiengine aircraft, that airman's certificate must bear a limitation indicating that multiengine flight is permitted in visual flight rules (VFR) conditions only.