FAA-S-ACS-17

U.S. Department of Transportation

Federal Aviation Administration

# Airline Transport Pilot and Type Rating for Powered-Lift Category Airman Certification Standards

## November 2023

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 Airline Transport Pilot (ATP) and Type Rating for Powered-Lift Category Airman Certification Standards (ACS) to communicate the aeronautical knowledge, risk management, and flight proficiency standards for ATP pilot and type rating certification in the powered-lift category.

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

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

The FAA created FAA-G-ACS-2, Airman Certification Standards Companion Guide for Pilots, to provide guidance considered relevant and useful to the community. The number of appendices in the ACS was reduced and much of the non-regulatory material was moved to the Airman Certification Standards Companion Guide for Pilots. Applicants, instructors, and evaluators should consult this companion guide to familiarize themselves with ACS procedures. FAA-G-ACS-2 is available for download, in PDF format, from www.faa.gov.

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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.

## Use of the Term "Flight Manual"

Throughout this document, the term "flight manual" refers to the approved powered-lift aircraft flight manual.

## Area of Operation I. Preflight Preparation

### *Task A. Operation of Systems*

*References: AC 90-117, AC 91.21-1, AC 91-78, AC 120-76; FAA-H-8083-2, FAA-H-8083-25; FSB Report (type specific); Flight Manual*

**Objective:** To determine the applicant exhibits satisfactory knowledge, risk management, and skills associated with aircraft systems and their components; and their normal, abnormal, and emergency procedures.

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

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

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| *AP.I.A.K1* | Landing gear–extension/retraction system(s), indicators, brakes, antiskid, tires, nose-wheel steering, and shock absorbers. |
| *AP.I.A.K2* | Powerplant(s)–controls, indications, and systems, as applicable. |
| *AP.I.A.K3* | Thrust components–transmission, drive shafts, gear boxes, oil/fluid levels, tolerances, electronic controls, motors, ducts, and limitations as applicable. |
| *AP.I.A.K4* | Fuel system–capacity, drains, pumps, controls, indicators, cross-feeding, transferring, jettison, fuel grade, color and additives, fueling and defueling procedures, and fuel substitutions (if applicable). |
| *AP.I.A.K5* | Battery(s) used for propulsion–charging, discharging, and condition, as applicable. |
| *AP.I.A.K6* | Oil system–capacity, allowable types of oil, quantities, and indicators. |
| *AP.I.A.K7* | Hydraulic system–capacity, pumps, pressure, reservoirs, allowable types of fluid, and regulators. |
| *AP.I.A.K8* | Electrical system–alternators, generators, batteries, circuit breakers and protection devices, controls, indicators, and external and auxiliary power sources and ratings. |
| *AP.I.A.K9* | Pneumatic and environmental systems–heating, cooling, ventilation, oxygen, pressurization, supply for ice protection systems, controls, indicators, and regulating devices. |
| *AP.I.A.K10* | Avionics and communications–autopilot, flight director, Electronic Flight Instrument Systems (EFIS), Flight Management System (FMS), Electronic Flight Bag (EFB), Radar, Inertial Navigation Systems (INS), Global Navigation Satellite System (GNSS), Space-Based Augmentation System (SBAS), Ground-Based Augmentation System (GBAS), ground-based navigation systems and components, Automatic Dependent Surveillance – Broadcast (ADS-B) In and Out, Automatic Dependent Surveillance – Contract (ADS-C), traffic awareness/warning/avoidance systems, terrain awareness/warning/alert systems, communication systems (e.g., data link, Ultra High Frequency (UHF)/Very High Frequency (VHF)/High Frequency (HF), satellite), Controller Pilot Data Link Communication (CPDLC), indicating devices, transponder, and emergency locator transmitter, Head Up-Display (HUD). |
| *AP.I.A.K11* | Ice protection–anti-ice, deice, pitot-static system protection, turbine inlet, windshield, airfoil surfaces, and other related components. |
| *AP.I.A.K12* | Crewmember and passenger equipment–oxygen system, survival gear, emergency exits, evacuation procedures and crew duties, quick donning oxygen mask for crewmembers, passenger oxygen system. |
| *AP.I.A.K13* | Flight controls appropriate for the aircraft provided for the practical test. |
| *AP.I.A.K14* | Pitot-static system–associated instruments and the power source for those flight instruments. Operation and power sources for other flight instruments. |

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| *AP.I.A.K15* | Fire & smoke detection, protection, and suppression–powerplant, cargo and passenger compartments, lavatory, pneumatic and environmental, electrical/avionics, and batteries (on aircraft and personal electronic devices). |
| *AP.I.A.K16* | Envelope protection–angle of attack warning and protection, and speed protection. |
| *AP.I.A.K17* | Flight manual as it relates to the systems and components in the aircraft. |
| *AP.I.A.K18* | How to use a Minimum Equipment List (MEL) and a Configuration Deviation List (CDL). |

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

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| *AP.I.A.R1* | Detection of system malfunctions or failures. |
| *AP.I.A.R2* | Management of a system failure. |
| *AP.I.A.R3* | Monitoring and management of automated systems, if applicable. |
| *AP.I.A.R4* | Following checklists or procedures. |

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

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| *AP.I.A.S1* | Explain and describe the operation of the aircraft systems and components using correct terminology. |
| *AP.I.A.S2* | Recall immediate action items or memory items, if appropriate. |
| *AP.I.A.S3* | Identify system or component limitations listed in the flight manual. |
| *AP.I.A.S4* | Demonstrate or describe, as appropriate, the process for deferring inoperative equipment (e.g., MEL) and using a CDL. |
| *AP.I.A.S5* | Comply with operations specifications, management specifications, and letters of authorization, if applicable. |
| *AP.I.A.S6* | Through the use of the appropriate checklists and normal and abnormal procedures, demonstrate the proper use of the aircraft systems, subsystems, and devices, as determined by the evaluator. |

### *Task B. Performance and Limitations*

*References: 14 CFR part 91; AC 20-117, AC 91-74, AC 120-27, AC 135-17; AIM; Chart Supplements; FAA-H-8083-1, FAA-H-8083-2, FAA-H-8083-25; Flight Manual*

**Objective:** To determine that the applicant exhibits satisfactory knowledge, risk management, and skills associated with operating an aircraft safely within its operating envelope.

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

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

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| *AP.I.B.K1* | Elements related to performance and limitations by explaining the use of charts, tables, and data to determine performance. |
| *AP.I.B.K2* | How to determine the following: |
| *AP.I.B.K2a* | a. Aircraft performance in selected phase(s) of flight |
| *AP.I.B.K2b* | b. Performance with a powerplant inoperative in selected phase(s) of flight |

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| *AP.I.B.K2c* | c. Weight and balance and how to shift weight |
| *AP.I.B.K2d* | d. Other performance data as appropriate to the aircraft |
| *AP.I.B.K3* | Factors affecting performance, including: |
| *AP.I.B.K3a* | a. Atmospheric conditions |
| *AP.I.B.K3b* | b. Pilot technique |
| *AP.I.B.K3c* | c. Airport environment (e.g., runway condition, land and hold short operations (LAHSO)) |
| *AP.I.B.K3d* | d. Aircraft configuration |
| *AP.I.B.K3e* | e. Loading [e.g., center of gravity (CG)] |
| *AP.I.B.K3f* | f. Weight and balance |
| *AP.I.B.K4* | Aerodynamics and how it relates to performance. |
| *AP.I.B.K5* | Adverse effects of exceeding an aircraft limitation or the aircraft operating envelope. |
| *AP.I.B.K6* | Clean wing concept; deicing and anti-icing procedures, including use of appropriate deice fluid, hold-over tables, calculating hold-over times, and pre-takeoff contamination checks. |
| *AP.I.B.K7* | Relationship between Mach number, indicated airspeed, true airspeed, and change over altitudes. |
| *AP.I.B.K8* | Best range and endurance speed. |
| *AP.I.B.K9* | Height/Velocity (H/V) diagram according to the flight manual. |

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| **Risk Management:** | The applicant is able to identify, assess, and mitigate risk associated with: |
| *AP.I.B.R1* | Use of performance charts, tables, and data. |
| *AP.I.B.R2* | Aircraft limitations. |
| *AP.I.B.R3* | Possible differences between calculated performance and actual performance. |
| *AP.I.B.R4* | Aircraft icing and its effect on performance and stall warning. |
| *AP.I.B.R5* | Operating with reduced power margins. |

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| **Skills:** | The applicant exhibits the skill to: |
| *AP.I.B.S1* | Describe the airspeeds and configurations used during specific phases of flight. |
| *AP.I.B.S2* | Describe the effects of meteorological conditions on performance for all phases of flight and correctly apply these factors to a specific chart, table, graph, or other performance data. |
| *AP.I.B.S3* | Describe the procedures for surface (wing, rotor,etc.) contamination recognition and any deice/anti-ice procedures prior to takeoff. |
| *AP.I.B.S4* | Explain the adverse effects of airframe icing during all phases of flight. Describe any operating limitations for flight in icing conditions. If equipped, describe the procedures for deicing and anti-icing system use and their effects on performance. |
| *AP.I.B.S5* | Compute weight and balance, including practical techniques to resolve out-of-limits calculations for a representative scenario, as specified by the evaluator. |
| *AP.I.B.S6* | Determine the computed center of gravity is within the acceptable limits and the lateral fuel balance is within limits for takeoff and landing. |

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| *AP.I.B.S7* | Demonstrate proficient use of appropriate performance charts, tables, graphs, or other means to determine aircraft performance and limitations for all phases of flight. |

### *Task C. Weather Information (ATP)*

*References: 14 CFR part 91; AC 91-74 AC 91-92; AIM; FAA-H-8083-2, FAA-H-8083-16, FAA-H-8083-25, FAA-H-8083-28*

**Objective:** To determine the applicant exhibits satisfactory knowledge, risk management, and skills associated with obtaining, understanding, and applying weather information for a flight under IFR.

***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.*

***Note:*** *See Appendix 1: Practical Test Roles, Responsibilities, and Outcomes and Appendix 3: Aircraft, Equipment, and Operational Requirements & Limitations for information related to this Task.*

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| **Knowledge:** | The applicant demonstrates understanding of: |
| *AP.I.C.K1* | Sources of weather data (e.g., National Weather Service, Flight Service) for flight planning purposes. |
| *AP.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: |
| *AP.I.C.K2a* | a. Airport Observations (METAR and SPECI) and Pilot Observations (PIREP) |
| *AP.I.C.K2b* | b. Surface Analysis Chart, Ceiling and Visibility Chart (CVA) |
| *AP.I.C.K2c* | c. Terminal Aerodrome Forecasts (TAF) |
| *AP.I.C.K2d* | d. Graphical Forecasts for Aviation (GFA) |
| *AP.I.C.K2e* | e. Wind and Temperature Aloft Forecast (FB) |
| *AP.I.C.K2f* | f. Convective Outlook (AC) |
| *AP.I.C.K2g* | g. Inflight Aviation Weather Advisories including Airmen's Meteorological Information (AIRMET), Significant Meteorological Information (SIGMET), and Convective SIGMET |
| *AP.I.C.K3* | Meteorology applicable to the departure, en route, alternate, and destination for flights conducted under Instrument Flight Rules (IFR) to include expected climate and hazardous conditions such as: |
| *AP.I.C.K3a* | a. Atmospheric composition and stability |
| *AP.I.C.K3b* | b. Wind (e.g., windshear, mountain wave, factors affecting wind, etc.) |
| *AP.I.C.K3c* | c. Temperature and heat exchange |
| *AP.I.C.K3d* | d. Moisture/precipitation |
| *AP.I.C.K3e* | e. Weather system formation, including air masses and fronts |
| *AP.I.C.K3f* | f. Clouds |
| *AP.I.C.K3g* | g. Turbulence |
| *AP.I.C.K3h* | h. Thunderstorms and microbursts |
| *AP.I.C.K3i* | i. Icing and freezing level information |
| *AP.I.C.K3j* | j. Fog/mist |

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| *AP.I.C.K3k* | k. Frost |
| *AP.I.C.K3l* | l. Obstructions to visibility (e.g., smoke, haze, volcanic ash, etc.) |
| *AP.I.C.K4* | Flight deck displays of digital weather and aeronautical information, their use to navigate around weather, and equipment limitations. |
| *AP.I.C.K5* | Low-visibility operations (e.g., surface movement, category II and III approaches). (ATP)(AMEL, AMES). |
| *AP.I.C.K6* | Flight Risk Assessment Tools. |

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| **Risk Management:** | The applicant is able to identify, assess, and mitigate risk associated with: |
| *AP.I.C.R1* | Weather conditions involved in departure and in-flight decision making, to include: |
| *AP.I.C.R1a* | a. Circumstances requiring a change in course or destination |
| *AP.I.C.R1b* | b. Known or forecast icing, winds or turbulence aloft, volcanic ash, destination weather, etc. |
| *AP.I.C.R1c* | c. Personal weather minimums |
| *AP.I.C.R1d* | d. Operator specified or aircraft operational limitations, if applicable |
| *AP.I.C.R2* | Use and limitations of: |
| *AP.I.C.R2a* | a. Installed onboard weather equipment |
| *AP.I.C.R2b* | b. Aviation weather reports and forecasts |
| *AP.I.C.R2c* | c. Inflight weather resources |

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| **Skills:** | The applicant exhibits the skill to: |
| *AP.I.C.S1* | Interpret weather information, apply principles of aeronautical decision-making, and use a Flight Risk Assessment Tool, if available. |

### *Task D. Human Factors (ATP)*

*References: 14 CFR part 91; AC 120-100, AC 120-51; 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.

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

***Note:*** *See Appendix 1: Practical Test Roles, Responsibilities, and Outcomes and Appendix 3: Aircraft, Equipment, and Operational Requirements & Limitations for information related to this Task.*

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| **Knowledge:** | The applicant demonstrates understanding of: |
| *AP.I.D.K1* | Causes, effects, recognition, and corrective actions associated with aeromedical and physiological issues, including: |
| *AP.I.D.K1a* | a. Hypoxia |
| *AP.I.D.K1b* | b. Hyperventilation |
| *AP.I.D.K1c* | c. Middle ear and sinus problems |

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| *AP.I.D.K1d* | d. Spatial disorientation |
| *AP.I.D.K1e* | e. Motion sickness |
| *AP.I.D.K1f* | f. Carbon monoxide poisoning |
| *AP.I.D.K1g* | g. Stress |
| *AP.I.D.K1h* | h. Fatigue |
| *AP.I.D.K1i* | i. Dehydration and nutrition |
| *AP.I.D.K1j* | j. Hypothermia |
| *AP.I.D.K1k* | k. Optical illusions |
| *AP.I.D.K1l* | l. Dissolved nitrogen in the bloodstream after scuba dives |
| *AP.I.D.K2* | Effects of alcohol, drugs, and over-the-counter medications. |
| *AP.I.D.K3* | Aeronautical Decision-Making (ADM) to include using Crew Resource Management (CRM) or Single-Pilot Resource Management (SRM), as appropriate. |
| *AP.I.D.K4* | Components of self-assessment for determining fitness for flight. |

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

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| *AP.I.D.R1* | Aeromedical and physiological issues. |
| *AP.I.D.R2* | Hazardous attitudes. |
| *AP.I.D.R3* | Distractions, task prioritization, loss of situational awareness, or disorientation. |
| *AP.I.D.R4* | Confirmation and expectation bias. |

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

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| *AP.I.D.S1* | Perform a self-assessment and determine fitness for flight. |

### *Task E. The Code of Federal Regulations (CFR) (ATP)*

*References: 14 CFR parts 61, 91, 135; 49 CFR part 830; FAA-H-8083-2, FAA-H-8083-25*

**Objective:** To determine the applicant exhibits satisfactory knowledge associated with regulations applicable to the privileges and limitations of the ATP certificate and to flight operations that require an ATP certificate.

***Note:*** *See Appendix 1: Practical Test Roles, Responsibilities, and Outcomes and Appendix 3: Aircraft, Equipment, and Operational Requirements & Limitations for information related to this Task.*

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

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| *AP.I.E.K1* | 14 CFR part 61 subparts A, B, G. |
| *AP.I.E.K2* | 14 CFR part 91 subparts A, B, C, F, G, H. |
| *AP.I.E.K3* | 14 CFR part 135 subparts A, B, C, D, E, F, G. |
| *AP.I.E.K4* | 49 CFR part 830. |

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

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| *AP.I.E.R1* | Lack of compliance with the applicable CFRs. |

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| **Skills:** | The applicant exhibits the skill to: |
| *AP.I.E.S1* | Apply the CFRs to the flight and operation. |

## Area of Operation II. Preflight Procedures

### *Task A. Preflight Assessment*

*References: 14 CFR parts 43, 61, 71, 91, 97, 119, 135; AC 120-27, AC 135-17; AIM; FAA-H-8083-2, FAA-H-8083-25, FAA-H-8083-28; Flight Manual*

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

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

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| **Knowledge:** | The applicant demonstrates understanding of: |
| *AP.II.A.K1* | Pilot self-assessment. |
| *AP.II.A.K2* | Determining that the aircraft to be used is appropriate, airworthy, and in a condition for safe flight by locating and explaining related documents such as: |
| *AP.II.A.K2a* | a. Airworthiness and registration certificates |
| *AP.II.A.K2b* | b. Operating limitations, handbooks, and manuals |
| *AP.II.A.K2c* | c. Minimum Equipment List (MEL) and Configuration Deviation List (CDL), Kinds of Operations Equipment Lists (KOEL) |
| *AP.II.A.K2d* | d. Weight and balance data |
| *AP.II.A.K2e* | e. Required inspections or tests and appropriate records and documentation (e.g., dispatch release) as applicable to the proposed flight or operation |
| *AP.II.A.K3* | Preventive maintenance that can be performed by the pilot or other designated crewmember. |
| *AP.II.A.K4* | Aircraft preflight inspection, including: |
| *AP.II.A.K4a* | a. Which items should be inspected |
| *AP.II.A.K4b* | b. The reasons for checking each item |
| *AP.II.A.K4c* | c. How to detect possible defects |
| *AP.II.A.K4d* | d. The associated regulations |
| *AP.II.A.K5* | Environmental factors, including weather, terrain, route selection, and obstructions. |
| *AP.II.A.K6* | Requirements for current and appropriate navigation data. |
| *AP.II.A.K7* | Operations specifications, management specifications, or letters of authorization applying to a particular aircraft and operation, if applicable. |

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| **Risk Management:** | The applicant is able to identify, assess, and mitigate risk associated with: |
| *AP.II.A.R1* | Human performance factors. |
| *AP.II.A.R2* | Inoperative equipment discovered prior to flight. |
| *AP.II.A.R3* | Environment (e.g., weather, airports, airspace, terrain, obstacles). |
| *AP.II.A.R4* | External pressures. |
| *AP.II.A.R5* | Aviation security concerns. |

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| **Skills:** | The applicant exhibits the skill to: |
| *AP.II.A.S1* | Inspect the aircraft in accordance with an appropriate checklist demonstrating proper operation of applicable aircraft systems. Coordinate checklist with crew, if appropriate. |
| *AP.II.A.S2* | Coordinate with ground crew and ensure adequate clearance prior to moving doors, hatches, flight control surfaces, etc. |
| *AP.II.A.S3* | Document any discrepancies found; take corrective action and acknowledge limitations imposed by MEL/CDL items, if applicable. |
| *AP.II.A.S4* | Determine if the aircraft is airworthy and in condition for safe flight. |
| *AP.II.A.S5* | Identify and comply with operations specifications as required. |
| *AP.II.A.S6* | Assess factors related to the environment (weather, airports, terrain, airspace). |
| *AP.II.A.S7* | Ensure the aircraft and surfaces are free of ice, snow, and frost. If icing conditions are present, demonstrate satisfactory knowledge of deicing procedures. |
| *AP.II.A.S8* | Use single-pilot resource management (SRM) or crew resource management (CRM), as appropriate. |

### *Task B. Powerplant Start*

*References: AIM; FAA-H-8083-2, FAA-H-8083-25; Flight Manual*

**Objective:** To determine the applicant exhibits satisfactory knowledge, risk management, and skills associated with powerplant start procedures.

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

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| **Knowledge:** | The applicant demonstrates understanding of: |
| *AP.II.B.K1* | Normal and abnormal powerplant start procedures and limitations, including the use of an auxiliary power unit (APU) or external power source, if applicable. |
| *AP.II.B.K2* | Starting under various conditions. |
| *AP.II.B.K3* | Malfunctions during powerplant start, procedures to address the malfunction, and any associated limitations. |
| *AP.II.B.K4* | Coordinating and communicating with ground personnel for powerplant start, if applicable. |

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| **Risk Management:** | The applicant is able to identify, assess, and mitigate risk associated with: |
| *AP.II.B.R1* | Malfunctions during powerplant start. |
| *AP.II.B.R2* | External or internal power starts. |
| *AP.II.B.R3* | Thrust device, rotor, exhaust, and powerplant safety, as applicable. |
| *AP.II.B.R4* | Hazards, including downwash, personnel, vehicles, vessels, foreign object debris, and other aircraft in the vicinity during powerplant start. |
| *AP.II.B.R5* | Managing situations where specific instructions or checklist items are not published. |

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

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| *AP.II.B.S1* | Ensure the ground safety procedures are followed during the before-start, start, and after-start phases. |
| *AP.II.B.S2* | Use appropriate ground crew personnel during the start procedures (if applicable). |
| *AP.II.B.S3* | Coordinate with crew, if applicable, and complete the appropriate checklist(s) prior to and after powerplant start. |
| *AP.II.B.S4* | Respond appropriately to an abnormal start or malfunction. |

### *Task C. Ground Taxiing*

*References: 14 CFR part 91, 135; AC 91-73, 120-74; AIM; Chart Supplements; FAA-H-8083-2, FAA-H-8083-25; NOTAMs; Flight Manual*

**Objective:** To determine the applicant exhibits satisfactory knowledge, risk management, and skills associated with safe taxi operations.

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

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| *AP.II.C.K1* | Current airport aeronautical references and information resources such as the Chart Supplement, airport diagram, and Notices to Air Missions (NOTAMs). |
| *AP.II.C.K2* | Taxi instructions/clearances, including published taxi routes. |
| *AP.II.C.K3* | Airport/heliport/helipad/landing area, signs, markings, and lighting. |
| *AP.II.C.K4* | Appropriate aircraft lighting for day and night operations. |
| *AP.II.C.K5* | Appropriate aircraft configuration. |
| *AP.II.C.K6* | Communications at towered and nontowered airports. |
| *AP.II.C.K7* | Appropriate flight deck activities prior to taxi, including route planning, identifying the location of Hot Spots, and coordinating with crew if, applicable. |
| *AP.II.C.K8* | Entering or crossing runways. |
| *AP.II.C.K9* | Night taxi operations. |
| *AP.II.C.K10* | Low visibility taxi operations and techniques used to avoid disorientation. |

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

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| *AP.II.C.R1* | Distractions, task prioritization, loss of situational awareness, or disorientation. |
| *AP.II.C.R2* | Confirmation or expectation bias as related to taxi instructions. |
| *AP.II.C.R3* | A taxi route or departure runway change. |
| *AP.II.C.R4* | Use of checklists or procedures. |
| *AP.II.C.R5* | Low visibility taxi operations. |
| *AP.II.C.R6* | Runway incursion. |

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

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| *AP.II.C.S1* | Receive/record taxi instructions, read back/acknowledge taxi clearances, and review taxi routes on the airport diagram. |

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| *AP.II.C.S2* | Use an appropriate airport/heliport diagram or taxi chart, if published. |
| *AP.II.C.S3* | Comply with air traffic control (ATC) clearances and instructions and observe all runway hold lines, Instrument Landing System (ILS) critical areas, beacons, and other airport/taxiway markings and lighting. |
| *AP.II.C.S4* | Coordinate with crew, if applicable, and complete the appropriate checklist(s) prior to and during taxi, as appropriate. |
| *AP.II.C.S5* | Maintain situational awareness. |
| *AP.II.C.S6* | Use appropriate thrust and maintain correct and positive aircraft control, proper speed, and appropriate separation between other aircraft, vehicles, and persons to avoid an incursion/incident/accident. |
| *AP.II.C.S7* | Demonstrate taxi during day and night operations. If either condition is not available, the applicant explains the differences between day and night taxi. |
| *AP.II.C.S8* | Demonstrate proper use of aircraft exterior lighting for day and night operations. If either condition is not available, the applicant explains the differences between exterior aircraft lighting used for day and night operations. |
| *AP.II.C.S9* | Explain the hazards of low visibility taxi operations. |

### *Task D. Hover Taxi*

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

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

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|---|---|
| **Knowledge:** | The applicant demonstrates understanding of: |
| *AP.II.D.K1* | Current airport aeronautical references and information resources such as the Chart Supplement, airport diagram, and Notices to Air Missions (NOTAMs). |
| *AP.II.D.K2* | Hover taxi instructions, clearances, and limitations. |
| *AP.II.D.K3* | Airport, heliport, helipad, or unprepared surface environment. |
| *AP.II.D.K4* | Visual indicators for wind. |
| *AP.II.D.K5* | Aircraft lighting, as appropriate. |
| *AP.II.D.K6* | Procedures for. |
| *AP.II.D.K6a* | a. Appropriate flight deck activities during taxiing |
| *AP.II.D.K6b* | b. Safe hover taxi at towered and non-towered airports/heliports/helipads/landing areas |
| *AP.II.D.K6c* | c. Entering or crossing runways |
| *AP.II.D.K7* | Aircraft configuration. |
| *AP.II.D.K8* | Aircraft operating limitations. |

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| **Risk Management:** | The applicant is able to identify, assess, and mitigate risk associated with: |
| *AP.II.D.R1* | Distractions, task prioritization, loss of situational awareness, or disorientation. |

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| *AP.II.D.R2* | Low visibility hover taxi operations. |
| *AP.II.D.R3* | Powerplant(s) failure during hover taxi. |
| *AP.II.D.R4* | Other aircraft and hazards. |
| *AP.II.D.R5* | Hazardous effects of downwash. |
| *AP.II.D.R6* | Aircraft configuration. |
| *AP.II.D.R7* | Height/Velocity (H/V) considerations. |
| *AP.II.D.R8* | Crosswind limitations. |
| *AP.II.D.R9* | Confirmation or expectation bias as related to taxi instructions. |
| *AP.II.D.R10* | Runway incursion. |
| *AP.II.D.R11* | Other hazards specific to the powered-lift make and model. |

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| **Skills:** | The applicant exhibits the skill to: |
| *AP.II.D.S1* | Complete the appropriate checklist(s). |
| *AP.II.D.S2* | Receive and correctly read back clearances/instructions, if applicable. |
| *AP.II.D.S3* | Use an airport diagram or taxi chart during taxi, if published, and maintain situational awareness. |
| *AP.II.D.S4* | Comply with airport/heliport taxiway markings, signals, and signs. |
| *AP.II.D.S5* | Position the primary flight controls, including the thrust vector, for the prevailing environmental conditions. |
| *AP.II.D.S6* | Hover taxi over specified ground references, demonstrating forward, sideward, and rearward hovering and hovering turns. |
| *AP.II.D.S7* | Maintain recommended hovering altitude, ±1/2 of that altitude within 10 feet of the surface, if above 10 feet, ±5 feet. |
| *AP.II.D.S8* | Demonstrate the maneuver in crosswind conditions on specified headings. |

### *Task E. Air Taxi*

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

**Objective:** To determine the applicant exhibits satisfactory knowledge, risk management, and skills associated with air taxi operations.

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| **Knowledge:** | The applicant demonstrates understanding of: |
| *AP.II.E.K1* | Current airport aeronautical references and information resources such as the Chart Supplement, airport diagram, and Notices to Air Missions (NOTAMs). |
| *AP.II.E.K2* | Air taxi instructions, clearances, and limitations. |
| *AP.II.E.K3* | Aircraft configuration. |
| *AP.II.E.K4* | Airport, heliport, helipad, or unprepared surface environment. |
| *AP.II.E.K5* | Visual indicators for wind. |

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| *AP.II.E.K6* | Aircraft lighting, as appropriate. |
| *AP.II.E.K7* | Procedures for: |
| *AP.II.E.K7a* | a. Appropriate flight deck activities during taxiing |
| *AP.II.E.K7b* | b. Safe air taxi at towered and non-towered airports/heliports/helipads/landing areas |
| *AP.II.E.K7c* | c. Overflying of runways |
| *AP.II.E.K8* | Aircraft operating limitations. |
| *AP.II.E.K9* | Appropriate height and speed for air taxi. |
| *AP.II.E.K10* | Height/Velocity (H/V) considerations. |

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

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| *AP.II.E.R1* | Activities and distractions. |
| *AP.II.E.R2* | Reduced visibility or night taxi operations. |
| *AP.II.E.R3* | H/V diagram performance in case of powerplant failure. |
| *AP.II.E.R4* | Other aircraft and hazards. |
| *AP.II.E.R5* | Runway incursion. |

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

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| *AP.II.E.S1* | Complete the appropriate checklist(s). |
| *AP.II.E.S2* | Use an airport diagram or taxi chart during taxi, if published, and maintain situational awareness. |
| *AP.II.E.S3* | Select a safe airspeed and altitude. |
| *AP.II.E.S4* | Maintain specified altitude, ±10 feet. |
| *AP.II.E.S5* | Maintain a designated airspeed, ±10 knots, taxi height, ±10 feet, and flight path. |
| *AP.II.E.S6* | Air taxi from one point to another under various wind conditions. |
| *AP.II.E.S7* | Maintain the aircraft within operating limits throughout the maneuver. |
| *AP.II.E.S8* | Comply with airport/heliport/helipad/landing area markings, lights, signs, and ATC instructions. |
| *AP.II.E.S9* | Use single-pilot resource management (SRM) or crew resource management (CRM), as appropriate. |

### *Task F. Before Takeoff Checks*

*References: FAA-H-8083-2, FAA-H-8083-25; Flight Manual*

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

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

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

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| *AP.II.F.K1* | Purpose of before takeoff checklist items, including: |
| *AP.II.F.K1a* | a. Reasons for checking each item |
| *AP.II.F.K1b* | b. Detecting malfunctions |
| *AP.II.F.K1c* | c. Ensuring the aircraft is in safe operating condition |
| *AP.II.F.K2* | Deicing and anti-icing procedures, holdover times, and pre-takeoff contamination check. |
| *AP.II.F.K3* | Adverse weather considerations for performance on takeoff (e.g., snow, ice, gusting crosswinds, low-visibility). |
| *AP.II.F.K4* | Items to be included in a before takeoff briefing. |

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| **Risk Management:** | The applicant is able to identify, assess, and mitigate risk associated with: |
| *AP.II.F.R1* | Division of attention while conducting before takeoff checks. |
| *AP.II.F.R2* | An unexpected change in the runway to be used for departure. |
| *AP.II.F.R3* | Using performance data to set airspeeds and flight instruments for actual conditions and the departure runway. |
| *AP.II.F.R4* | Setting navigation and communication equipment for departure. |
| *AP.II.F.R5* | Configuring autopilot and flight director for departure. |
| *AP.II.F.R6* | Adverse weather conditions prior to takeoff (e.g., snow, ice, gusting crosswinds, low-visibility). |
| *AP.II.F.R7* | Potential powerplant failure during takeoff or other malfunction considering operational factors such as aircraft characteristics, runway/takeoff path length, surface. |

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| **Skills:** | The applicant exhibits the skill to: |
| *AP.II.F.S1* | Determine the aircraft's takeoff performance and set configuration for the planned departure. |
| *AP.II.F.S2* | Coordinate with crew, if applicable, and complete the appropriate checklist(s) prior to takeoff in a timely manner. |
| *AP.II.F.S3* | Determine all systems checked are within an acceptable operating range and are safe for the proposed flight. During the checks, explain at the request of the evaluator, any system operating characteristic or limitation and any corrective action for a malfunction. |
| *AP.II.F.S4* | Determine airspeeds/V-speeds and set flight instruments appropriately, configure flight director, autopilot, and navigation and communication equipment for the current flight conditions and takeoff and departure clearances. |
| *AP.II.F.S5* | Conduct a briefing that includes procedures for emergency and abnormal situations (e.g., powerplant failure, windshear), which may be encountered during takeoff, and state the planned action if they were to occur. |
| *AP.II.F.S6* | Obtain and correctly interpret the takeoff and departure clearance. |

### *Task G. Flight Deck Management*

*References: 14 CFR part 91; AC 120-71; FAA-H-8083-2, FAA-H-8083-25; Flight Manual*

**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.*

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| **Knowledge:** | The applicant demonstrates understanding of: |
| *AP.II.G.K1* | Passenger briefing requirements, including operation and required use of safety restraint systems. |
| *AP.II.G.K2* | Use of appropriate checklists. |
| *AP.II.G.K3* | Requirements for current and appropriate navigation data. |
| *AP.II.G.K4* | Securing items and cargo. |
| **Risk Management:** | The applicant is able to identify, assess, and mitigate risk associated with: |
| *AP.II.G.R1* | Use of systems or equipment, including automation and portable electronic devices. |
| *AP.II.G.R2* | Inoperative equipment. |
| *AP.II.G.R3* | Passenger distractions. |
| **Skills:** | The applicant exhibits the skill to: |
| *AP.II.G.S1* | Secure all items in the aircraft. |
| *AP.II.G.S2* | Conduct an appropriate passenger briefing, including identifying the pilot-in-command (PIC), use of safety belts, shoulder harnesses, doors, sterile aircraft, passenger conduct and avoidance of rotor or air induction systems, powerplants, and other heat sources, and emergency procedures. |
| *AP.II.G.S3* | Properly program and manage the aircraft's automation, as applicable. |
| *AP.II.G.S4* | Use single-pilot resource management (SRM) or crew resource management (CRM), as appropriate. |

## Area of Operation III. Takeoff and Departure Phase

***Note:*** *Select all applicable tasks in accordance with the aircraft's operating characteristics as specified in the flight manual.*

### *Task A. Normal Takeoff and Climb from a Hover*

*References: AIM; FAA-H-8083-2, FAA-H-8083-25; Flight Manual*

**Objective:** To determine the applicant exhibits satisfactory knowledge, risk management, and skills associated with normal takeoff and climb from a hover.

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

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

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| **Knowledge:** | The applicant demonstrates understanding of: |
| *AP.III.A.K1* | Effects of atmospheric conditions, including wind, on takeoff and climb performance. |
| *AP.III.A.K2* | Recommended takeoff and climb profiles. |
| *AP.III.A.K3* | Aircraft configuration. |
| *AP.III.A.K4* | Factors affecting the profile of the height/velocity (H/V) diagram. |
| **Risk Management:** | The applicant is able to identify, assess, and mitigate risk associated with: |
| *AP.III.A.R1* | Selection of helipad/deck, runway, or departure point based on aircraft performance and limitations, available distance, and wind. |
| *AP.III.A.R2* | Effects of: |
| *AP.III.A.R2a* | a. Crosswind |
| *AP.III.A.R2b* | b. Windshear |
| *AP.III.A.R2c* | c. Tailwind |
| *AP.III.A.R2d* | d. Wake turbulence |
| *AP.III.A.R2e* | e. Runway/departure point surface/condition |
| *AP.III.A.R2f* | f. Aircraft weight |
| *AP.III.A.R3* | Abnormal operations including: |
| *AP.III.A.R3a* | a. Rejected takeoff |
| *AP.III.A.R3b* | b. Powerplant failure in hover/takeoff/climb phase of flight |
| *AP.III.A.R4* | Collision hazards. |
| *AP.III.A.R5* | Low altitude maneuvering, including stall, spin, or controlled flight into terrain (CFIT). |
| *AP.III.A.R6* | Distractions, task prioritization, loss of situational awareness, or disorientation. |
| **Skills:** | The applicant exhibits the skill to: |

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| *AP.III.A.S1* | Complete the appropriate checklist(s). |
| *AP.III.A.S2* | Make radio calls as appropriate. |
| *AP.III.A.S3* | Verify assigned/correct runway, if at an airport. |
| *AP.III.A.S4* | Determine wind direction with or without visible wind direction indicators. |
| *AP.III.A.S5* | Position the flight controls and configure the aircraft for the existing wind conditions. |
| *AP.III.A.S6* | Clear the area, ground or hover taxi into takeoff position, and hover the aircraft above the departure point, aligned with the departure path. |
| *AP.III.A.S7* | Confirm takeoff power and instrument indications prior to forward movement. |
| *AP.III.A.S8* | Takeoff and accelerate to the manufacturer's recommended speed. |
| *AP.III.A.S9* | After takeoff, establish and maintain a positive rate of climb and configure aircraft, as appropriate. |
| *AP.III.A.S10* | Maintain the aircraft within operating limits throughout the maneuver. |
| *AP.III.A.S11* | Maintain $V_Y$ ±5 knots to a safe maneuvering altitude. |
| *AP.III.A.S12* | Maintain directional control and proper wind-drift correction throughout takeoff and climb. |
| *AP.III.A.S13* | Comply with noise abatement procedures, as applicable. |
| *AP.III.A.S14* | Use runway incursion avoidance procedures, if applicable. |

### *Task B. Rolling Takeoff and Climb*

*References: FAA-H-8083-2, FAA-H-8083-25; Flight Manual*

**Objective:** To determine the applicant exhibits satisfactory knowledge, risk management, and skills associated with rolling takeoff with wheel-type landing gear.

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

***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:

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|---|---|
| *AP.III.B.K1* | Effects of atmospheric conditions, including wind, temperature and altitude, on takeoff and climb performance and the H/V diagram. |
| *AP.III.B.K2* | Aircraft performance and limitations. |
| *AP.III.B.K3* | Appropriate aircraft configuration and power setting for takeoff and climb. |
| *AP.III.B.K4* | Translational lift. |
| *AP.III.B.K5* | Runway markings and lighting. |

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

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|---|---|
| *AP.III.B.R1* | Selection of a runway, or runway intersection, aircraft limitations, available distance, surface conditions, wind, and takeoff and landing distance. |

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|---|---|
| *AP.III.B.R2* | Effects of. |
| *AP.III.B.R2a* | a. Crosswind |
| *AP.III.B.R2b* | b. Windshear |
| *AP.III.B.R2c* | c. Tailwind |
| *AP.III.B.R2d* | d. Wake turbulence |
| *AP.III.B.R2e* | e. Runway/departure point surface/condition |
| *AP.III.B.R2f* | f. Aircraft weight |
| *AP.III.B.R3* | Abnormal operations, including planning for: |
| *AP.III.B.R3a* | a. Rejected takeoff |
| *AP.III.B.R3b* | b. Powerplant failure in takeoff/climb phase of flight |
| *AP.III.B.R4* | Aircraft configuration. |
| *AP.III.B.R5* | Collision hazards. |
| *AP.III.B.R6* | Low altitude maneuvering, including stall, spin, or controlled flight into terrain (CFIT). |
| *AP.III.B.R7* | Distractions, task prioritization, loss of situational awareness, or disorientation. |

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| **Skills:** | The applicant exhibits the skill to: |
| *AP.III.B.S1* | Complete the appropriate checklist(s). |
| *AP.III.B.S2* | Make radio calls as appropriate. |
| *AP.III.B.S3* | Verify assigned/correct runway or takeoff path. |
| *AP.III.B.S4* | Configure the aircraft correctly for takeoff, regarding environmental conditions and aircraft loading. |
| *AP.III.B.S5* | Position the flight controls for the existing wind, if applicable. |
| *AP.III.B.S6* | Clear the area, taxi into takeoff position, and align the aircraft on the runway centerline or takeoff path. |
| *AP.III.B.S7* | Maintain centerline and coordinated flight control inputs during the takeoff roll. |
| *AP.III.B.S8* | Confirm takeoff power, proper powerplant(s), and flight instrument indications prior to lift-off. |
| *AP.III.B.S9* | Lift off at the recommended airspeed and make callouts as appropriate. |
| *AP.III.B.S10* | Transition to recommended climb airspeed ±5 knots. |
| *AP.III.B.S11* | Maintain flight path and continue climb to the appropriate altitude at the recommended airspeed and configuration. |
| *AP.III.B.S12* | Use single-pilot resource management (SRM) or crew resource management (CRM), as appropriate. |

### *Task C. Rejected Takeoff*

*References: FAA-H-8083-2, FAA-H-8083-25; Flight Manual*

**Objective:** To determine the applicant exhibits satisfactory knowledge, risk management, and skills associated with a rejected takeoff.

***Note:*** *See Appendix 2: Safety of Flight and Appendix 3: Aircraft, Equipment, and Operational Requirements &*

*Limitations for information related to this Task.*

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|---|---|
| **Knowledge:** | The applicant demonstrates understanding of: |
| *AP.III.C.K1* | Conditions and situations that could warrant a rejected takeoff (e.g., takeoff warning systems, powerplant failure, other systems warning/failure). |
| *AP.III.C.K2* | Techniques and procedure for accomplishing a rejected takeoff. |
| *AP.III.C.K3* | Safety considerations following a rejected takeoff. |
| *AP.III.C.K4* | Performance data and the height velocity (H/V) diagram. |
| *AP.III.C.K5* | Relevant V-speeds for a rejected takeoff. |
| **Risk Management:** | The applicant is able to identify, assess, and mitigate risk associated with: |
| *AP.III.C.R1* | Selection of the takeoff path based on aircraft limitations, available distance, surface conditions, and wind. |
| *AP.III.C.R2* | A powerplant failure or other malfunction during takeoff. |
| *AP.III.C.R3* | Directional control following a rejected takeoff. |
| *AP.III.C.R4* | A rejected takeoff with inadequate stopping distance. |
| *AP.III.C.R5* | Distractions, task prioritization, loss of situational awareness, or disorientation. |
| **Skills:** | The applicant exhibits the skill to: |
| *AP.III.C.S1* | Conduct a rejected takeoff based on the scenario presented by the evaluator. |
| *AP.III.C.S2* | Safely stop the aircraft. |
| *AP.III.C.S3* | Maintain positive aircraft control throughout the maneuver. |
| *AP.III.C.S4* | Coordinate with crew, if applicable, and complete the appropriate procedures, checklist(s), and radio calls following a rejected takeoff in a timely manner. |

### *Task D. Maximum Performance Takeoff and Climb*

*References: AIM; FAA-H-8083-2, FAA-H-8083-25; Flight Manual*

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

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

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| **Knowledge:** | The applicant demonstrates understanding of: |
| *AP.III.D.K1* | Situations where this maneuver is appropriate. |
| *AP.III.D.K2* | Effects of atmospheric conditions, including wind and temperature, on takeoff and climb performance. |
| *AP.III.D.K3* | Appropriate aircraft configuration, takeoff, and climb profiles. |
| *AP.III.D.K4* | Factors affecting the profile of the height/velocity (H/V) diagram. |

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|---|---|
| **Risk Management:** | The applicant is able to identify, assess, and mitigate risk associated with: |
| *AP.III.D.R1* | Selection of takeoff path based on aircraft performance and limitations, available distance, and wind. |
| *AP.III.D.R2* | Effects of: |
| *AP.III.D.R2a* | a. Crosswind |
| *AP.III.D.R2b* | b. Windshear |
| *AP.III.D.R2c* | c. Tailwind |
| *AP.III.D.R2d* | d. Low level turbulence |
| *AP.III.D.R2e* | e. Surface conditions |
| *AP.III.D.R3* | Abnormal operations including: |
| *AP.III.D.R3a* | a. Rejected takeoff |
| *AP.III.D.R3b* | b. Powerplant failure in takeoff/climb phase of flight |
| *AP.III.D.R4* | Collision hazards. |
| *AP.III.D.R5* | Low altitude maneuvering, including controlled flight into terrain (CFIT). |
| *AP.III.D.R6* | Distractions, task prioritization, loss of situational awareness, or disorientation. |

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| **Skills:** | The applicant exhibits the skill to: |
| *AP.III.D.S1* | Complete the appropriate checklist(s). |
| *AP.III.D.S2* | Make radio calls as appropriate. |
| *AP.III.D.S3* | Determine wind direction with or without visible wind direction indicators. |
| *AP.III.D.S4* | Position the flight controls and configure the aircraft for the existing wind conditions. |
| *AP.III.D.S5* | Clear the area, taxi into takeoff position, utilizing maximum available takeoff area and align the aircraft on the takeoff path. |
| *AP.III.D.S6* | Confirm takeoff power and proper powerplant and flight instrument indications prior to takeoff. |
| *AP.III.D.S7* | Establish and maintain the most efficient lift-off attitude/configuration for obstacle clearance. |
| *AP.III.D.S8* | Maintain the recommended airspeed and aircraft configuration until the obstacle is cleared. |
| *AP.III.D.S9* | After clearing the obstacle, establish pitch attitude and aircraft configuration for $V_Y$ and accelerate to and maintain $V_Y$ ±5 knots during the climb. |
| *AP.III.D.S10* | Reconfigure the aircraft after a positive rate of climb has been verified or in accordance with the aircraft manufacturer's guidance. |
| *AP.III.D.S11* | Maintain directional control and proper wind-drift correction throughout takeoff and climb. |
| *AP.III.D.S12* | Comply with noise abatement procedures. |
| *AP.III.D.S13* | Use single-pilot resource management (SRM) or crew resource management (CRM), as appropriate. |

## Area of Operation IV. In-flight Maneuvers

### *Task A. Steep Turns*

*References: FAA-H-8083-2, FAA-H-8083-25; FSB Report (type specific); Flight Manual*

**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.*

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|---|---|
| **Knowledge:** | The applicant demonstrates understanding of: |
| *AP.IV.A.K1* | Energy management concepts. |
| *AP.IV.A.K2* | Aerodynamics associated with steep turns, including: |
| *AP.IV.A.K2a* | a. Maintaining coordinated flight |
| *AP.IV.A.K2b* | b. Overbanking tendencies |
| *AP.IV.A.K2c* | c. Maneuvering speed, including the impact of weight changes |
| *AP.IV.A.K2d* | d. Load factor and accelerated stalls |
| *AP.IV.A.K2e* | e. Rate and radius of turn |

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|---|---|
| **Risk Management:** | The applicant is able to identify, assess, and mitigate risk associated with: |
| *AP.IV.A.R1* | Spatial disorientation when conducting a steep turn while flying by reference to instruments. |
| *AP.IV.A.R2* | Collision hazards. |
| *AP.IV.A.R3* | Low altitude maneuvering, including stall, spin, or controlled flight into terrain (CFIT). |
| *AP.IV.A.R4* | Distractions, task prioritization, loss of situational awareness, or disorientation. |
| *AP.IV.A.R5* | Uncoordinated flight. |

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| **Skills:** | The applicant demonstrates how to: |
| *AP.IV.A.S1* | Select an entry altitude that allows the Task to be completed no lower than 3,000 feet above ground level (AGL). |
| *AP.IV.A.S2* | Establish the manufacturer's recommended airspeed or, if one is not available, a safe airspeed not to exceed manuevering speed ($V_A$). |
| *AP.IV.A.S3* | Establish a configuration and bank angle as specified by the evaluator and make a coordinated turn of at least 180 degrees solely by reference to instruments. |
| *AP.IV.A.S4* | Perform the Task in the opposite direction, as specified by evaluator. |
| *AP.IV.A.S5* | Make smooth pitch, bank, and power adjustments as needed. |
| *AP.IV.A.S6* | Maintain the entry altitude ±100 feet, airspeed ±10 knots, bank ±5°, and roll out on the entry heading ±10°. |
| *AP.IV.A.S7* | Avoid any indication of an impending stall, abnormal flight attitude, or exceeding any structural or operating limitation during any part of the Task. |

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| *AP.IV.A.S8* | Use single-pilot resource management (SRM) or crew resource management (CRM), as appropriate. |

### *Task B. Specific Flight Characteristics*

*References: FAA-H-8083-2, FAA-H-8083-25; FSB Report (type specific); Flight Manual*

**Objective:** To determine the applicant exhibits satisfactory knowledge, risk management, and skills associated with flight and performance characteristics unique to a specific aircraft type.

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

| | |
|---|---|
| **Knowledge:** | The applicant demonstrates understanding of: |
| *AP.IV.B.K1* | All specific flight and performance characteristics associated with the aircraft. |

| | |
|---|---|
| **Risk Management:** | The applicant is able to identify, assess, and mitigate risk associated with: |
| *AP.IV.B.R1* | Specific flight and performance characteristics, their effects, and applicable procedures. |
| *AP.IV.B.R2* | Distractions, task prioritization, loss of situational awareness, or disorientation. |

| | |
|---|---|
| **Skills:** | The applicant exhibits the skill to: |
| *AP.IV.B.S1* | Use proper techniques, checklists, and procedures to enter into, operate within, and recover from specific flight situations, as applicable. |

### *Task C. Inflight Conversion During Straight-and-Level Flight*

*References: FAA-H-8083-2, FAA-H-8083-25; Flight Manual*

**Objective:** To determine the applicant exhibits satisfactory knowledge, risk management, and skills associated with converting from thrust-borne configuration to wing-borne configuration, and returning to thrust-borne configuration.

| | |
|---|---|
| **Knowledge:** | The applicant demonstrates understanding of: |
| *AP.IV.C.K1* | Procedures for changing aircraft configuration. |
| *AP.IV.C.K2* | Aerodynamic effects of changing aircraft configuration. |
| *AP.IV.C.K3* | Flight control operation when converting from thrust-borne to wing-borne configuration, and when converting from wing-borne to thrust-borne configuration, while in straight-and-level flight. |
| *AP.IV.C.K4* | Aircraft performance and limitation charts. |
| *AP.IV.C.K5* | Factors related to weight and balance and center of gravity (CG) envelopes. |

| | |
|---|---|
| **Risk Management:** | The applicant is able to identify, assess, and mitigate risk associated with: |
| *AP.IV.C.R1* | Aircraft performance limitations. |
| *AP.IV.C.R2* | Powerplant failure during conversion. |
| *AP.IV.C.R3* | Aerodynamic stall. |

| | |
|---|---|
| *AP.IV.C.R4* | Effects of gross weight and CG. |
| *AP.IV.C.R5* | Rapid configuration or thrust vector changes. |
| *AP.IV.C.R6* | Other hazards specific to the powered-lift make and model. |
| *AP.IV.C.R7* | Altitude variation/vertical speed. |
| *AP.IV.C.R8* | Distractions, task prioritization, loss of situational awareness, or disorientation. |

| **Skills:** | The applicant exhibits the skill to: |
|---|---|
| *AP.IV.C.S1* | Convert from thrust-borne configuration to wing-borne configuration during straight-and-level flight. |
| *AP.IV.C.S2* | Convert the aircraft from wing-borne configuration to thrust-borne configuration during straight-and-level flight. |
| *AP.IV.C.S3* | Utilize proper control technique throughout the maneuver. |
| *AP.IV.C.S4* | Maintain awareness of aircraft performance, limitations, and relative position throughout the maneuver. |
| *AP.IV.C.S5* | Maintain altitude ±100 feet and specified heading ±10° throughout the operation. Achieve and maintain targeted airspeed ±10 knots. |
| *AP.IV.C.S6* | Use the appropriate checklist, if applicable. |
| *AP.IV.C.S7* | Use single-pilot resource management (SRM) or crew resource management (CRM), as appropriate. |

### *Task D. Power-On Stall Prevention*

*References: FAA-H-8083-2, FAA-H-8083-25; FSB Report (type specific); Flight Manual*

**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: |
|---|---|
| *AP.IV.D.K1* | Aerodynamics associated with stalls in wing-borne configuration, including the relationship between angle of attack, airspeed, load factor, power setting, aircraft weight and balance, CG, aircraft attitude and configuration. |
| *AP.IV.D.K2* | Stall characteristics and prevention as they relate to aircraft design and impending stall and full stall indications using sight, sound, or feel. |
| *AP.IV.D.K3* | Factors and situations that can lead to a power-on stall and actions that can be taken to prevent it. |
| *AP.IV.D.K4* | Effects of autoflight, flight envelope protection in normal and degraded modes, and unexpected disconnects of the autopilot, if applicable to the aircraft used for the evaluation. |
| *AP.IV.D.K5* | Fundamentals of stall recovery. |

| **Risk Management:** | The applicant is able to identify, assess, and mitigate risk associated with: |
|---|---|
| *AP.IV.D.R1* | Factors and situations that could lead to an inadvertent power-on stall, spin, and loss of control. |
| *AP.IV.D.R2* | Range and limitations of stall warning indicators (e.g., aircraft buffet, stall horn, etc.). |

| | |
|---|---|
| *AP.IV.D.R3* | Stall recognition and recovery procedures. |
| *AP.IV.D.R4* | Secondary and accelerated stalls. |
| *AP.IV.D.R5* | Effects of environmental elements on aircraft performance as they related to stalls (e.g., turbulence, microbursts, and high density altitude). |
| *AP.IV.D.R6* | Collision hazards including aircraft and terrain. |
| *AP.IV.D.R7* | Distractions, task prioritization, loss of situational awareness, or disorientation. |

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

| | |
|---|---|
| *AP.IV.D.S1* | Clear the area and select an entry altitude that allows the recovery to be completed no lower than 3,000 feet above ground level (AGL). |
| *AP.IV.D.S2* | Establish the takeoff, departure, or wing-borne configuration, as specified by the evaluator, and maintain coordinated flight throughout the maneuver in simulated or actual instrument meteorological conditions (IMC). |
| *AP.IV.D.S3* | Either manually or with the autopilot engaged, smoothly adjust pitch attitude, bank angle not to exceed 20°, and power setting in accordance with evaluator's instructions to an impending stall. |
| *AP.IV.D.S4* | Acknowledge the cue(s) and initiate a recovery at the first indication of a stall. |
| *AP.IV.D.S5* | Execute a stall recovery in accordance with procedures set forth in the Flight Manual. |
| *AP.IV.D.S6* | Return to the altitude, heading, aircraft configuration, and airspeed specified by the evaluator. |
| *AP.IV.D.S7* | Use single-pilot resource management (SRM) or crew resource management (CRM), as appropriate. |

### *Task E. Power-Off Stall Prevention*

*References: FAA-H-8083-2, FAA-H-8083-25; FSB Report (type specific); Flight Manual*

**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:

| | |
|---|---|
| *AP.IV.E.K1* | Aerodynamics associated with stalls in various aircraft configurations, including the relationship between angle of attack, airspeed, load factor, power setting, aircraft weight and center of gravity, aircraft attitude, and yaw effects. |
| *AP.IV.E.K2* | Stall characteristics in various flight modes, including impending stall and full stall indications. |
| *AP.IV.E.K3* | Factors and situations that can lead to a stall during flight and actions that can be taken to prevent it. |
| *AP.IV.E.K4* | Effects of autoflight, flight envelope protection in normal and degraded modes, and unexpected disconnects of the autopilot, if applicable to the aircraft used for the evaluation. |
| *AP.IV.E.K5* | Fundamentals of stall avoidance and recovery. |
| *AP.IV.E.K6* | Effects of altitude on performance and flight control effectiveness during a recovery. |

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

| | |
|---|---|
| *AP.IV.E.R1* | Factors and situations that could lead to an inadvertent power-off stall, spin, and loss of control. |
| *AP.IV.E.R2* | Range and limitations of stall warning indicators (e.g., aircraft buffet, stall horn, etc.). |
| *AP.IV.E.R3* | Stall recognition and recovery procedures. |
| *AP.IV.E.R4* | Secondary and accelerated stalls. |
| *AP.IV.E.R5* | Effects of environmental elements on aircraft performance as they related to stalls (e.g., turbulence, microbursts, and high density altitude). |
| *AP.IV.E.R6* | Collision hazards including aircraft and terrain. |
| *AP.IV.E.R7* | Distractions, task prioritization, loss of situational awareness, or disorientation. |

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

| | |
|---|---|
| *AP.IV.E.S1* | Clear the area and select an entry altitude that allows the recovery to be completed no lower than 3,000 feet above ground level (AGL). |
| *AP.IV.E.S2* | Configure the aircraft in the approach or landing configuration, as specified by the evaluator, and maintain coordinated flight throughout the maneuver in simulated or actual instrument meteorological conditions (IMC). |
| *AP.IV.E.S3* | Either manually or with the autopilot engaged, smoothly adjust pitch attitude, bank angle not to exceed 20°, and power setting in accordance with evaluator's instructions to an impending stall. |
| *AP.IV.E.S4* | Acknowledge the cue(s) and promptly recover at the first indication of an impending stall (e.g., buffet, stall horn, stick shaker, etc.). |
| *AP.IV.E.S5* | Execute a stall recovery in accordance with procedures set forth in the Flight Manual. |
| *AP.IV.E.S6* | Configure the aircraft as recommended by the manufacturer and accelerate to $V_X$ or $V_Y$. |
| *AP.IV.E.S7* | Return to the altitude, heading, aircraft configuration, and airspeed specified by the evaluator. |
| *AP.IV.E.S8* | Use single-pilot resource management (SRM) or crew resource management (CRM), as appropriate. |

## Area of Operation V. Instrument Procedures

### *Task A. Instrument Takeoff*

*References: 14 CFR part 91; AIM; FAA-H-8083-2, FAA-H-8083-15, FAA-H-8083-16, FAA-H-8083-25; Flight Manual; Terminal Procedures Publications*

**Objective:** To determine the applicant exhibits satisfactory knowledge, risk management, and skills associated with an instrument takeoff.

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

| | |
|---|---|
| **Knowledge:** | The applicant demonstrates understanding of: |
| *AP.V.A.K1* | Operational factors that could affect an instrument takeoff (e.g., runway length, runway lighting, surface conditions, wind, wake turbulence, icing conditions, obstructions, available instrument approaches or alternate airports available) in the event of an emergency after takeoff. |

| | |
|---|---|
| **Risk Management:** | The applicant is able to identify, assess, and mitigate risk associated with: |
| *AP.V.A.R1* | Selection of a runway based on aircraft performance and limitations, available distance, surface conditions, lighting, and wind. |
| *AP.V.A.R2* | Wake turbulence. |
| *AP.V.A.R3* | Abnormal operations, including planning for: |
| *AP.V.A.R3a* | a. Rejected takeoff |
| *AP.V.A.R3b* | b. Potential failure of any powerplant(s) in the takeoff/climb phase of flight with the ceiling or visibility below the minimums for an instrument approach at departure airport |
| *AP.V.A.R4* | Collision hazards. |
| *AP.V.A.R5* | Low altitude maneuvering, including stall, spin, or controlled flight into terrain (CFIT). |
| *AP.V.A.R6* | Distractions, task prioritization, loss of situational awareness, or disorientation. |

| | |
|---|---|
| **Skills:** | The applicant exhibits the skill to: |
| *AP.V.A.S1* | Coordinate with crew, if applicable, and complete the appropriate checklist(s) prior to takeoff in a timely manner. |
| *AP.V.A.S2* | Properly set the applicable avionics and flight instruments prior to initiating the takeoff. |
| *AP.V.A.S3* | Make radio calls as appropriate. |
| *AP.V.A.S4* | Verify assigned/correct runway. |
| *AP.V.A.S5* | Position the flight controls for the existing wind, if applicable. |
| *AP.V.A.S6* | Clear the area, taxi into takeoff position, and align the aircraft on the runway centerline. |
| *AP.V.A.S7* | Perform an instrument takeoff with instrument meteorological conditions (IMC) simulated at or before reaching an altitude of 100 feet above ground level (AGL). If accomplished in a full flight simulator, visibility should be no greater than ¼ mile, or as specified by applicable operations specifications, whichever is lower. |
| *AP.V.A.S8* | Maintain centerline and proper flight control inputs during the takeoff roll. |

| | |
|---|---|
| *AP.V.A.S9* | Confirm takeoff power, powerplant and flight instrument indications for the aircraft or per the operator's procedures. |
| *AP.V.A.S10* | Lift off or depart at the recommended airspeed, establish the desired pitch attitude, and accelerate to the desired airspeed/V-speed. |
| *AP.V.A.S11* | Transition smoothly from visual meteorological conditions (VMC) to actual or simulated instrument meteorological conditions (IMC). |
| *AP.V.A.S12* | Maintain desired heading ±5° and desired airspeeds ±5 knots. |
| *AP.V.A.S13* | Comply with air traffic control (ATC) clearances and instructions issued by ATC or the evaluator, as appropriate. |
| *AP.V.A.S14* | Complete appropriate after takeoff checklist(s) in a timely manner. |
| *AP.V.A.S15* | Use single-pilot resource management (SRM) or crew resource management (CRM), as appropriate. |

### *Task B. Departure Procedures*

*References: 14 CFR part 91; AC 90-100; AIM; FAA-H-8083-2, FAA-H-8083-15, FAA-H-8083-16, FAA-H-8083-25; Flight Manual; Terminal Procedures Publications*

**Objective:** To determine the applicant exhibits satisfactory knowledge, risk management, and skills associated with instrument departure procedures (DPs).

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

| | |
|---|---|
| **Knowledge:** | The applicant demonstrates understanding of: |
| *AP.V.B.K1* | Takeoff minimums; (Obstacle) Departure Procedure (ODP), including Visual Climb over the Airport (VCOA) and Diverse Vector Area (Radar Vectors); Standard Instrument Departure (SID), including Area Navigation (RNAV) departure; required climb gradients; U.S. Terminal Procedures Publications; and En Route Charts. |
| *AP.V.B.K2* | Use of a Flight Management System (FMS) or Global Positioning System (GPS) to follow a DP. |
| *AP.V.B.K3* | Pilot/controller responsibilities, communication procedures, and ATC services available to pilots. |
| *AP.V.B.K4* | Two-way radio communication failure procedures after takeoff. |
| *AP.V.B.K5* | Ground-based and satellite-based navigation systems (orientation, course determination, equipment, tests and regulations, interference, appropriate use of navigation data, signal integrity). |

| | |
|---|---|
| **Risk Management:** | The applicant is able to identify, assess, and mitigate risk associated with: |
| *AP.V.B.R1* | Following published procedures and required climb gradients or ATC Instructions. |
| *AP.V.B.R2* | Limitations of air traffic avoidance equipment and use of see and avoid techniques. |
| *AP.V.B.R3* | Automation management. |

| | |
|---|---|
| **Skills:** | The applicant exhibits the skill to: |
| *AP.V.B.S1* | Select the appropriate instrument departure procedure. Then select, identify (as necessary), and use the appropriate communication and navigation facilities associated with the procedure. |

| | |
|---|---|
| *AP.V.B.S2* | Program the FMS prior to departure and set avionics, including flight director and autopilot controls, as appropriate, for the departure, if applicable. |
| *AP.V.B.S3* | Coordinate with crew, if applicable, and complete the appropriate checklist(s) in a timely manner. |
| *AP.V.B.S4* | Use current and appropriate navigation publications or databases for the proposed flight. |
| *AP.V.B.S5* | Establish two-way communications with the proper controlling agency, use proper phraseology, comply, in a timely manner, with all ATC instructions and airspace restrictions, and exhibit adequate knowledge of communication failure procedures. |
| *AP.V.B.S6* | Intercept all courses, radials, and bearings appropriate to the procedure, route, clearance, or as directed by the evaluator in a timely manner. |
| *AP.V.B.S7* | Comply with all applicable charted procedures. |
| *AP.V.B.S8* | Maintain the appropriate airspeed ±10 knots, headings ±10°, and altitude ±100 feet, and accurately track a course, radial, or bearing. |
| *AP.V.B.S9* | Conduct the departure phase to a point where, in the opinion of the evaluator, the transition to the en route environment is complete. |

### *Task C. Arrival Procedures*

*References: 14 CFR part 91; AC 90-100; AIM; IFR Enroute Charts; FAA-H-8083-2, FAA-H-8083-15, FAA-H-8083-16, FAA-H-8083-25; Flight Manual; Profile Descent Charts; STARs; Terminal Procedures Publications*

**Objective:** To determine the applicant exhibits satisfactory knowledge, risk management, and skills associated with Instrument Flight Rules (IFR) arrival procedures.

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

| | |
|---|---|
| **Knowledge:** | The applicant demonstrates understanding of: |
| *AP.V.C.K1* | Standard Terminal Arrival (STAR) charts, U.S. Terminal Procedures Publications, and IFR En Route High and Low Altitude Charts. |
| *AP.V.C.K2* | Use of a Flight Management System (FMS) or GPS to follow a STAR. |
| *AP.V.C.K3* | Pilot/controller responsibilities, communication procedures, and ATC services available to pilots. |
| *AP.V.C.K4* | Two-way radio communication failure procedures during an arrival. |
| *AP.V.C.K5* | Ground-based and satellite-based navigation systems (orientation, course determination, equipment, tests and regulations, interference, appropriate use of navigation data, signal integrity). |

| | |
|---|---|
| **Risk Management:** | The applicant is able to identify, assess, and mitigate risk associated with: |
| *AP.V.C.R1* | ATC communications and compliance with published procedures. |
| *AP.V.C.R2* | Limitations of traffic avoidance equipment. |
| *AP.V.C.R3* | Responsibility to use "see and avoid" techniques when possible. |
| *AP.V.C.R4* | Automation management. |
| *AP.V.C.R5* | ATC instructions that modify an arrival or discontinue/resume the aircraft's lateral or vertical navigation on an arrival. |

| | |
|---|---|
| **Skills:** | The applicant exhibits the skill to: |
| *AP.V.C.S1* | In actual or simulated instrument conditions, select, identify (as necessary) and use the appropriate communication and navigation facilities associated with the arrival. |
| *AP.V.C.S2* | Set FMS and avionics, including flight director and autopilot controls for the arrival, if applicable. |
| *AP.V.C.S3* | Coordinate with crew, if applicable, and complete the appropriate checklist(s) in a timely manner. |
| *AP.V.C.S4* | Use current and appropriate navigation publications or databases for the proposed flight. |
| *AP.V.C.S5* | Establish two-way communications with the proper controlling agency, use proper phraseology and comply, in a timely manner, with all ATC instructions and airspace restrictions as well as exhibit adequate knowledge of communication failure procedures. |
| *AP.V.C.S6* | Intercept all courses, radials, and bearings appropriate to the procedure, route, clearance, or as directed by the evaluator in a timely manner. |
| *AP.V.C.S7* | Comply with all applicable charted procedures. |
| *AP.V.C.S8* | Adhere to airspeed restrictions required by regulation, procedure, aircraft limitation, ATC, or the evaluator. |
| *AP.V.C.S9* | Establish rates of descent consistent with the route segment, aircraft operating characteristics and safety. |
| *AP.V.C.S10* | Maintain the appropriate airspeed/V-speed ±10 knots, heading ±10°, altitude ±100 feet, and accurately track radials, courses, and bearings. |

### *Task D. Non-precision Approaches*

*References: 14 CFR part 91; AC 120-108; AIM; Chart Supplements; FAA-H-8083-2, FAA-H-8083-15, FAA-H-8083-16, FAA-H-8083-25; Terminal Procedures Publications*

**Objective:** To determine the applicant exhibits satisfactory knowledge, risk management, and skills associated with performing non-precision approach procedures.

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

| | |
|---|---|
| **Knowledge:** | The applicant demonstrates understanding of: |
| *AP.V.D.K1* | Procedures and limitations associated with a non-precision approach, including the differences between Localizer Performance (LP) and Lateral Navigation (LNAV) approach guidance. |
| *AP.V.D.K2* | Navigation system displays and annunciations, modes of operation, and Required Navigation Performance (RNP) lateral accuracy values associated with an RNAV (GPS) approach. |
| *AP.V.D.K3* | Ground-based and satellite-based navigation systems (orientation, course determination, equipment, tests and regulations, interference, appropriate use of navigation data, signal integrity). |
| *AP.V.D.K4* | A stabilized approach, including energy management concepts. |

| | |
|---|---|
| **Risk Management:** | The applicant is able to identify, assess, and mitigate risk associated with: |
| *AP.V.D.R1* | Deviating from the assigned approach procedure. |
| *AP.V.D.R2* | Selecting a navigation frequency. |
| *AP.V.D.R3* | Management of automated navigation and autoflight systems. |

| | |
|---|---|
| *AP.V.D.R4* | Aircraft configuration during an approach and missed approach. |
| *AP.V.D.R5* | An unstable approach, including excessive descent rates. |
| *AP.V.D.R6* | Deteriorating weather conditions on approach. |
| *AP.V.D.R7* | Operating below the minimum descent altitude (MDA) without proper visual references. |

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

| | |
|---|---|
| *AP.V.D.S1* | Accomplish the non-precision instrument approaches selected by the evaluator. |
| *AP.V.D.S2* | Establish two-way communications with air traffic control (ATC) appropriate for the phase of flight or approach segment, and use proper communication phraseology. |
| *AP.V.D.S3* | Select, tune, identify, and confirm the operational status of navigation equipment to be used for the approach. |
| *AP.V.D.S4* | Comply with all clearances issued by ATC or the evaluator. |
| *AP.V.D.S5* | Recognize if any flight instrumentation is inaccurate or inoperative, and take appropriate action. |
| *AP.V.D.S6* | Advise ATC or the evaluator if unable to comply with a clearance. |
| *AP.V.D.S7* | Coordinate with crew, if applicable, and complete the appropriate checklist(s) in a timely manner. |
| *AP.V.D.S8* | Establish the appropriate aircraft configuration and airspeed considering meteorological and operating conditions. |
| *AP.V.D.S9* | Maintain altitude ±100 feet, selected heading ±5°, airspeed ±10 knots, and accurately track radials, courses, and bearings, prior to beginning the final approach segment. |
| *AP.V.D.S10* | Adjust the published MDA/Derived Decision Altitude (DDA) and visibility criteria for the aircraft approach category, as appropriate, for factors that include Notices to Air Missions (NOTAMs), inoperative aircraft or navigation equipment, or inoperative visual aids associated with the landing environment, etc. |
| *AP.V.D.S11* | Establish a stabilized descent to the appropriate altitude. |
| *AP.V.D.S12* | For the final approach segment, maintain no more than ¼ scale course deviation indicator (CDI) deflection, airspeed ±5 knots of selected value, and altitude above MDA +50/-0 feet [to the visual descent point (VDP) or missed approach point (MAP)]. |
| *AP.V.D.S13* | Assess if the required visual references are available, and either initiate the missed approach procedure or continue for landing. |
| *AP.V.D.S14* | Use a Multi-Function Display (MFD) and other graphical navigation displays, if installed, to monitor position, track wind drift and other parameters to maintain desired flightpath. |

### *Task E. Precision Approaches*

*References: 14 CFR parts 91, 97; AIM; Chart Supplements; FAA-H-8083-2, FAA-H-8083-15, FAA-H-8083-16, FAA-H-8083-25; Terminal Procedures Publications*

**Objective:** To determine the applicant exhibits satisfactory knowledge, risk management, and skills associated with performing precision approach procedures.

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

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

| | |
|---|---|
| *AP.V.E.K1* | Procedures and limitations associated with a precision approach, including determining required descent rates and adjusting minimums in the case of inoperative equipment. |
| *AP.V.E.K2* | Navigation system displays, annunciations, and modes of operation. |
| *AP.V.E.K3* | Ground-based and satellite-based navigation systems (orientation, course determination, equipment, tests and regulations, interference, appropriate use of navigation data, signal integrity). |
| *AP.V.E.K4* | A stabilized approach, including energy management concepts. |

| **Risk Management:** | The applicant is able to identify, assess, and mitigate risk associated with: |
|---|---|
| *AP.V.E.R1* | Deviating from the assigned approach procedure. |
| *AP.V.E.R2* | Selecting a navigation frequency. |
| *AP.V.E.R3* | Management of automated navigation and autoflight systems. |
| *AP.V.E.R4* | Aircraft configuration during an approach and missed approach. |
| *AP.V.E.R5* | An unstable approach, including excessive descent rates. |
| *AP.V.E.R6* | Deteriorating weather conditions on approach. |
| *AP.V.E.R7* | Continuing to descend below the Decision Altitude (DA)/Decision Height (DH) when the required visual references are not visible. |

| **Skills:** | The applicant exhibits the skill to: |
|---|---|
| *AP.V.E.S1* | Accomplish the precision instrument approaches selected by the evaluator. |
| *AP.V.E.S2* | Establish two-way communications with air traffic control (ATC) appropriate for the phase of flight or approach segment, and use proper communication phraseology. |
| *AP.V.E.S3* | Select, tune, identify, and confirm the operational status of navigation equipment to be used for the approach. |
| *AP.V.E.S4* | Comply in a timely manner with all clearances, instructions, and procedures. |
| *AP.V.E.S5* | Recognize if any flight instrumentation is inaccurate or inoperative, and take appropriate action. |
| *AP.V.E.S6* | Advise ATC or the evaluator if unable to comply with a clearance. |
| *AP.V.E.S7* | Conduct the approach briefing, coordinate with crew, if applicable, and complete the appropriate checklist(s) in a timely manner. |
| *AP.V.E.S8* | Establish the appropriate aircraft configuration and airspeed considering meteorological and operating conditions. |
| *AP.V.E.S9* | Maintain altitude ±100 feet, selected heading ±5°, airspeed ±10 knots, and accurately track radials, courses, and bearings, prior to beginning the final approach segment. |
| *AP.V.E.S10* | Adjust the published DA/DH and visibility criteria for the aircraft approach category, as appropriate, to account for NOTAMS, inoperative aircraft or navigation equipment, or inoperative visual aids associated with the landing environment. |
| *AP.V.E.S11* | Establish a predetermined rate of descent at the point where vertical guidance begins, which approximates that required for the aircraft to follow the vertical guidance. |

| | |
|---|---|
| *AP.V.E.S12* | Maintain a stabilized final approach from the Final Approach Fix (FAF) to DA/DH allowing no more than ¼-scale deflection of either the vertical or lateral guidance indications and maintain the desired airspeed ±5 knots. |
| *AP.V.E.S13* | Assess if the required visual references are available, and either initiate the missed approach procedure or continue for landing. |
| *AP.V.E.S14* | Use an MFD and other graphical navigation displays, if installed, to monitor position, track wind drift and other parameters to maintain desired flightpath. |

### *Task F. Landing from a Precision Approach*

*References: 14 CFR part 91; AIM; FAA-H-8083-2, FAA-H-8083-15, FAA-H-8083-16, FAA-H-8083-25*

**Objective:** To determine the applicant exhibits satisfactory knowledge, risk management, and skills associated with performing procedures for a landing from an instrument approach.

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

**Objective:** To determine the applicant exhibits satisfactory knowledge, risk management, and skills associated with performing procedures for a landing from an instrument approach.

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|---|---|
| **Knowledge:** | The applicant demonstrates understanding of: |
| *AP.V.F.K1* | Elements related to the pilot's responsibilities, and the environmental, operational, and meteorological factors that affect landing from a precision approach. |
| *AP.V.F.K2* | Approach lighting systems and runway and taxiway signs, markings, and lighting. |
| *AP.V.F.K3* | Appropriate landing profiles and aircraft configurations. |

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| **Risk Management:** | The applicant is able to identify, assess, and mitigate risk associated with: |
| *AP.V.F.R1* | Selection of an approach procedure and runway based on aircraft limitations, available distance, surface conditions, and wind. |
| *AP.V.F.R2* | Wake turbulence. |
| *AP.V.F.R3* | Missed Approach. |
| *AP.V.F.R4* | Collision hazards. |
| *AP.V.F.R5* | Distractions, task prioritization, loss of situational awareness, or disorientation. |
| *AP.V.F.R6* | Attempting to land from an unstable approach. |
| *AP.V.F.R7* | Flying below the glidepath. |
| *AP.V.F.R8* | Transitioning from instrument to visual references for landing. |

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| **Skills:** | The applicant exhibits the skill to: |
| *AP.V.F.S1* | Transition at the DA/DH to a visual flight condition, allowing for safe visual maneuvering and a normal landing. |
| *AP.V.F.S2* | Adhere to all ATC or evaluator advisories, such as NOTAMs, windshear, wake turbulence, runway surface, and other operational considerations. |

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| *AP.V.F.S3* | Coordinate with crew, if applicable, and complete the appropriate checklist(s) in a timely manner. |
| *AP.V.F.S4* | Maintain positive aircraft control throughout the landing maneuver. |
| *AP.V.F.S5* | Use single-pilot resource management (SRM) or crew resource management (CRM), as appropriate. |
| *AP.V.F.S6* | Use runway incursion avoidance procedures, if applicable. |

### *Task G. Circling Approach*

*References: 14 CFR parts 91, 97; AIM; FAA-H-8083-2, FAA-H-8083-15, FAA-H-8083-16, FAA-H-8083-25; Terminal Procedures Publications*

**Objective:** To determine the applicant exhibits satisfactory knowledge, risk management, and skills associated with performing a circling approach procedure.

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

| **Knowledge:** | The applicant demonstrates understanding of: |
|---|---|
| *AP.V.G.K1* | Elements related to circling approach procedures and limitations, including approach categories and related airspeed restrictions. |

| **Risk Management:** | The applicant is able to identify, assess, and mitigate risk associated with: |
|---|---|
| *AP.V.G.R1* | Prescribed circling approach procedures. |
| *AP.V.G.R2* | Executing a circling approach at night or with marginal visibility. |
| *AP.V.G.R3* | Losing visual contact with an identifiable part of the airport. |
| *AP.V.G.R4* | Management of automated navigation and autoflight systems. |
| *AP.V.G.R5* | Management of altitude, airspeed, or distance while circling. |
| *AP.V.G.R6* | Collision hazards. |
| *AP.V.G.R7* | Executing a missed approach after the MAP while circling. |

| **Skills:** | The applicant exhibits the skill to: |
|---|---|
| *AP.V.G.S1* | Comply with the circling approach procedure considering turbulence, windshear, and the maneuvering capability and approach category of the aircraft. |
| *AP.V.G.S2* | Confirm the direction of traffic and adhere to all restrictions and instructions issued by ATC or the evaluator. |
| *AP.V.G.S3* | Coordinate with crew, if applicable, and complete the appropriate checklist(s) in a timely manner. |
| *AP.V.G.S4* | Establish the approach and landing configuration. Maintain a stabilized approach and a descent rate that ensures arrival at the MDA, or the preselected circling altitude above the MDA, prior to the missed approach point. |
| *AP.V.G.S5* | Maintain airspeed ±5 knots, desired heading/track ±5°, and altitude +100/-0 feet until descending below the MDA or the preselected circling altitude above the MDA. |
| *AP.V.G.S6* | Visually maneuver to a base or downwind leg appropriate for the landing runway and environmental conditions. |

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| *AP.V.G.S7* | If a missed approach occurs, turn in the appropriate direction using the correct procedure and appropriately configure the aircraft. |
| *AP.V.G.S8* | If landing, initiate a stabilized descent. Touch down on the first one-third of the selected runway without excessive maneuvering, without exceeding the normal operating limits of the aircraft, and without exceeding 30° of bank. |

### *Task H. Missed Approach*

*References: 14 CFR parts 91, 97; AIM; FAA-H-8083-2, FAA-H-8083-15, FAA-H-8083-16, FAA-H-8083-25; Terminal Procedures Publications*

**Objective:** To determine the applicant exhibits satisfactory knowledge, risk management, and skills associated with performing a missed approach procedure.

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

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| **Knowledge:** | The applicant demonstrates understanding of: |
| *AP.V.H.K1* | Elements related to missed approach procedures, including reference to standby or backup instruments. |
| *AP.V.H.K2* | Limitations associated with standard instrument approaches, including while using an FMS or autopilot, if equipped. |

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| **Risk Management:** | The applicant is able to identify, assess, and mitigate risk associated with: |
| *AP.V.H.R1* | Deviations from prescribed procedures or ATC instructions. |
| *AP.V.H.R2* | Holding, diverting, or electing to fly the approach again. |
| *AP.V.H.R3* | Aircraft configuration during an approach and missed approach. |
| *AP.V.H.R4* | Factors that might lead to executing a missed approach procedure before the MAP or to a go-around below DA, DH, or MDA, as applicable. |
| *AP.V.H.R5* | Management of automated navigation and autoflight systems. |

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| **Skills:** | The applicant exhibits the skill to: |
| *AP.V.H.S1* | Promptly initiate the missed approach procedure and report it to ATC. |
| *AP.V.H.S2* | Apply the appropriate power setting and aircraft configuration for the flight conditions to obtain the desired performance. |
| *AP.V.H.S3* | Configure the aircraft, if appropriate, and at a safe altitude, and establish a positive rate of climb and the appropriate airspeed/V-speed, ±5 knots. |
| *AP.V.H.S4* | Coordinate with crew, if applicable, and complete the appropriate procedures and checklist(s) in a timely manner. |
| *AP.V.H.S5* | Comply with the published or alternate missed approach procedure. |
| *AP.V.H.S6* | Advise ATC or the evaluator if unable to comply with a clearance, restriction, or climb gradient. |
| *AP.V.H.S7* | Maintain the heading, course, or bearing ±5°, and altitude(s) ±100 feet during the missed approach procedure where applicable. |

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| *AP.V.H.S8* | Use an MFD and other graphical navigation displays, if installed, to monitor position and track to help navigate the missed approach. |
| *AP.V.H.S9* | Use single-pilot resource management (SRM) or crew resource management (CRM), as appropriate. |
| *AP.V.H.S10* | Re-engage autopilot, if installed, at appropriate times during the missed approach procedure. |
| *AP.V.H.S11* | Request ATC clearance to attempt another approach, proceed to the alternate airport, holding fix, or other clearance limit, as appropriate, or as directed by the evaluator. |

### *Task I. Holding Procedures*

*References: 14 CFR part 91; AC 91-74; AIM; FAA-H-8083-2, FAA-H-8083-15, FAA-H-8083-16, FAA-H-8083-25; Flight Manual; Terminal Procedures Publications*

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

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

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|---|---|
| *AP.V.I.K1* | Elements related to holding procedures, including reporting criteria, appropriate speeds, and recommended entry procedures for standard, nonstandard, published, and non-published holding patterns. |
| *AP.V.I.K2* | Determining holding endurance based upon factors, including an expect further clearance (EFC) time, fuel on board, fuel flow while holding, fuel required to destination and alternate, etc., as appropriate. |
| *AP.V.I.K3* | When to declare minimum fuel or a fuel-related emergency. |
| *AP.V.I.K4* | Use of automation for holding, including autopilot and flight management systems, if equipped. |

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

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| *AP.V.I.R1* | Recalculating fuel reserves if assigned an unanticipated expect further clearance (EFC) time. |
| *AP.V.I.R2* | Scenarios and circumstances that could result in minimum fuel or the need to declare an emergency. |
| *AP.V.I.R3* | Scenarios that could lead to holding, including deteriorating weather at the planned destination. |
| *AP.V.I.R4* | Holding entry and wind correction while holding. |
| *AP.V.I.R5* | Holding while in icing conditions. |
| *AP.V.I.R6* | Automation management. |

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

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|---|---|
| *AP.V.I.S1* | Correctly identify instrument navigation aids associated with the assigned hold. |
| *AP.V.I.S2* | Use an entry procedure appropriate for a standard, nonstandard, published, or non-published holding pattern. |
| *AP.V.I.S3* | Change to the appropriate holding airspeed for the aircraft and holding altitude to cross the holding fix at or below maximum holding airspeed. |
| *AP.V.I.S4* | Comply with the holding pattern leg length and other restrictions, if applicable, associated with the holding pattern. |
| *AP.V.I.S5* | Comply with ATC reporting requirements. |

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| *AP.V.I.S6* | Use proper wind correction procedures to maintain the desired pattern and to arrive over the fix as close as possible to a specified time. |
| *AP.V.I.S7* | Maintain specified airspeed ±10 knots, altitude ±100 feet, headings ±10°, and accurately track a selected course, radial, or bearing. |
| *AP.V.I.S8* | If available, use automation, including autopilot, flight director controls, and navigation displays associated with the assigned hold. |
| *AP.V.I.S9* | Update fuel reserve calculations based on EFC times. |

## Area of Operation VI. Landings and Approaches to Landings

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

*References: 14 CFR part 91; FAA-H-8083-2, FAA-H-8083-25; Flight Manual*

**Objective:** To determine the applicant exhibits satisfactory knowledge, risk management, and skills associated with a normal approach and landing.

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

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

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| **Knowledge:** | The applicant demonstrates understanding of: |
| *AP.VI.A.K1* | Effects of atmospheric conditions, including wind, on approach speed and angle. |
| *AP.VI.A.K2* | A stabilized approach, including energy management concepts. |
| *AP.VI.A.K3* | Use of proper thrust vector angle for transition to landing. |
| *AP.VI.A.K4* | Performance data and the height velocity (H/V) diagram. |
| **Risk Management:** | The applicant is able to identify, assess, and mitigate risk associated with: |
| *AP.VI.A.R1* | Arrival point selection. |
| *AP.VI.A.R2* | Effects of: |
| *AP.VI.A.R2a* | a. Crosswind |
| *AP.VI.A.R2b* | b. Windshear |
| *AP.VI.A.R2c* | c. Tailwind |
| *AP.VI.A.R2d* | d. Wake turbulence |
| *AP.VI.A.R2e* | e. Runway/arrival point surface/condition |
| *AP.VI.A.R3* | Planning for: |
| *AP.VI.A.R3a* | a. Rejected landing and go-around |
| *AP.VI.A.R3b* | b. Powerplant failure during the approach |
| *AP.VI.A.R4* | Collision hazards. |
| *AP.VI.A.R5* | Distractions and task management, lapse in situational awareness, and identifying the airport surface approach and landing area. |
| **Skills:** | The applicant exhibits the skill to: |
| *AP.VI.A.S1* | Complete the appropriate checklist(s). |
| *AP.VI.A.S2* | Make radio calls as appropriate. |
| *AP.VI.A.S3* | Use manufacturer's recommended technique and remain within airspeed range allowed for each configuration change. |

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| *AP.VI.A.S4* | Consider the wind conditions, landing surface, and obstructions and select a suitable landing point. |
| *AP.VI.A.S5* | Maintain proper ground track with crosswind correction, if necessary. |
| *AP.VI.A.S6* | Fly a stabilized approach. |
| *AP.VI.A.S7* | Execute a timely go-around for any condition that may result in an unsafe approach or landing. |
| *AP.VI.A.S8* | Use single-pilot resource management (SRM) or crew resource management (CRM), as appropriate. |

### *Task B. Normal Approach to a Hover*

*References: AIM; FAA-H-8083-2, FAA-H-8083-25; Flight Manual*

**Objective:** To determine the applicant exhibits satisfactory knowledge, risk management, and skills associated with approach profile to a hover.

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

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|---|---|
| **Knowledge:** | The applicant demonstrates understanding of: |
| *AP.VI.B.K1* | Types of approaches and applicability. |
| *AP.VI.B.K2* | Performance data and the height velocity (H/V) diagram. |
| *AP.VI.B.K3* | Effects of atmospheric conditions, including wind and density altitude, on approach and hover performance. |
| *AP.VI.B.K4* | Wind correction techniques on approach and hover. |
| *AP.VI.B.K5* | Aircraft configurations for the approach and hover. |
| *AP.VI.B.K6* | Aircraft performance and limitations. |

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| **Risk Management:** | The applicant is able to identify, assess, and mitigate risk associated with: |
| *AP.VI.B.R1* | Selection of runway/helipad/touchdown point based on aircraft performance and limitations, available distance, and wind. |
| *AP.VI.B.R2* | Effects of: |
| *AP.VI.B.R2a* | a. Crosswind |
| *AP.VI.B.R2b* | b. Windshear |
| *AP.VI.B.R2c* | c. Tailwind |
| *AP.VI.B.R2d* | d. Wake turbulence |
| *AP.VI.B.R2e* | e. Vortex ring state (VRS) |
| *AP.VI.B.R2f* | f. Runway/arrival point surface/condition |
| *AP.VI.B.R3* | Situations including: |
| *AP.VI.B.R3a* | a. Rejected landing and go-around |
| *AP.VI.B.R3b* | b. Powerplant failure during the approach |
| *AP.VI.B.R4* | Collision hazards. |

| | |
|---|---|
| *AP.VI.B.R5* | Flat light conditions. |
| *AP.VI.B.R6* | Distractions, task prioritization, loss of situational awareness, or disorientation. |

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

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|---|---|
| *AP.VI.B.S1* | Complete the appropriate checklist(s). |
| *AP.VI.B.S2* | Comply with air traffic control (ATC) or evaluator instructions and make radio calls as appropriate. |
| *AP.VI.B.S3* | Use the appropriate techniques and aircraft configurations through all stages of the approach. |
| *AP.VI.B.S4* | Consider the wind conditions, landing surface, and obstructions and select a suitable hover point. |
| *AP.VI.B.S5* | Maintain appropriate ground track with crosswind correction throughout the approach. |
| *AP.VI.B.S6* | Fly a stabilized approach. |
| *AP.VI.B.S7* | Arrive over the arrival point at a stabilized hover ±2 feet. |
| *AP.VI.B.S8* | Execute a timely go-around for any condition that may result in an unsafe approach or landing. |
| *AP.VI.B.S9* | Use single-pilot resource management (SRM) or crew resource management (CRM), as appropriate. |
| *AP.VI.B.S10* | Use runway incursion avoidance procedures, if applicable. |

### *Task C. Steep Approach and Landing*

*References: FAA-H-8083-2, FAA-H-8083-25; Flight Manual*

**Objective:** To determine the applicant exhibits satisfactory knowledge, risk management, and skills associated with a steep approach to the surface.

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

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

| | |
|---|---|
| *AP.VI.C.K1* | A stabilized steep approach. |
| *AP.VI.C.K2* | Approach techniques and applicability. |
| *AP.VI.C.K3* | Performance data and the height velocity (H/V) diagram. |
| *AP.VI.C.K4* | Effects of atmospheric conditions on approach and landing performance. |
| *AP.VI.C.K5* | Wind correction techniques. |
| *AP.VI.C.K6* | Aircraft configuration. |
| *AP.VI.C.K7* | Aircraft performance and limitations. |

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

| | |
|---|---|
| *AP.VI.C.R1* | Selection of the approach path and landing area. |
| *AP.VI.C.R2* | Effects of: |
| *AP.VI.C.R2a* | a. Crosswind |

| | |
|---|---|
| *AP.VI.C.R2b* | b. Windshear |
| *AP.VI.C.R2c* | c. Tailwind |
| *AP.VI.C.R2d* | d. Wake turbulence |
| *AP.VI.C.R2e* | e. Vortex ring state (VRS) |
| *AP.VI.C.R2f* | f. Landing point condition |
| *AP.VI.C.R3* | Planning for: |
| *AP.VI.C.R3a* | a. Rejected landing and go-around |
| *AP.VI.C.R3b* | b. Powerplant failure during the approach |
| *AP.VI.C.R4* | Landing in an area or in conditions where a takeoff/climb may not be possible. |
| *AP.VI.C.R5* | Degraded Visual Environment (DVE) and flat light conditions. |
| *AP.VI.C.R6* | Distractions, task prioritization, loss of situational awareness, or disorientation. |

| **Skills:** | The applicant exhibits the skill to: |
|---|---|
| *AP.VI.C.S1* | Complete the appropriate checklist(s). |
| *AP.VI.C.S2* | Position the flight controls, including the thrust vector, for the prevailing environmental conditions. |
| *AP.VI.C.S3* | Maintain awareness of aircraft performance, limitations, and relative position throughout the maneuver. |
| *AP.VI.C.S4* | Arrive over the touchdown point on the surface ±5 feet from intended landing point or, at the discretion of the evaluator, at a stabilized hover ±5 feet height. |
| *AP.VI.C.S5* | Maintain proper ground track with crosswind correction, if necessary. |
| *AP.VI.C.S6* | Use single-pilot resource management (SRM) or crew resource management (CRM), as appropriate. |
| *AP.VI.C.S7* | Use runway incursion avoidance procedures, if applicable. |

### *Task D. Running/Roll-On Landing*

*References: FAA-H-8083-2, FAA-H-8083-25; Flight Manual*

**Objective:** To determine the applicant exhibits satisfactory knowledge, risk management, and skills associated with running/roll-on landing operation.

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

***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: |
|---|---|
| *AP.VI.D.K1* | H/V diagram, if applicable. |
| *AP.VI.D.K2* | Aircraft performance and limitations. |
| *AP.VI.D.K3* | Aircraft configuration. |
| *AP.VI.D.K4* | Effects of atmospheric conditions, including wind, on approach and landing performance. |

| | |
|---|---|
| *AP.VI.D.K5* | Wind correction techniques on approach and landing. |

| | |
|---|---|
| **Risk Management:** | The applicant is able to identify, assess, and mitigate risk associated with: |
| *AP.VI.D.R1* | Situations including: |
| *AP.VI.D.R1a* | a. Powerplant failure during approach |
| *AP.VI.D.R1b* | b. Rejected landing |
| *AP.VI.D.R2* | Effects of: |
| *AP.VI.D.R2a* | a. Crosswind |
| *AP.VI.D.R2b* | b. Windshear |
| *AP.VI.D.R2c* | c. Tailwind |
| *AP.VI.D.R2d* | d. Wake turbulence |
| *AP.VI.D.R2e* | e. Runway surface/condition |
| *AP.VI.D.R3* | Collision hazards. |
| *AP.VI.D.R4* | Low altitude maneuvering, including stall, spin, or controlled flight into terrain (CFIT). |
| *AP.VI.D.R5* | Distractions, task prioritization, loss of situational awareness, or disorientation. |

| | |
|---|---|
| **Skills:** | The applicant exhibits the skill to: |
| *AP.VI.D.S1* | Coordinate with crew, if applicable, and complete the appropriate checklist(s), prior to takeoff. |
| *AP.VI.D.S2* | Ensure the aircraft is correctly configured for the landing. |
| *AP.VI.D.S3* | Comply with air traffic control (ATC) or evaluator instructions and make radio calls as appropriate. |
| *AP.VI.D.S4* | Maintain a ground track that ensures the desired traffic pattern flown takes into consideration obstructions and ATC or evaluator instructions. |
| *AP.VI.D.S5* | Ensure the aircraft is aligned with the correct/assigned runway or landing surface. |
| *AP.VI.D.S6* | Consider the wind conditions, aircraft performance, landing surface, obstructions, and select a suitable touchdown point. |
| *AP.VI.D.S7* | Maintain crosswind correction and directional control throughout the approach and landing. |
| *AP.VI.D.S8* | Make smooth, timely, and correct control application during round out and touchdown. |
| *AP.VI.D.S9* | Touch down at the appropriate speed, aircraft configuration and pitch attitude. |
| *AP.VI.D.S10* | On touchdown, maintain proper ground track. |
| *AP.VI.D.S11* | After touchdown, reconfigure the aircraft for surface/hover taxi. |
| *AP.VI.D.S12* | Execute a timely go-around for any condition that may result in an unsafe approach or landing. |
| *AP.VI.D.S13* | Use single-pilot resource management (SRM) or crew resource management (CRM), as appropriate. |
| *AP.VI.D.S14* | Use runway incursion avoidance procedures, if applicable. |

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

*References: AIM; FAA-H-8083-2, FAA-H-8083-25; Flight Manual*

**Objective:** To determine the applicant exhibits satisfactory knowledge, risk management, and skills associated with a go-around/rejected landing.

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

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|---|---|
| **Knowledge:** | The applicant demonstrates understanding of: |
| *AP.VI.E.K1* | Situations and considerations on approach that could require a go-around/rejected landing. |
| *AP.VI.E.K2* | Effects of atmospheric conditions on a go-around or rejected landing. |
| *AP.VI.E.K3* | Aircraft configuration changes and techniques for the go-around. |
| *AP.VI.E.K4* | Go-around/rejected landing procedures, the importance of a timely decision, and appropriate airspeeds for the maneuver. |
| *AP.VI.E.K5* | Wind correction techniques. |

| | |
|---|---|
| **Risk Management:** | The applicant is able to identify, assess, and mitigate risk associated with: |
| *AP.VI.E.R1* | Recognition of the need for a go-around/rejected landing. |
| *AP.VI.E.R2* | Aircraft performance. |
| *AP.VI.E.R3* | Application of power. |
| *AP.VI.E.R4* | Aircraft configuration. |
| *AP.VI.E.R5* | Collision hazards. |
| *AP.VI.E.R6* | Low altitude maneuvering, including stall or controlled flight into terrain (CFIT). |
| *AP.VI.E.R7* | Distractions, task prioritization, loss of situational awareness, or disorientation. |

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|---|---|
| **Skills:** | The applicant exhibits the skill to: |
| *AP.VI.E.S1* | Make a timely decision to go-around/reject the landing. |
| *AP.VI.E.S2* | Apply the appropriate power setting for the flight condition and establish an aircraft configuration necessary to obtain the desired performance. |
| *AP.VI.E.S3* | Establish a positive rate of climb and the appropriate airspeed ±5 knots. |
| *AP.VI.E.S4* | Configure the aircraft, as appropriate. |
| *AP.VI.E.S5* | Maintain the ground track, heading, or course appropriate for the conditions, or as specified by ATC or the evaluator. |
| *AP.VI.E.S6* | Make radio calls as appropriate. |
| *AP.VI.E.S7* | Complete the appropriate checklist(s). |
| *AP.VI.E.S8* | Use single-pilot resource management (SRM) or crew resource management (CRM), as appropriate. |
| *AP.VI.E.S9* | Use runway incursion avoidance procedures, if applicable. |

## Area of Operation VII. Emergency Operations

### *Task A. Emergency Procedures*

*References: 14 CFR part 91; AC 91-74; AIM; FAA-H-8083-2, FAA-H-8083-25; FSB report (type specific); Flight Manual*

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

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|---|---|
| **Knowledge:** | The applicant demonstrates understanding of: |
| *AP.VII.A.K1* | Declaring an emergency and selection of a suitable airport or landing location. |
| *AP.VII.A.K2* | Situations that would require an emergency descent (e.g., depressurization, smoke, or powerplant fire). |
| *AP.VII.A.K3* | Causes of inflight fire or smoke. |
| *AP.VII.A.K4* | Aircraft decompression. |
| *AP.VII.A.K5* | When an emergency evacuation may be necessary. |
| *AP.VII.A.K6* | Actions required if icing conditions exceed the capabilities of the aircraft. |

| | |
|---|---|
| **Risk Management:** | The applicant is able to identify, assess, and mitigate risk associated with: |
| *AP.VII.A.R1* | Selection of the procedures or checklists to follow in an emergency. |
| *AP.VII.A.R2* | Multiple failures or system abnormalities. |
| *AP.VII.A.R3* | Altitude, wind, terrain, and obstruction considerations in an emergency. |
| *AP.VII.A.R4* | Distractions, task prioritization, loss of situational awareness, or disorientation. |

| | |
|---|---|
| **Skills:** | The applicant exhibits the skill to: |
| *AP.VII.A.S1* | Explain or describe an emergency procedure for a situation(s) presented by the evaluator. |
| *AP.VII.A.S2* | Use proper procedures for the emergency situation(s) presented by the evaluator. |
| *AP.VII.A.S3* | Fly by reference to standby flight instruments, backup instrumentation, or partial panel, if applicable and appropriate to the situation. |
| *AP.VII.A.S4* | Coordinate with crew, if applicable, and complete the appropriate checklist(s) in a timely manner. |
| *AP.VII.A.S5* | Notify/coordinate with air traffic control (ATC) or evaluator instructions as required. |
| *AP.VII.A.S6* | Use single-pilot resource management (SRM) or crew resource management (CRM), as appropriate. |

### *Task B. Powerplant(s) Failure (Simulated) during Takeoff in Thrust-Borne Flight*

*References: FAA-H-8083-2, FAA-H-8083-25; Flight Manual*

**Objective:** To determine the applicant exhibits satisfactory knowledge, risk management, and skills associated with indications and pilot actions after powerplant(s) failure during takeoff while the aircraft is predominantly in thrust-borne flight in a multi-powerplant aircraft.

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

***Note:*** *The task outcome can be vertical or rolling depending on aircraft capabilities, configuration, and flight manual procedures.*

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

*AP.VII.B.K1* Aircraft performance and limitations, (e.g., height velocity (H/V) diagram information).

*AP.VII.B.K2* Factors involved in determining a valid go/no-go decision.

*AP.VII.B.K3* Recognition of powerplant(s) failure.

*AP.VII.B.K4* Pilot actions required on recognition of powerplant(s) failure, including checklist memory items.

*AP.VII.B.K5* Aircraft configuration for landing with powerplant(s) failure.

*AP.VII.B.K6* Causes of asymmetric thrust conditions and appropriate responses.

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

*AP.VII.B.R1* Powerplant(s) failure.

*AP.VII.B.R2* Identification of powerplant(s) failure conditions.

*AP.VII.B.R3* Pilot reaction to powerplant(s) failure conditions.

*AP.VII.B.R4* Aircraft configuration.

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

*AP.VII.B.S1* Recognize powerplant failures(s), maintain control, use manufacturer's memory item procedures, and use appropriate emergency procedures.

*AP.VII.B.S2* Use flight controls in the proper combination and aircraft configuration as recommended by the manufacturer, or as required to maintain best performance, and trim as required.

*AP.VII.B.S3* Maintain the operating powerplant(s) within acceptable operating limits.

*AP.VII.B.S4* Land the aircraft, as appropriate to the scenario presented by the evaluator.

*AP.VII.B.S5* Complete the appropriate checklist(s).

*AP.VII.B.S6* Make radio calls as appropriate.

*AP.VII.B.S7* Use single-pilot resource management (SRM) or crew resource management (CRM), as appropriate.

### *Task C. Powerplant(s) Failure (Simulated) during Takeoff While in Semi-Wing-Borne Flight*

*References: FAA-H-8083-2, FAA-H-8083-25; Flight Manual*

**Objective:** To determine the applicant exhibits satisfactory knowledge, risk management, and skills associated with indications and pilot actions after powerplant(s) failure during takeoff while in semi-wing-borne flight in a multi-powerplant aircraft.

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

***Note:*** *This can be initiated during the takeoff roll in wheeled aircraft or during the transition to wing-borne flight following a vertical takeoff.*

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

| | |
|---|---|
| *AP.VII.C.K1* | The procedures used during a powerplant(s) failure on takeoff, the appropriate reference airspeeds, and the specific pilot actions required. |
| *AP.VII.C.K2* | Operational considerations to include: aircraft performance (e.g., sideslip, bank angle, etc.), takeoff warning systems, runway length, surface conditions, density altitude, wake turbulence, environmental conditions, obstructions, and other related factors that could adversely affect safety. |

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

| | |
|---|---|
| *AP.VII.C.R1* | Powerplant(s) failure. |
| *AP.VII.C.R2* | Reaction to the loss of power from one or more powerplants. |
| *AP.VII.C.R3* | Deceleration in a space-limited environment. |
| *AP.VII.C.R4* | Windshear. |
| *AP.VII.C.R5* | Dividing attention inside and outside the aircraft. |
| *AP.VII.C.R6* | Runway incursion. |
| *AP.VII.C.R7* | Distractions, task prioritization, loss of situational awareness, or disorientation. |
| *AP.VII.C.R8* | Abnormal operations, including planning for. |
| *AP.VII.C.R8a* | a. Rejected takeoff |
| *AP.VII.C.R8b* | b. Powerplant failure in takeoff/climb phase of flight |
| *AP.VII.C.R9* | Energy management. |

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

| | |
|---|---|
| *AP.VII.C.S1* | Recognize that a powerplant failure has occurred while performing a rolling takeoff. |
| *AP.VII.C.S2* | Input the appropriate flight control(s) and configure the aircraft for maximum deceleration. |
| *AP.VII.C.S3* | Maintain the operating powerplant(s) within acceptable operating limits. |
| *AP.VII.C.S4* | Land the aircraft, as appropriate to the scenario presented by the evaluator. |
| *AP.VII.C.S5* | Apply braking as appropriate. |
| *AP.VII.C.S6* | Refer to the checklist to ensure that the emergency procedure was followed correctly. |
| *AP.VII.C.S7* | Make radio calls as appropriate. |
| *AP.VII.C.S8* | Use single-pilot resource management (SRM) or crew resource management (CRM), as appropriate. |

### *Task D. Inflight Powerplant(s) Failure and Restart in Multi-Powerplant Aircraft*

*References: FAA-H-8083-2, FAA-H-8083-25; Flight Manual*

**Objective:** To determine the applicant exhibits satisfactory knowledge, risk management, and skills associated with an inflight powerplant(s) failure and restart, if applicable, in a multi-powerplant powered-lift aircraft.

***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:

| | |
|---|---|
| *AP.VII.D.K1* | Flight characteristics and controllability associated with maneuvering the aircraft with powerplant(s) inoperative, including the importance of drag reduction and appropriate aircraft configuration. |
| *AP.VII.D.K2* | Aircraft/powerplant limitations. |
| *AP.VII.D.K3* | Powerplant restart procedures and conditions where a restart attempt is appropriate. |
| *AP.VII.D.K4* | Causes of asymmetric thrust conditions and appropriate responses. |

| | |
|---|---|
| **Risk Management:** | The applicant is able to identify, assess, and mitigate risk associated with: |
| *AP.VII.D.R1* | Potential powerplant(s) failure during flight. |
| *AP.VII.D.R2* | Following checklist procedures for a powerplant(s) failure or a powerplant(s) restart. |
| *AP.VII.D.R3* | Identifying the powerplant(s) that failed. |
| *AP.VII.D.R4* | Collision hazards. |
| *AP.VII.D.R5* | Aircraft configuration. |
| *AP.VII.D.R6* | Factors and situations that could lead to loss of control with an inflight powerplant(s) failure. |
| *AP.VII.D.R7* | Distractions, task prioritization, loss of situational awareness, or disorientation. |

| | |
|---|---|
| **Skills:** | The applicant exhibits the skill to: |
| *AP.VII.D.S1* | Recognize and correctly identify powerplant(s) failure, complete memory items (if applicable), and maintain positive aircraft control. |
| *AP.VII.D.S2* | Coordinate with crew, if applicable, and complete the appropriate emergency procedures and checklist(s) for powerplant shutdown. |
| *AP.VII.D.S3* | Use flight controls and configure the aircraft in the proper combination as recommended by the manufacturer, or as required, to maintain best performance, and trim as required. |
| *AP.VII.D.S4* | Determine the cause for the powerplant(s) failure and if a restart is a viable option. |
| *AP.VII.D.S5* | Maintain the operating powerplant(s) within acceptable operating limits. |
| *AP.VII.D.S6* | Maintain the airspeed ±10 knots, the specified heading ±10°, and altitude ±100 feet as specified by the evaluator and within the aircraft's capability. |
| *AP.VII.D.S7* | Consider a powerplant restart and, if appropriate, demonstrate the powerplant restart procedures in accordance with the manufacturer or operator specified procedures and checklists. |
| *AP.VII.D.S8* | Select the nearest suitable airport or landing area. |
| *AP.VII.D.S9* | Communicate with air traffic control (ATC) and the evaluator, as appropriate for the situation. |
| *AP.VII.D.S10* | Use single-pilot resource management (SRM) or crew resource management (CRM), as appropriate. |

### *Task E. Approach and Landing with Powerplant(s) Failure (Simulated)*

*References: FAA-H-8083-2, FAA-H-8083-25; Flight Manual*

**Objective:** To determine the applicant exhibits satisfactory knowledge, risk management, and skills associated with approach and landing with simulated powerplant(s) failure.

***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: |
| *AP.VII.E.K1* | Flight characteristics and controllability associated with maneuvering to a landing with inoperative powerplant(s). |
| *AP.VII.E.K2* | Effects of atmospheric conditions on emergency approach and landing. |
| *AP.VII.E.K3* | Air traffic control (ATC) services to aircraft in distress. |
| *AP.VII.E.K4* | Appropriate approach and landing profiles and aircraft configurations. |
| *AP.VII.E.K5* | Causes of asymmetric thrust conditions and appropriate responses. |
| *AP.VII.E.K6* | Go-around/rejected landing procedures with a powerplant failure. |
| **Risk Management:** | The applicant is able to identify, assess, and mitigate risk associated with: |
| *AP.VII.E.R1* | Planning for a powerplant failure inflight or during an approach. |
| *AP.VII.E.R2* | Planning and following a flightpath to the selected landing area. |
| *AP.VII.E.R3* | Collision hazards. |
| *AP.VII.E.R4* | Flight control input(s). |
| *AP.VII.E.R5* | Low altitude maneuvering, including stall, spin, or controlled flight into terrain (CFIT). |
| *AP.VII.E.R6* | Distractions, task prioritization, loss of situational awareness, or disorientation. |
| *AP.VII.E.R7* | Performing a go-around/rejected landing with a powerplant failure. |
| **Skills:** | The applicant exhibits the skill to: |
| *AP.VII.E.S1* | Recognize and correctly identify powerplant(s) failure, complete memory items (if applicable), and maintain positive aircraft control. |
| *AP.VII.E.S2* | Follow the manufacturer’s recommended emergency procedures and complete the appropriate checklist. |
| *AP.VII.E.S3* | Use flight controls and configure the aircraft as required to maintain best performance or as recommended by the manufacturer. |
| *AP.VII.E.S4* | Maintain the operating powerplant(s) within acceptable operating limits. |
| *AP.VII.E.S5* | Communicate with air traffic control (ATC) and the evaluator, as appropriate for the situation. |
| *AP.VII.E.S6* | Proceed toward the nearest suitable airport or landing area. |
| *AP.VII.E.S7* | Prior to beginning the final approach segment, maintain the desired altitude ±100 feet, the desired airspeed ±10 knots, the desired heading ±5°, and accurately track courses, radials, and bearings. |
| *AP.VII.E.S8* | Establish the recommended approach and landing configuration and airspeed, ±5 knots, and adjust pitch attitude and power as required to maintain a stabilized approach. |
| *AP.VII.E.S9* | Maintain directional control and appropriate crosswind correction throughout the approach and landing. |
| *AP.VII.E.S10* | Coordinate with crew, if applicable, and complete after landing checklists. |

### *Task F. Precision Approach (Manually Flown) with Powerplant(s) Failure (Simulated)*

*References: FAA-H-8083-2, FAA-H-8083-15, FAA-H-8083-16, FAA-H-8083-25; Flight Manual; Terminal Procedures Publications*

**Objective:** To determine the applicant exhibits satisfactory knowledge, risk management, and skills associated with a precision approach (manually flown) with powerplant(s) failure (simulated).

***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: |
| *AP.VII.F.K1* | Flight characteristics and controllability associated with maneuvering to a landing with inoperative powerplant(s). |
| *AP.VII.F.K2* | Missed approach considerations with a powerplant failure. |
| *AP.VII.F.K3* | How to determine a suitable landing location. |

| | |
|---|---|
| **Risk Management:** | The applicant is able to identify, assess, and mitigate risk associated with: |
| *AP.VII.F.R1* | Planning for a powerplant failure inflight or during an approach. |
| *AP.VII.F.R2* | Collision hazards. |
| *AP.VII.F.R3* | Aircraft configuration. |
| *AP.VII.F.R4* | Low altitude maneuvering, including stall, spin, or controlled flight into terrain (CFIT). |
| *AP.VII.F.R5* | Distractions, task prioritization, loss of situational awareness, or disorientation. |
| *AP.VII.F.R6* | Landing with a powerplant failure. |
| *AP.VII.F.R7* | Missed approach with a powerplant failure. |
| *AP.VII.F.R8* | Maneuvering in instrument meteorological conditions (IMC) with a powerplant failure. |

| | |
|---|---|
| **Skills:** | The applicant exhibits the skill to: |
| *AP.VII.F.S1* | Recognize and correctly identify powerplant(s) failure, complete memory items (if applicable), and maintain positive aircraft control. |
| *AP.VII.F.S2* | Complete the appropriate emergency procedures and checklist(s). |
| *AP.VII.F.S3* | Use flight controls in the proper combination as recommended by the manufacturer, or as required to maintain best performance, and trim as required. |
| *AP.VII.F.S4* | Maintain the operating powerplant(s) within acceptable operating limits. |
| *AP.VII.F.S5* | Notify/coordinate with air traffic control (ATC) or evaluator instructions as required. |
| *AP.VII.F.S6* | Proceed toward the nearest suitable landing location. |
| *AP.VII.F.S7* | Complete the approach and landing checklists. |
| *AP.VII.F.S8* | Establish the appropriate aircraft configuration and airspeed considering meteorological and operating conditions. |
| *AP.VII.F.S9* | Prior to beginning the final approach segment, maintain the desired altitude ±100 feet, the desired airspeed ±10 knots, the desired heading ±5°, and accurately track courses, radials, and bearings. |

| | |
|---|---|
| *AP.VII.F.S10* | Apply adjustments to the published decision altitude (DA)/decision height (DH) and visibility criteria for the aircraft approach category, as appropriate, for factors that include Notices to Air Missions (NOTAMs), inoperative aircraft or navigation equipment, inoperative visual aids associated with the landing environment, etc. |
| *AP.VII.F.S11* | Establish a predetermined rate of descent at the point where vertical guidance begins, which approximates that required for the aircraft to follow the vertical guidance. |
| *AP.VII.F.S12* | Fly and maintain a stabilized approach, adjusting pitch and power as required, allowing no more than ¼-scale deflection of either the vertical or lateral guidance indications. |
| *AP.VII.F.S13* | Maintain a stabilized final approach from the Final Approach Fix (FAF) to DA/DH allowing no more than ¼-scale deflection (either side of the center position) of the vertical or lateral guidance indications and maintain the desired airspeed ±5 knots. |
| *AP.VII.F.S14* | Maintain crosswind correction and directional control throughout the approach and landing or missed approach. |
| *AP.VII.F.S15* | Assess if the required visual references are available, and either initiate the missed approach procedure or continue for landing. |
| *AP.VII.F.S16* | Make smooth, timely, and correct control application before, during, and after touchdown or during the missed approach. |
| *AP.VII.F.S17* | Use single-pilot resource management (SRM) or crew resource management (CRM), as appropriate. |

### *Task G. Recovery from Unusual Flight Attitudes*

*References: FAA-H-8083-2, FAA-H-8083-25; Flight Manual*

**Objective:** To determine the applicant exhibits satisfactory knowledge, risk management, and skills associated with attitude instrument flying while recovering from unusual attitudes solely by reference to instruments.

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

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

| | |
|---|---|
| *AP.VII.G.K1* | Prevention of unusual attitudes, including flight causal, physiological, and environmental factors, and system and equipment failures. |
| *AP.VII.G.K2* | Procedures for recovery from unusual attitudes in flight. |
| *AP.VII.G.K3* | Procedures available to safely regain visual meteorological conditions (VMC) after flight into inadvertent instrument meteorological conditions or unintended instrument meteorological conditions (IIMC)/(UIMC). |
| *AP.VII.G.K4* | Appropriate use of automation, if applicable. |

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

| | |
|---|---|
| *AP.VII.G.R1* | Situations that could lead to loss of control in-flight (LOC-I) or unusual attitudes in-flight (e.g., stress, task saturation, inadequate instrument scan distractions, and spatial disorientation). |
| *AP.VII.G.R2* | Assessment of the unusual attitude. |
| *AP.VII.G.R3* | Control input errors, inducing undesired aircraft attitudes. |
| *AP.VII.G.R4* | Collision hazards. |

| | |
|---|---|
| *AP.VII.G.R5* | Distractions, task prioritization, loss of situational awareness, or disorientation. |
| *AP.VII.G.R6* | Interpreting flight instruments. |
| *AP.VII.G.R7* | Control application solely by reference to instruments. |
| *AP.VII.G.R8* | Operating envelope considerations. |

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

| | |
|---|---|
| *AP.VII.G.S1* | Use proper instrument cross-check and interpretation to identify an unusual attitude (including both nose-high and nose-low) in flight, and apply the appropriate flight control, power input, and aircraft configuration in the correct sequence, to return to a stabilized level flight attitude. |
| *AP.VII.G.S2* | Use single-pilot resource management (SRM) or crew resource management (CRM), as appropriate. |

### *Task H. Vortex Ring State (VRS) Avoidance*

*References: FAA-H-8083-2, FAA-H-8083-25; FSB Report (type specific); Flight Manual*

**Objective:** To determine the applicant exhibits satisfactory knowledge and risk management associated with preventing the aircraft from entering and the procedure for recovering from Vortex Ring State (VRS).

***Note:*** *Evaluator assesses this Task orally only.*

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

| | |
|---|---|
| *AP.VII.H.K1* | Elements of vortex ring state. |
| *AP.VII.H.K2* | Effects of wind, weight, temperature, and density altitude. |
| *AP.VII.H.K3* | Requirements for the formation of VRS. |
| *AP.VII.H.K4* | Aircraft systems that aid the pilot in avoiding VRS, if applicable. |
| *AP.VII.H.K5* | Aerodynamics and indications of VRS. |
| *AP.VII.H.K6* | Flight scenarios under which VRS can occur. |
| *AP.VII.H.K7* | Asymmetric VRS, if applicable. |
| *AP.VII.H.K8* | Effective recovery techniques. |
| *AP.VII.H.K9* | Control inputs and configuration changes to recover from VRS. |

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

| | |
|---|---|
| *AP.VII.H.R1* | Conditions for entering VRS. |
| *AP.VII.H.R2* | Pilot recognition and response to VRS. |
| *AP.VII.H.R3* | Loss of control. |
| *AP.VII.H.R4* | Collision hazards. |
| *AP.VII.H.R5* | Distractions, task prioritization, loss of situational awareness, or disorientation. |

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

| | |
|---|---|
| *AP.VII.H.S1* | [Intentionally left blank]. |

## Area of Operation VIII. Postflight Procedures

### *Task A. After Landing, Parking, and Securing*

*References: AIM; FAA-H-8083-2, FAA-H-8083-25; Flight Manual*

**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: |
| *AP.VIII.A.K1* | Parking, shutdown, securing, and postflight inspection. |
| *AP.VIII.A.K2* | Documenting in-flight/postflight discrepancies. |
| **Risk Management:** | The applicant is able to identify, assess, and mitigate risk associated with: |
| *AP.VIII.A.R1* | Activities and distractions. |
| *AP.VIII.A.R2* | Airport/heliport specific security procedures. |
| *AP.VIII.A.R3* | Disembarking passengers safely on the ramp and monitoring passenger movement while on the ramp. |
| **Skills:** | The applicant exhibits the skill to: |
| *AP.VIII.A.S1* | Minimize any hazardous effects of thrust/downwash during hover, if applicable. |
| *AP.VIII.A.S2* | Park in an appropriate area, considering the safety of nearby persons and property. |
| *AP.VIII.A.S3* | Complete the appropriate checklist(s). |
| *AP.VIII.A.S4* | Conduct a postflight inspection and document discrepancies and servicing requirements, if any. |
| *AP.VIII.A.S5* | Secure the aircraft. |

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

### Eligibility Requirements for an Airline Transport Pilot Certificate

The prerequisite requirements and general eligibility for a practical test and the specific requirements for the issuance of an ATP Certificate in the powered-lift category can be found in 14 CFR part 61, sections 61.39(a) and 61.153.

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.

Additional regulations in 14 CFR part 61 outline requirements for an ATP Certificate or the addition of an aircraft type rating. Some key sections include:

- Section 61.63 for endorsement and training record requirements for an applicant seeking an powered-lift type rating to be added to an airman certificate (other than an ATP Certificate);
- Section 61.155 for knowledge areas for ATP applicants.
- Section 61.157 regarding endorsement and training records for an applicant adding a powered-lift type rating to an ATP Certificate or for a powered-lift type rating with the original issuance of an ATP Certificate;
- Section 61.163 regarding aeronautical experience needed for an ATP Certificate in the powered-lift category;
- Section 61.165 regarding the addition of a powered-lift category to an ATP Certificate.

Applicants must pass the appropriate knowledge test listed in the table below as a prerequisite for the ATP practical test in the powered-lift category.

| Test Code | Test Name | Number of Questions | Age | Allotted Time | Passing Score |
|---|---|---|---|---|---|
| APL | Airline Transport Pilot - Powered-Lift | 100 | 21 | 3.0 | 70 |
| APA | Airline Transport Pilot - Powered-Lift (Added Rating) | 50 | 21 | 2.5 | 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 61.157(e). 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, AP.I.A.K2:

AP = Applicable ACS

I = Area of Operation

A = Task

K2 = Task element (in this example, Knowledge 2)

There is no requirement for an evaluator to test every knowledge and risk management element in a Task; rather the evaluator has discretion to sample as needed to ensure the applicant’s mastery of that Task. The required minimum elements to be

tested from each applicable Task include:

- any elements in which the applicant was shown to be deficient on the knowledge test, as applicable;
- at least one knowledge element;
- at least one risk management element; and
- all skill elements unless otherwise noted.

The Airman Knowledge Test Report (AKTR) lists ACS codes that correlate to a specific Task element for a given Area of Operation for any incorrect responses on the knowledge test.

Knowledge and risk management elements are primarily evaluated during the knowledge testing phase of the airman certification process. The evaluator administering the practical test has the discretion to combine Tasks/elements as appropriate to testing scenarios.

Unless otherwise noted in the Task, the evaluator must test each item in the skills section by observing the applicant perform each one. As safety of flight conditions permit, the evaluator should use questions during flight to test knowledge and risk management elements not evident in the demonstrated skills. To the greatest extent practicable, evaluators should test the applicant's ability to apply and correlate information and use rote questions only when they are appropriate for the material being tested.

If the Task includes a knowledge or risk element with sub-elements, the evaluator may choose the primary element and select at least one sub-element to satisfy the requirement. Selection of the sub-element satisfies the requirement for one element unless otherwise noted.

For example, an evaluator who chooses AP.I.B.K3 may select a sub-element such as AP.I.B.K3a 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:" (AP.I.C.K2), the applicant should be prepared for questions on any weather product presented in the references for that Task.

Those tasks that have the ATP abbreviation in parenthesis within the Task title (e.g., Weather Information (ATP)) are required for an ATP practical test, but are not required for a type rating only practical test.

The FAA encourages applicants and instructors to use the ACS when preparing for the airman knowledge tests and practical tests. Evaluators must conduct the practical test in accordance with the current ACS and FAA regulations pursuant to 14 CFR part 61, section 61.43. If an applicant is entitled to credit for Areas of Operation previously passed as indicated on a Notice of Disapproval of Application or Letter of Discontinuance, evaluators shall use the ACS currently in effect on the date of the test.

The ground portion of the practical test allows the evaluator to determine whether the applicant is sufficiently prepared to advance to the flight portion of the practical test. The applicant must pass the ground portion of the practical test before beginning the flight portion. The oral questioning will continue throughout the entire practical test.

**Instructor Responsibilities**

The instructor trains and qualifies the applicant to meet the established standards for knowledge, risk management, and skill elements in all Tasks appropriate to the certificate and rating sought. The instructor should use this ACS and its references when preparing the applicant to take the practical test and when retraining the applicant to proficiency in any subject(s) missed on the knowledge test.

**Evaluator Responsibilities**

An evaluator includes the following:

- Aviation Safety Inspector (ASI);
- Pilot examiner (other than administrative pilot examiners);
- Training center evaluator (TCE);
- Chief instructor, assistant chief instructor, or check instructor of pilot school holding examining authority; or
- Instrument Flight Instructor (CFII) conducting an instrument proficiency check (IPC).

The evaluator who conducts the practical test verifies the applicant has met the aeronautical experience requirements specified for a certificate or rating before administering the test. During the practical test, the evaluator determines whether the applicant meets the established standards of aeronautical knowledge, risk management, and skills for the Tasks in the appropriate ACS.

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

Prior to and throughout the evaluation, the evaluator ensures the applicant meets the FAA Aviation English Language Standard (AELS). An applicant must be able to communicate in English in a discernible and understandable manner with air traffic control (ATC), pilots, and others involved in preparing an aircraft for flight and operating an aircraft in flight. This communication may or may not involve radio communications. An applicant for an FAA certificate or rating issued in accordance with 14 CFR parts 61, 63, 65, or 107 who cannot hear or speak due to a medical deficiency may be eligible for an FAA certificate with specific operational limitations.

If the applicant's ability to meet the FAA AELS comes into question before starting the practical test, the evaluator will not begin the practical test. An evaluator other than an ASI will check the box, "Referred to FSO for Aviation English Language Standard Determination," located on the bottom of page 2 of the applicant's FAA Form 8710-1, Airman Certificate and/or Rating Application, or FAA Form 8710-11, Airman Certificate and/or Rating Application - Sport Pilot, as applicable. The evaluator will refer the applicant to the appropriate Flight Standards Office (FSO).

If the applicant's ability to meet the FAA AELS comes into question after the practical test begins, an evaluator who other than an ASI will discontinue the practical test and check the box, "Referred to FSO for Aviation English Language Standard Determination," on the application. The evaluator will also issue FAA Form 8060-5, Notice of Disapproval of Application, with the comment "Does Not Demonstrate FAA AELS" in addition to any unsatisfactory Task(s). The evaluator will refer the applicant to the appropriate FSO. ASIs conducting the practical test may assess an applicant's English language proficiency in accordance with FAA Order 8900.1.

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

If the ability of an FAA certificated airman comes into question prior to or during a required regulatory check (e.g., proficiency check) the evaluator other than an ASI will not continue the check or provide an endorsement indicating completion. The evaluator will refer the airman to the jurisdictional FAA field office for further determination of ability to meet the FAA AELS.

For additional information, reference AC 60-28, FAA English Language Standard for an FAA Certificate issued under 14 CFR parts 61, 63, 65, and 107, as amended.

**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.

Depending upon the pilot flight crew complement required for the test, the pilot is expected to demonstrate competence in crew resource management in an operation or powered-lift certificated for more than one required pilot crewmember, or single-pilot competence in an operation or powered-lift that is certificated for single-pilot operations.

If a successful check is conducted under an operator's approved training and checking program, it is considered to have met the flight proficiency requirements of 14 CFR part 61, section 61.157(f) for the issuance of an ATP certificate and an appropriate rating.

### *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.

### Proficiency Check Requirements

In accordance with 14 CFR part 61, section 61.58(d)(1), a proficiency check requires evaluation of all Tasks listed in this ACS except Area of Operation I, Tasks C, D, and E.

### Addition of a VFR Only Type Rating

Refer to 14 CFR section 61.63(e) or section 61.157(g), as applicable. An applicant who provides an aircraft not capable of the instrument maneuvers and procedures may apply for a type rating limited to “VFR Only.” For “VFR Only” type ratings, an applicant must:

- Hold an existing powered-lift category certificate at the ATP level;
- Hold or obtain a commercial pilot certificate in the powered-lift category; or
- Hold or obtain a private pilot certificate in the powered-lift category.

The following table identifies the Tasks required for the VFR only type rating sought in the powered-lift category.

| Area of Operation | Required Tasks |
|---|---|
| I | A,B |
| II | A,B,F,G, and C,D, or E |
| III | All |
| IV | All |
| V | None |
| VI | All |
| VII | A,B,C,D,E,G,H |
| VIII | All |

***Note:*** *The Tasks listed above that are normally required to be performed by reference to instruments would be conducted using visual references for the purposes of a VFR only type rating.*

### Removal of a VFR Only Type Rating

A Specific “VFR Only” limitation may be removed for that aircraft type after the applicant passes a practical test on the Areas of Operations and Tasks in that type of aircraft in actual or simulated instrument conditions shown in the table below.

| Area of Operation | Required Tasks |
|---|---|
| IV | D,E |
| V | All |
| VII | F,G |

# 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, Spin, Angle of Attack Awareness

An applicant, instructor, and evaluator must avoid operations that lead to inadvertent high angle of attack flight that may lead to loss of control, when thrust-borne-lift is insufficient for wing-borne flight.

### Use of Checklists

Throughout the practical test, the applicant is evaluated on the use of an appropriate checklist.

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

In a single-pilot aircraft, the applicant should demonstrate the crew resource management (CRM) principles described as single-pilot resource management (SRM). Proper use depends on the specific Task being evaluated. If the use of the checklist while accomplishing elements of an Objective would be either unsafe or impractical in a single-pilot operation, the applicant should review the checklist after accomplishing the elements.

### Positive Exchange of Flight Controls

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

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

- When one pilot seeks to have the other pilot take control of the aircraft, they will say, "You have the flight controls."
- The second pilot acknowledges immediately by saying, "I have the flight controls."
- The first pilot again says, "You have the flight controls," and visually confirms the exchange.

Pilots should follow this procedure during any exchange of flight controls, including any occurrence during the practical test. The FAA also recommends that both pilots use a visual check to verify that the exchange has occurred. Doubt as to who is flying the aircraft should not occur.

### Use of Distractions

Numerous studies indicate that many accidents have occurred when the pilot has been distracted during critical phases of flight. The evaluator should incorporate realistic distractions during the flight portion of the practical test to evaluate the pilot's situational awareness and ability to utilize proper control technique while dividing attention both inside and outside the flight deck.

### Aeronautical Decision-Making, Risk Management, Crew Resource Management, and Single-Pilot Resource Management

Throughout the practical test, the evaluator must assess the applicant's ability to use sound aeronautical decision-making procedures in order to identify hazards and mitigate risk. The evaluator must accomplish this requirement by reference to the risk management elements of the given Task(s), and by developing scenarios that incorporate and combine Tasks appropriate to assessing the applicant's risk management in making safe aeronautical decisions. For example, the evaluator

may develop a scenario that incorporates weather decisions and performance planning.

In assessing the applicant's performance, the evaluator should take note of the applicant's use of CRM and, if appropriate, SRM. CRM/SRM is the set of competencies that includes situational awareness, communication skills, teamwork, task allocation, and decision-making within a comprehensive framework of standard operating procedures (SOP). SRM specifically refers to the management of all resources onboard the aircraft, as well as outside resources available to the single pilot.

An evaluator, other than an FAA Inspector, qualified as a safety pilot, and current in the specific make and model aircraft certified for two or more crewmembers may occupy a duty position. If occupying a duty position on an aircraft that requires two or more crewmembers, the evaluator must fulfill the duties of that position. Moreover, when occupying a required duty position, the evaluator must perform CRM functions as briefed and requested by the applicant except during the accomplishment of steep turns, approach to stalls, and recovery from unusual attitudes. During these Tasks the applicant must demonstrate the ability to control the aircraft without the intervention from the pilot monitoring. However, for aircraft requiring only one pilot, the evaluator may not assist the applicant in the management of the aircraft, radio communications, tuning and identifying navigational equipment, or using navigation charts.

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.

**Multi-Powerplant Considerations**

During the required preflight briefing for practical tests conducted in a multi-powerplant powered-lift aircraft, the evaluator and applicant must discuss the methods for simulating powerplant(s) failure including:

- Who will initiate the simulated powerplant(s) failure;
- The technique used to simulate the powerplant(s) failure; and
- Who will perform the power recovery procedure.

The evaluator must not simulate a powerplant(s) failure during takeoff while in semi-wing-borne flight until attaining an altitude of at least 400 feet AGL and a minimum safe speed in accordance with the approved flight manual.

The evaluator must select an entry altitude that will allow the powerplant(s) failure and restart demonstration Task to be completed no lower than 3,000 feet AGL, unless a higher altitude is required by the flight manual. At altitudes lower than 3,000 feet AGL, powerplant(s) failure should be simulated in accordance with the flight manual.

For safety reasons, when the practical test is conducted in an aircraft and a powerplant(s) shutdown is required, the applicant demonstrates these Tasks only under conditions and at a position and altitude where it is possible to make a safe landing on a suitable landing surface if there is difficulty restarting the powerplant(s). If it is not possible to restart the powerplant(s) while airborne, the applicant and the evaluator shall treat the situation as an emergency.

In accordance with 14 CFR part 61, section 61.64, practical tests conducted in an FSTD can only be accomplished as part of an approved curriculum or training program. Any limitations on powerplant failure will be noted in that program. In addition, an evaluator may reference a powered-lift's Flight Standardization Board Report, which may include other safety related considerations for performing specific tasks.

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

### Aircraft Requirements & Limitations

If the aircraft has inoperative equipment and can be operated in accordance with 14 CFR part 91, section 91.213, it must be determined if any inoperative instruments or equipment are required to complete the practical test. The inoperative equipment must not interfere with practical test requirements.

### Equipment Requirements & Limitations

The aircraft must meet the requirements as outlined in 14 CFR part 61, section 61.45.

To assist in management of the aircraft during the practical test, the applicant is expected to demonstrate automation management skills by utilizing installed, available, or airborne equipment such as autopilot, avionics and systems displays, and/or a flight management system (FMS). The evaluator is expected to test the applicant's knowledge of the systems that are available or installed and operative during both the ground and flight portions of the practical test. If the applicant has trained using a portable electronic flight bag (EFB) to display charts and data and wishes to use the EFB during the practical test, the applicant is expected to demonstrate appropriate knowledge, risk management, and skill appropriate to its use.

If the practical test involves maneuvering the aircraft solely by reference to instruments, the applicant is required by 14 CFR part 61, section 61.45(d)(2) to provide an appropriate view limiting device acceptable to the Administrator. The applicant and the evaluator should establish a procedure as to when and how this device should be donned and removed and brief this procedure before the flight. This device must prevent the applicant from having visual reference outside the aircraft, but it must not restrict the evaluator's ability to see and avoid other traffic. The use of the device does not apply to specific elements within a Task when there is a requirement for visual references.

### Use of Flight Simulation Training Devices (FSTD)

Applicants for a pilot certificate or rating can accomplish all or part of a practical test or proficiency check in an FSTD qualified under 14 CFR part 60, which includes full flight simulators (FFS) or flight training devices (FTD), only when conducted within an FAA-approved training program. Each operational rule part identifies additional requirements for the approval and use of FSTDs in an FAA-approved training program.

### Credit for Pilot Time in an FSTD

14 CFR part 61 and part 141 specify the minimum experience requirements for each certificate or rating sought. 14 CFR part 61 and the appendices to part 141 specify the maximum amount of FFS or FTD flight training time an applicant can apply toward those experience requirements.

### Use of Aviation Training Devices (ATD)

Applicants for a pilot certificate or rating cannot use an ATD to accomplish a practical test, a 14 CFR part 61, section 61.58 proficiency check, or the flight portion of a 14 CFR part 61, section 61.57 flight review. An ATD is defined in 14 CFR part 61, section 61.1.

The FAA's General Aviation and Commercial Division evaluates and approves ATDs as permitted under 14 CFR part 61, section 61.4(c) and FAA Order 8900.1. Each ATD is then issued an FAA letter of authorization (LOA) that is valid for 60 calendar months. The LOA for each ATD lists the pilot time credit allowances and associated limitations.

The Pilot Training and Certification Group public website provides a list of the FAA-approved ATDs and the associated manufacturer.

### Credit for Pilot Time in an ATD

14 CFR part 61 and part 141 specify the minimum experience requirements for each certificate or rating sought. 14 CFR part 61 and the appendices to part 141 specify the maximum amount of ATD flight training time an applicant can apply toward those experience requirements. The LOA for each FAA-approved ATD lists the pilot time credit allowances and the associated limitations.

Evaluators must request an applicant to provide a copy of the manufacturer's LOA when using ATD flight training time credit

to meet the minimum experience requirements for an airman pilot certificate, rating, or privilege.

**Operational Requirements, Limitations, & Task Information**

Pursuant to 61.63(d)(4) and 61.157(b)(3), the applicant must perform the tasks in Areas of Operation IV through VII in actual or simulated instrument conditions, except for:

- Testing of elements that require visual maneuvering; or
- When the aircraft's type certificate makes the aircraft incapable of operating under instrument flight rules (IFR). See Appendix 1—Practical Test Roles, Responsibilities, and Outcomes for required Tasks to be completed for a VFR Only type rating.

***I. Preflight Preparation***

*Task A. Operation of Systems*

All certificates, ratings, and type ratings require testing this task, which focuses on systems knowledge for the ATP certificate and the type rating for the aircraft brought to the test. The knowledge elements in Task A include a broad categorization of powered-lift aircraft systems, and each element has examples of the content that the evaluator could ask about for the aircraft brought for the practical test. Although the examples are comprehensive, they are not necessarily all-inclusive. The applicant explains an aircraft's systems and components as part of the oral portion of the practical test.

The evaluator may assess certain Skill elements in this Task during the oral portion of the practical test. The Skill elements test an applicant's systems knowledge based upon the aircraft provided in order to adequately evaluate the applicant's knowledge, understanding, and skill for the specific powered-lift aircraft systems, its components, checklists, and procedures.

*Task B. Performance and Limitations*

All certificates, ratings, and type ratings require testing this task. When a practical test does not require an FAA airman knowledge test, the evaluator selects at least one Knowledge element and should tailor the questions towards the actual powered-lift aircraft provided for the practical test. If the applicant took and passed a required knowledge test and missed any Knowledge elements for this Task, the evaluator must ask general or powered-lift aircraft specific questions on performance charts, performance calculations, and factors that affect aircraft performance.

Evaluators may assess certain Skill elements in Task B during the oral portion of the practical test. For example, the Skill elements test an applicant's knowledge and understanding of aircraft performance and the ability to calculate weight and balance specific to the aircraft provided.

*Task C. Weather Information (ATP)*

The applicant may use any risk assessment tool provided it allows for risk assessment and mitigation. This Task is not required for aircraft type rating only applicants.

*Task D. Human Factors (ATP)*

The ability to perform a self-assessment and determine fitness for flight applies to practical tests given in a powered-lift aircraft or a flight simulation training device (FSTD). This Task is not required for aircraft type rating only applicants.

*Task E. The Code of Federal Regulations (ATP)*

The practical test covers the relevant subparts listed in the elements applicable to the test taken. The evaluator has discretion to choose a representative sampling of one or more applicable rule parts. This Task is not required for aircraft type rating only applicants.

***II. Preflight Procedures***

*Task A. Preflight Assessment*

The testing of Task A must occur prior to all other portions of the preflight procedures area of operation, and must be completed prior to the flight portion of the practical test. A part 142 training curriculum may use a pictorial aircraft preflight

inspection program.

*Task B. Powerplant Start*

For practical tests in a powered-lift aircraft, evaluators may assess an applicant's ability to respond to a powerplant start failure(s) or starting malfunction(s) through scenario-based oral questioning.

*Task F. Before Takeoff Checks*

Each applicant must give a briefing before each takeoff. If the operator or aircraft manufacturer has not specified a briefing, the briefing must cover the items appropriate for the conditions, such as: departure runway, departure procedure, power settings, speeds, abnormal or emergency procedures prior to or after reaching decision speed, emergency return intentions, and what the applicant expects other crewmembers to do during the takeoff/departure, if applicable. If the applicant provides a satisfactory briefing before the first takeoff, the evaluator may allow the applicant to brief only the changes, during the remainder of the test. For single-pilot operations, the applicant will verbalize the briefings.

***III. Takeoff and Departure Phase***

Each applicant must give a briefing before each takeoff. If the operator or aircraft manufacturer has not specified a briefing, the briefing must cover the items appropriate for the conditions, such as: departure runway, departure procedure, power settings, speeds, abnormal or emergency procedures prior to or after reaching decision speed, emergency return intentions, and what the applicant expects other crewmembers to do during the takeoff/departure, if applicable. If the applicant provides a satisfactory briefing before the first takeoff, the evaluator may allow the applicant to brief only the changes, during the remainder of the test. For single-pilot operations, the applicant will verbalize the briefings.

For takeoffs evaluated in a full flight simulator (FFS), the crosswind component entered in the instructor operating station (IOS) should be between 10 and 15 knots. However, the evaluator has discretion to use a crosswind component greater than 15 knots, but not above the crosswind component allowed by the operator's aircraft operating manual or the maximum demonstrated value given in the approved flight manual.

*Task C. Rejected Takeoff*

A rejected takeoff must be accomplished prior to reaching 50 percent of the available takeoff distance.

***IV. Inflight Maneuvers***

*Task A. Steep Turns*

The required bank angle depends on the aircraft configuration and capabilities. The evaluator shall consult the aircraft manufacturer's flight manual or recommended training procedures, if published.

*Task B. Specific Flight Characteristics*

The evaluator only tests this Task if the powered-lift has specific flight characteristics identified in the Flight Standardization Board Report.

*Task D. Power-On Stall Prevention and Task E. Power-Off Stall Prevention*

The stall tasks must be accomplished by reference to flight instruments. For a VFR only type rating, however, the Tasks would be accomplished in visual conditions.

When conducted in the powered-lift aircraft, if a limitation of power application is necessary for operational considerations, the power should be set in accordance with the evaluator's instructions.

Reference the flight manual or Flight Standardization Board Report, if available, for any aircraft-specific considerations concerning stalls.

Evaluation criteria for a recovery from an impending stall must not mandate a predetermined value for altitude loss and must not mandate maintaining altitude during recovery. Valid evaluation criteria must take into account the multitude of external (such as density altitude) and internal variables (e.g., aircraft mass, drag configuration and powerplant response time) which affect the recovery altitude.

Power-on stall prevention shall be conducted in accordance with the manufacturer's flight manual. If allowed by the manufacturer, the power may be set to prevent excessively high pitch attitudes. 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. The applicant shall recover at an altitude no lower than 3,000 feet AGL.

Power-off stall prevention shall be conducted in accordance with the manufacturer's flight manual. 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. The applicant shall select an entry altitude that will allow a recover no lower than 3,000 feet AGL.

### *V. Instrument Procedures*

*Briefings*

Each applicant must give a briefing before each takeoff/departure and approach/landing. If the operator, aircraft manufacturer, or training provider has not specified a briefing, the briefing must cover the items appropriate for the conditions, such as: departing/landing runway, departure/arrival procedure, instrument approach procedure, power settings, speeds, missed approach procedures, final approach fix, altitude at final approach fix, initial rate of descent, decision attitude (DA)/decision height (DH)/minimum descent altitude (MDA), time to missed approach, and expectations of the other crewmembers during the approach/landing when in a crew situation. If the applicant provides satisfactory initial takeoff/departure and approach/landing briefings, the evaluator may allow the applicant to brief only the changes, during the remainder of the test. For single-pilot operations, the applicant will verbalize the briefings.

*Stabilized Approach Criteria*

As used in this ACS, a stabilized approach includes the following components:

- Stable approach speed;
- Stable descent rate;
- Stable vertical flight path; and
- Departure from the final approach fix configured for landing, at the proper approach speed, power setting and flightpath before descending below the minimum stabilized approach height (e.g., 1,000 feet above the airport elevation and at a rate of descent no greater than 1,000 feet per minute unless specifically briefed).

*Use of Area Navigation (RNAV) or Required Navigation Performance (RNP) Navigation System*

For practical tests conducted in an aircraft equipped with an installed, instrument flight rules (IFR)-approved RNAV or required navigational performance (RNP) system, or in a flight simulation training device (FSTD) equipped to replicate an installed, IFR-approved RNAV or RNP system, the applicant must demonstrate approach proficiency using that system. The applicant may use a suitable RNAV system on conventional procedures and routes as described in the Aeronautical Information Manual (AIM) to accomplish ACS tasks on conventional approach procedures, as appropriate.

*Vertical or Lateral Deviation Standard*

The standard allows no more than a ¼ scale deflection of either the vertical or lateral deviation indications during the final approach. As markings on flight instruments vary, a ¼ scale deflection of either vertical or lateral guidance is deemed to occur when it is displaced ¼ of the distance that it may be deflected from the indication representing that the aircraft is on the correct flight path.

*Task A. Instrument Takeoff*

The applicant must encounter Instrument conditions or simulated instrument flight at or before reaching an altitude of 100 feet above airport elevation. In a full flight simulator, the visibility value should be set to no greater than ¼ mile. The applicant must have the ability to control the aircraft, including making the transition to instruments as visual cues deteriorate and can plan and execute the transition to an instrument navigation environment.

*Task D. Non-precision Approaches*

A non-precision approach is a standard instrument approach procedure to a published minimum descent altitude without

approved vertical guidance. The applicant may use navigation systems that display advisory vertical guidance during non-precision approach operations, if available.

The evaluator must select and the applicant must accomplish at least two different non-precision approaches in simulated or actual instrument meteorological conditions:

- At least one procedure must include a course reversal maneuver (e.g., procedure turn, holding in lieu, or the course reversal from an initial approach fix on a Terminal Area Arrival).
- The applicant must accomplish at least one procedure from an initial approach fix without the use of autopilot and without the assistance of radar vectors. During this Task, flying without using the autopilot does not prevent use of the yaw damper and flight director.
- The applicant must fly one procedure with reference to backup or partial panel instrumentation or navigation display, depending on the aircraft's instrument avionics configuration, representing a realistic failure mode(s) for the equipment used.

The evaluator has discretion to have the applicant perform a landing or a missed approach at the completion of each approach.

*Task E. Precision Approaches*

The applicant must accomplish at least two precision approaches in simulated or actual instrument meteorological conditions to the decision altitude (DA) using aircraft navigational equipment for centerline and vertical guidance.

The applicant must fly at least one procedure without the use of an autopilot and the manually flown segment will begin no later than the Final Approach Fix (FAF). Manually flown precision approaches may use raw data displays or the flight director, at the discretion of the evaluator.

- The applicant should perform one precision approach with reference to backup or partial panel instrumentation or navigation display, depending on the aircraft's instrument avionics configuration, representing realistic failure mode(s) for the equipment used.
- The applicant may fly at least one approach via the autopilot, if equipped, provided the DA/DH does not violate the authorized minimum altitude for autopilot operation.

Approved training programs that incorporate RNAV (RNP) procedures that require specialized advanced training and equipment, and prior FAA authorization, may utilize these special procedures in lieu of one of the required precision approach procedures.

The evaluator has the discretion to have the applicant perform a landing or missed approach at the completion of each precision approach.

*Task F. Landing from a Precision Approach*

For evaluations conducted in a powered-lift aircraft, if the applicant has flown the approach to a point where a safe landing and a full stop can be made, but circumstances beyond the control of the applicant prevent an actual landing, the evaluator may give credit for this Task. Credit may also be given for either Task H, Missed Approach or Area of Operation VI, Task E, Go-Around/Rejected Landing, if the applicant meets the applicable Task criteria.

*Task G. Circling Approach*

The approach and landing scenario must include visual maneuvering from the final approach course to a base or downwind leg, as appropriate, for the landing runway. The applicant may circle to land on a runway less than 90-degrees offset from the final approach course provided the applicant makes at least 90-degrees of total heading change(s).

*Task H. Missed Approaches*

The applicant must perform two missed approaches with at least one being from a precision approach and one consisting of a published missed approach.

Descending below the MDA or continuing a precision approach below DH/DA without the runway environment in sight constitutes unsatisfactory performance. However, even if the applicant initiates a missed approach at the DA/DH, some aircraft briefly descend below DA/DH due to the momentum. This descent below DA/DH does not constitute unsatisfactory performance, as long as the descent below the DA/DH does not continue.

### *VI. Landings and Approaches to Landings*

*Briefings*

Each applicant must give a briefing before each landing. If the operator, aircraft manufacturer, or training provider has not specified a briefing, the briefing must cover the items appropriate for the conditions, such as: power settings, speeds, abnormal or emergency procedures, go-around/rejected landing procedures, initial rate of descent, and what is expected of the other crewmembers during the landing. For single-pilot operations, the applicant will verbalize the briefings. If the first landing briefing is satisfactory, the evaluator may allow the applicant to brief only the changes, during the remainder of the evaluation.

Landing Tasks may be combined where appropriate. This includes the Landing Tasks found in the Instrument Procedures Area of Operation and the Emergency Operations Area of Operation.

If crosswind conditions exist, at least one of the required landings must be manually controlled with a crosswind. When the flight test is conducted in a powered-lift aircraft, evaluators may have very little control over existing meteorological, airport, and traffic conditions. Evaluators are expected to make a reasonable attempt to evaluate a landing on a runway not favorably aligned with the prevailing wind. It will frequently be necessary, however, to evaluate this event with the crosswind component that exists on the active runway.

For landings evaluated in a full flight simulator (FFS), the crosswind component entered in the instructor operating station (IOS) should be between 10 and 15 knots. However, the evaluator has discretion to use a crosswind component greater than 15 knots, but not above the crosswind component allowed by the operator's aircraft operating manual or the maximum demonstrated value given in the approved flight manual.

*Task C. Steep Approach and Landing*

Demonstration of a steep approach and landing may vary with each powered-lift make and model. The maximum angle to be used for any steep approach must be conducted in accordance with the approved flight manual.

*Task E. Go-Around/Rejected Landing*

The instrument conditions need not be simulated below 100 feet above the runway. This maneuver should be initiated approximately 50 feet above the runway or landing area and approximately over the runway threshold.

For those applicants seeking a VFR-only type rating and where this maneuver is accomplished with a simulated engine failure, it must not be initiated at speeds or altitudes below that recommended in the approved flight manual.

### *VII. Emergency Operations*

*Task B. Powerplant(s) Failure (Simulated) during Takeoff in Thrust-Borne Flight*

Powerplant(s) Failure (Simulated) during Takeoff in Thrust-Borne Flight must be accomplished in-ground effect, approximately 15-20 knots and prior to reaching 50 percent of the available takeoff distance. The evaluator and applicant must ensure a safe landing area is available and free of obstructions.

*Task C. Powerplant(s) Failure during Takeoff While in Semi-Wing-Borne Flight*

The evaluator must not simulate a powerplant(s) failure during takeoff while in semi-wing-borne flight until attaining an altitude of at least 400 feet AGL and a minimum safe speed in accordance with the approved flight manual.

*Task D. In-flight Powerplant(s) Failure and Restart in Multi-Powerplant Aircraft*

Refer to Appendix 2: Safety of Flight, Multi-Powerplant Considerations, for additional information concerning required aircraft capabilities as they relate to this Task.

When conducted in an FSTD, powerplant(s) failure or shutdown may be performed in conjunction with any Task and at locations and altitudes at the discretion of the evaluator.

*Task E. Approach and Landing with Powerplant(s) Failure (Simulated)*

The applicant must demonstrate at least one landing with a simulated powerplant(s) failure, in accordance with the approved flight manual.

*Task F. Precision Approach (Manually Flown) with Powerplant(s) Failure (Simulated)*

At least one must be flown without the use of an autopilot. The applicant should begin manually flying prior to the final approach segment. Manually flown precision approaches may use raw data displays or may be flight director assisted, at the discretion of the evaluator. The simulated powerplant(s) failure should occur before initiating the final approach segment and continue to a landing or a missed approach procedure, at the evaluator's discretion.

*Task G. Recovery from Unusual Flight Attitudes*

The evaluator shall conduct a preflight briefing with the applicant regarding recovery. Intervention by the evaluator to prevent the applicant from exceeding any aircraft operating limitations or from entering an unsafe flight condition shall be disqualifying and the Task is unsatisfactory.