June 19, 2020

Mr. Brandon Roberts
Office of Rulemaking
Acting Designated Federal Official, Aviation Rulemaking Advisory Committee
Federal Aviation Administration
800 Independence Avenue, SW
Washington, DC 20591

RE: Airman Certification System Working Group (ACSWG) Interim Recommendation Report

Dear Mr. Roberts,

On June 18, 2020 the Aviation Rulemaking Advisory Committee (ARAC) unanimously voted to accept the Interim Recommendation Report submitted by the Airman Certification System Working Group (ACSWG). This report includes an Airplane Flying Handbook Recommendation (FAA-H-8083-3B) and Airman Certification Standards (ACS) for: Flight Instructor – Powered-Lift; Private Pilot – Balloon and Airline Transport Pilot & Type Rating – Helicopter.

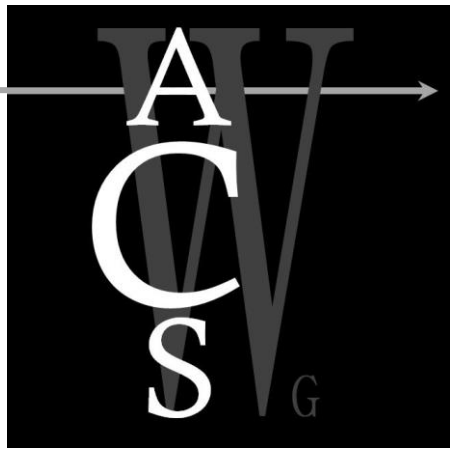
On behalf of the ARAC members, please accept the ACSWG Interim Recommendation Report, submit to the relevant program offices and move forward to the establishment of a public docket.

Please do not hesitate to contact me with any questions. Thank you very much.

Sincerely yours,

Yvette A. Rose
ARAC Chair
202.293.1032
yrose@cargoair.org

cc: David Oord, ACSWG Chair



Aviation Rulemaking Advisory Committee

Airman Certification System Working Group

Interim Recommendation Report

May 15, 2020

May 15, 2020

Yvette A. Rose
Chair, Aviation Rulemaking Advisory Committee
Federal Aviation Administration
800 Independence Avenue, SW
Washington, DC 20591

Dear Ms. Rose,

On behalf of the Airman Certification System Working Group (ACSWG), we submit the following interim recommendation report to the Aviation Rulemaking Advisory Committee (ARAC) for consideration.

Despite these unprecedented and challenging times, the FAA and the aviation industry have continued its collaborative effort to improve airman training and testing. The result of that work has borne a new integrated, holistic airman certification system that not only aligns testing with the certification standards, guidance, and reference materials, but also maintains that alignment and is continuously improved.

As part of its ongoing tasking, the ACSWG submits the following recommendations on the Airplane Flying Handbook along with new Airman Certification Standards for Flight Instructor – Powered-Lift, Private Pilot – Balloon, and Airline Transport Pilot & Type Rating – Helicopter.

Collectively, we recommend and endorse the committee's transmittal of these recommendations to the FAA for further review, incorporation, and implementation. We are confident that, by doing so, the safety of aviation will continue to markedly improve.

Sincerely,

David Oord
ACSWG Chair
Head of Regulatory Affairs Americas
Lilium

Susan Parson
FAA Representative
Flight Standards Service
Federal Aviation Administration

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Airplane Flying Handbook

Recommendations

FAA-H-8083-3B

Airplane Flying Handbook (FAA-H-8083-3B)

https://www.faa.gov/regulations_policies/handbooks_manuals/aviation/airplane_handbook/media/airplane_flying_handbook.pdf

General Comments:

- Add definition and content for Vo, relative to Va (maneuvering speed), per submitted change driver.
- Add content for Controlled Flight Into Terrain (CFIT); this is as important as Upset Recovery and the other Emergency conditions covered in this book, yet this isn't mentioned anywhere in the handbook.
- Add content for new CFI Task in CFI ACS, Demonstration of Flight Characteristics at Various Configurations and Airspeeds.

Comments Based on Current Edition:

- Pg. 1-3, Figure 1-3, add Part 107
- Pg. 1-5, add discussion of Part 107 so pilots know where to anticipate drones in the NAS.
- Pg. 12-27, second to last paragraph, the minimum altitude recommendation for accelerated stalls in multiengine airplanes needs to be changed from 5,000 ft. AGL to 3,000 ft. AGL to align with the ACS.
- Pg. G-4, add definition for CFIT
- Pg. G-19, add definition for Vo (in comparison to Va, maneuvering speed)
- Pg. I-3, add CFIT, Controlled Flight Into Terrain
- Pg. I-6, add V(a), V(o)

Energy Management Chapter 18:

- Incorporate topic into Chapter 3 rather than have as a stand-alone chapter at the end of the book – seems like a tack-on, similar to how Runway Incursions was added prior to incorporating it into context.
- It's overly convoluted; Almost entirely academic vs practical application Infused with irrelevant formulas; Takes 18 pages to explain why low and slow is bad, and following the AFM climb data is important. It would be a travesty if any of this became testable material. It may have value in in discussion of performance maneuvers, like Lazy Eights, Eights on Pylons……and in stalls...but a much condensed version.
- I have found the content and particularly the attempt to use non-aviation analogies for such a technical subject confusing and disturbing. I doubt that I would be the only pilot/instructor that may take offense at the over-simplification and lack of aviation focus presented in this teaching document. Then again, maybe the topic has to be communicated in such a manner for our future aviators to grasp the idea (I would say "to be able to build a mental model," but few airmen even know what that term means).
- The writing style of this chapter 18 on energy management is not cohesive to the writing style of the rest of the publication. This chapter lacks the technical writing style seen in other FAA handbooks. Reminds me of writing we might see in a commercially available textbook taking the technical information from a handbook and breaking it down into smaller blocks of more easily understandable learning. Rewrite to be more technical, less expository.
- I do not believe that this should be a stand alone chapter. A lot of this information is expanding on already discussed topics within the AFH – it would be better to convey this in context. For example, energy management could be discussed in chapter 3 following the section on Attitude Flying (3-5). Then discussion on maintaining energy in climbs in chapter 5 and when discussing managing energy during descent (maintaining desired glideslope) this information can be added to chapter 8 (approaches and landings).
- Providing marked-up PDF with 5 pages edited; suggest editing comparably throughout chapter.
- It might really appeal to engineers…and economists; Don't believe the one-size-fits-all concept works for everyone learning to fly—people learn differently—it could supplement, but wouldn't want to use this to replace existing information
- See this as a technically-oriented CFI's epiphany; I visualize this being presented by Professor Irwin Corey
- Have a slight concern that an FAA Knowledge Exam writer will find it great knowledge test fodder which won't contribute to a meaningful and relevant test.
- Unlikely I would try to use it as a presentation to the average flight student.

- The Robinson Helicopter Company has been interested in the concept of “energy management’ since the mid-nineties when Special Federal Aviation Regulation 73 mandated this subject be taught to all Robinson helicopter pilots. At the time there was no FAA reference material for energy management in the form of Advisory Circulars, handbook sections or other documents and it was not a part of pilot certification at any level. Robinson’s engineering department developed and, through the years, refined an approach to teaching energy management that has proven effective and useable by pilots. Energy management is also addressed in a US Helicopter Safety Team “Training Fact Sheet” and technical books such as Shawn Coyle’s “Little Book of Autorotations”. My point is this is a subject the helicopter world has been teaching for many years.

  After reviewing Chapter 18, we feel the discussion is overly complicated and will be extremely difficult for pilots to understand in a way helpful to flying the airplane. It mixes complex academic explanations and over simplifications. Terms such as “negative energy bleed rates”, “excess power contours” and the figures depicting these concepts are confusing, complex and have an abstract quality that is difficult to understand. As one of Robinson’s aeronautical engineers who holds an advanced degree stated “If I have to read a paragraph two or three times to clearly understand its meaning what will an average pilot take away from it.”

  The referenced helicopter energy management materials, along with the energy management discussion on Robinson’s website (www.robinsonheli.com/training) is more concise, understandable and of moderate length. Something this draft fails to achieve. Please feel free to contact me for any additional information.

- My overall comment is that this chapter needs a lot of editing. As written, the chapter starts as a high-school level analogy and ends with college-level aerodynamics for engineers. There are two very different writing styles between the first half and second half. Neither is consistent with the other writing in the AFH.

  The money analogy is too simple. Its good for wings level, steady-state conditions. It has Thrust and Drag, but where does it capture the effects of changing Lift (i.e. pulling Gs)? From a teaching perspective, while it is well meaning, I feel, as presented, it negates all we have been trying to do with emphasizing AOA instead of airspeed and with trying not to power-out of a stall. And, how does this analogy help with how to actually manage the energy for a safer flight? Later in the chapter, there is some guidance, but its not tied back to the analogy.

  The whole energy system piece from “money” through “energy bleed” comes from Juan Merkt at ERAU. In fact, the money analogy appears almost verbatim in the Jan/Feb 2020 issue of FAA Safety Briefing, pages 28-30.

  While I agree with Juan about taking a pilot-centric approach to flight training vs. the traditional designer-oriented approach, the second half IS as designer-oriented as it gets in my mind! So overly complicated. As written, this chapter is far more complicated than “Aerodynamics for Naval Aviators.”

  I support the “pilot-centric” approach to training and even advocate it in my talks. Just not this manifestation of it. In fact, the whole idea behind pilot-centric is to make the pilot aware of the performance consequences of his/her actions, i.e., “if you do this, the plane does that.” As written, the

energy management chapter does a poor job of explaining it in a way that most pilots will be able to translate to flying the airplane.

The focus is also on just one of the two traditional performance diagrams pilots are exposed to: the power curve (P-V). But there is also the other performance diagram: the V-G diagram. The true state of the airplane at any given point in time and space is comprised of three variables: P, V, and G.

We should be trying to simplify training content, not making it more complicated. Especially as it relates to stick and rudder skills and LOC-I.

Flight Instructor – Powered-Lift

Airman Certification Standards

Section 4.

Powered-Lift Instructor

Completion Standards

A. Pass the Appropriate Knowledge Test(s).

B. Pass the Practical Test. The applicant should:

1. Demonstrate instructional proficiency in the Tasks;
2. Facilitate the learning of subject material;
3. *Simultaneously* demonstrate, teach, and explain the maneuvers;
4. Teach practical risk management skills associated with the Tasks;
5. Identify, assess, and mitigate risks associated with instruction;
6. Promote professionalism;
7. Recognize, analyze, and correct common learner errors.

Instructional Proficiency

This section contains Areas of Operation and Tasks for the Instructor Powered- Lift practical test.

The instructor applicant will be required to demonstrate instructional proficiency. Instructional proficiency includes the ability to explain the knowledge elements of each selected Task, demonstrate and *simultaneously* explain the skills associated with each Task, and manage the risks associated with flight instruction. See appendix 6 for more information about risk management for the instructor.

The instructor applicant must also demonstrate the ability to describe, analyze, and correct common errors associated with Tasks imported from foundational ACS document(s). When the evaluator assumes the role of a pilot in training, the instructor applicant should point out any errors and provide appropriate instruction unless the evaluator waves such instruction. The applicant should use appropriate judgment in deciding whether to take over control from the evaluator. Whether an applicant demonstrates and teaches a Task or corrects errors, the evaluator judges the effectiveness of the instruction and determines if the instruction given during the training scenario would bring about the desired learning.

Unless otherwise indicated, the evaluator will assess at least one knowledge element, one risk element, and all skill elements for each selected Task.

I. Fundamentals of Instructing

Tasks A, B, C, D, E, & F

Area of Operation I. *Evaluators test all initial flight instructor applicants on the application of the FOI (see Section 1 of this ACS). Testing of the FOI may be combined with testing Tasks in this section, as appropriate. Evaluators have discretion to test any FOI Task during a practical test for an added instructor rating.*

II. Technical Subject Areas

Task A. Human Factors

Note:	*The evaluator selects Tasks B, M, and at least one other Task from IL.II, Technical Subject Areas.*
References	*AIM; FAA-H-8083-2, FAA-H-8083-9, FAA-H-8083-25*
Objective	*To determine that the applicant understands the elements associated with personal health, flight physiology, aeromedical and human factors as they relate to safety of flight and applies that knowledge when delivering ground or flight instruction.*
Knowledge	*The applicant demonstrates instructional knowledge by describing and explaining:*
IL.II.A.K1	The symptoms (as applicable), recognition, causes, effects, and corrective actions associated with aeromedical and physiological issues, including:
IL.II.A.K1a	a. Hypoxia
IL.II.A.K1b	b. Hyperventilation
IL.II.A.K1c	c. Middle ear and sinus problems
IL.II.A.K1d	d. Spatial disorientation
IL.II.A.K1e	e. Motion sickness
IL.II.A.K1f	f. Carbon monoxide poisoning
IL.II.A.K1g	g. Stress
IL.II.A.K1h	h. Fatigue
IL.II.A.K1i	i. Dehydration and nutrition
IL.II.A.K1j	j. Hypothermia
IL.II.A.K1k	k. Optical illusions
IL.II.A.K1l	l. Dissolved nitrogen in the bloodstream after scuba dives
IL.II.A.K2	Regulations regarding use of alcohol and drugs.
IL.II.A.K3	Effects of alcohol, drugs, and over-the-counter medications.
IL.II.A.K4	Aeronautical Decision-Making (ADM).
Risk Management	*The applicant demonstrates instructional knowledge by teaching how to identify, explain, and manage risk arising from:*
IL.II.A.R1	Aeromedical and physiological issues.
IL.II.A.R2	Hazardous attitudes.
IL.II.A.R3	Distractions, improper task management, loss of situational awareness, or disorientation.
Skills	*The applicant demonstrates and teaches how to:*
IL.II.A.S1	Associate the symptoms (as applicable), recognition, causes, effects, and corrective actions with at least three of the conditions listed in K1a through K1l above.
IL.II.A.S2	Perform self-assessment, including fitness for flight and personal minimums, for actual flight or a scenario given by the evaluator.

II. Technical Subject Areas

Task B. Runway Incursion Avoidance

Note:	*The evaluator selects Tasks B, M, and at least one other Task from IL.II, Technical Subject Areas.*
References	*AC 91-73; AIM; Chart Supplements; FAA-H-8083-2, FAA-H-8083-25, FAA-H-8083-33*
Objective	*To determine that the applicant understands the elements associated with runway incursion avoidance and applies that knowledge in ground or flight instruction.*
Knowledge	*The applicant demonstrates instructional knowledge by describing and explaining:*
IL.II.B.K1	Taxi instructions/clearances.
IL.II.B.K2	Airport markings, signs, and lights.
IL.II.B.K3	Procedures for:
IL.II.B.K3a	a. Appropriate flight deck activities during taxiing, including taxi route planning, briefing the location of Hot Spots, communicating and coordinating with ATC
IL.II.B.K3b	b. Safe taxi at towered and non-towered airports
IL.II.B.K3c	c. Entering or crossing runways
IL.II.B.K3d	d. Night taxi operations
IL.II.B.K3e	e. Low visibility taxi operations
Risk Management	*The applicant demonstrates instructional knowledge by teaching how to identify, explain, and manage risk arising from:*
IL.II.B.R1	Distractions, improper task management, loss of situational awareness, or disorientation.
IL.II.B.R2	Confirmation or expectation bias as related to taxi instructions.
Skills	*The applicant demonstrates the ability to:*
IL.II.B.S1	Deliver instruction on the elements and techniques for runway incursion avoidance in a scenario specified by the evaluator.

II. Technical Subject Areas

Task C. Visual Scanning and Collision Avoidance

Note:	*The evaluator selects Tasks B, M, and at least one other Task from IL.II, Technical Subject Areas.*
References	*AC 90-48; AIM; FAA-H-8083-25, FAA-H-8083-33*
Objective	*To determine that the applicant understands the elements associated with visual scanning and collision avoidance and applies that knowledge when delivering ground or flight instruction.*
Knowledge	*The applicant demonstrates instructional knowledge by describing and explaining:*
IL.II.C.K1	Environmental conditions that degrade vision.
IL.II.C.K2	Vestibular and visual illusions.
IL.II.C.K3	"See and Avoid" responsibilities.
IL.II.C.K4	Visual scanning procedure and the importance of peripheral vision.
IL.II.C.K5	Aircraft blind spots and clearing procedures.
IL.II.C.K6	Visual cues of an impending mid-air collision.
IL.II.C.K7	Situations that create the greatest collision risk.
IL.II.C.K8	Division of attention inside and outside the aircraft.
Risk Management	*The applicant demonstrates instructional knowledge by teaching how to identify, explain, and manage risk arising from:*
IL.II.C.R1	Lag time after noting a potential collision.
IL.II.C.R2	Relaxed intermediate focus distance.
IL.II.C.R3	High volume operational environments.
IL.II.C.R4	Flying in formation.
IL.II.C.R5	Using a safety pilot.
Skills	*The applicant demonstrates and teaches how to:*
IL.II.C.S1	Effectively scan using short regularly spaced eye movements.
IL.II.C.S2	Move one’s head in order to search around physical obstructions.
IL.II.C.S3	Execute appropriate clearing procedures.
IL.II.C.S4	Use electronic traffic alert systems, if available.

II. Technical Subject Areas

Task D. Principles of Flight

Note:	*The evaluator selects Tasks B, M, and at least one other Task from IL.II, Technical Subject Areas.*
References	*FAA-H-8083-25, FAA-H-8083-33*
Objective	*To determine that the applicant understands the elements associated with aerodynamics appropriate to the desired instructor certificate and applies that knowledge when delivering ground or flight instruction.*
Knowledge	*The applicant demonstrates instructional knowledge by describing and explaining:*
Note:	*The evaluator assesses the applicant's knowledge of at least five of the following knowledge elements.*
IL.II.D.K1	Airfoils, including terminology, definitions, and types.
IL.II.D.K2	Lift, weight, thrust, and drag.
IL.II.D.K3	Aircraft stability, maneuverability, and controllability.
IL.II.D.K4	Turning tendency (e.g., torque, p-factor, spiraling slipstream, and gyroscopic precession).
IL.II.D.K5	Forces acting on an aircraft.
IL.II.D.K6	Load factors in aircraft design.
IL.II.D.K7	Wingtip vortices and appropriate precautions.
IL.II.D.K8	Dissymmetry of lift, including cause and correction.
IL.II.D.K9	Translational lift, including effective translational lift (ETL).
IL.II.D.K10	Pitch-up with side-slip.
Risk Management	*The applicant demonstrates instructional knowledge by teaching how to identify, explain, and manage risk arising from:*
IL.II.D.R1	Failure to understand the basic aerodynamic principles of flight.
Skills	*The applicant demonstrates the ability to:*
IL.II.D.S1	Teach at least one of the elements listed in K1-K10 in a lesson or scenario specified by the evaluator.

II. Technical Subject Areas

Task E. Flight Controls and Principles of Operation

Note:	*The evaluator selects Tasks B, M, and at least one other Task from IL.II, Technical Subject Areas.*
References	*FAA-H-8083-2, FAA-H-8083-9, FAA-H-8083-25, FAA-H-8083-33; POH/RFM*
Objective	*To determine that the applicant understands the elements associated with flight controls and principles of operation on the aircraft provided for the flight test and applies that knowledge when delivering ground or flight instruction.*
Knowledge	*The applicant demonstrates instructional knowledge by describing and explaining:*
IL.II.E.K1	Aircraft systems, including:
Note:	*If K1 is selected, the evaluator assesses the applicant's knowledge of at least three of the following sub-elements.*
IL.II.E.K1a	a. Primary flight controls
IL.II.E.K1b	b. Secondary flight controls
IL.II.E.K1c	c. Powerplant and thrust control
IL.II.E.K1d	d. Landing gear
IL.II.E.K1e	e. Fuel, oil, and hydraulic
IL.II.E.K1f	f. Electrical
IL.II.E.K1g	g. Avionics
IL.II.E.K1h	h. Pitot-static, vacuum/pressure, and associated flight instruments
IL.II.E.K1i	i. Environmental
IL.II.E.K1j	j. Deicing and anti-icing
IL.II.E.K1k	k. Automation and flight director
IL.II.E.K1l	l. Oxygen system
IL.II.E.K2	Indications of and procedures for managing system abnormalities or failures.
Risk Management	*The applicant demonstrates instructional knowledge by teaching how to identify, explain, and manage risk arising from:*
IL.II.E.R1	Failure to detect system malfunctions or failures.
IL.II.E.R2	Improper management of a system failure.
IL.II.E.R3	Failure to monitor and manage automated systems.
Skills	*The applicant demonstrates and teaches how to:*
IL.II.E.S1	Operate at least three of the systems listed in K1a through K1l above appropriately.
IL.II.E.S2	Use appropriate checklists properly.

II. Technical Subject Areas

Task F. Weight and Balance

Note:	*The evaluator selects Tasks B, M, and at least one other Task from IL.II, Technical Subject Areas.*
References	*FAA-H-8083-1, FAA-H-8083-2, FAA-H-8083-9, FAA-H-8083-25, FAA-H-8083-33; POH/RFM*
Objective	*To determine that the applicant understands the elements associated with weight and balance and applies that knowledge when delivering ground or flight instruction.*
Knowledge	*The applicant demonstrates instructional knowledge by describing and explaining:*
IL.II.F.K1	Elements related to performance and limitations by explaining the use of charts, tables, and data to determine performance.
IL.II.F.K2	Factors affecting performance, including:
IL.II.F.K2a	a. Atmospheric conditions
IL.II.F.K2b	b. Pilot technique
IL.II.F.K2c	c. Aircraft configuration
IL.II.F.K2d	d. Airport environment
IL.II.F.K2e	e. Loading (e.g., center of gravity)
IL.II.F.K2f	f. Weight and balance
IL.II.F.K3	Aerodynamics.
Risk Management	*The applicant demonstrates instructional knowledge by teaching how to identify, explain, and manage risk arising from:*
IL.II.F.R1	Inaccurate use of manufacturer's performance charts, tables, and data.
IL.II.F.R2	Exceeding aircraft limitations.
IL.II.F.R3	Possible differences between calculated performance and actual performance.
Skills	For the aircraft provided for the practical test, the applicant demonstrates and teaches how to:
IL.II.F.S1	Compute the weight and balance, correct out-of-CG loading errors and determine if the weight and balance remains within limits during all phases of flight.
IL.II.F.S2	Utilize the appropriate aircraft manufacturer's approved performance charts, tables, and data.

II. Technical Subject Areas

Task G. Cross-Country Flight Planning

Note:	*The evaluator selects Tasks B, M, and at least one other Task from IL.II, Technical Subject Areas.*
References	*14 CFR part 91; AIM; Chart Supplements; FAA-H-8083-2, FAA-H-8083-9, FAA-H-8083-25; NOTAMs; VFR Navigation Charts*
Objective	*To determine that the applicant understands the elements associated with VFR cross-country flight planning and navigation and applies that knowledge when delivering ground or flight instruction.*
Knowledge	*The applicant demonstrates instructional knowledge by describing and explaining:*
IL.II.G.K1	Route planning, including consideration of different classes and special use airspace (SUA) and selection of appropriate and available navigation/communication systems and facilities.
IL.II.G.K2	Altitude selection accounting for terrain and obstacles, aircraft performance following the loss of a powerplant, VFR cruising altitudes, and the effect of wind.
IL.II.G.K3	Calculating:
IL.II.G.K3a	a. Time, climb and descent rates, course, distance, heading, true airspeed, and groundspeed
IL.II.G.K3b	b. Estimated time of arrival, including conversion to universal coordinated time (UTC)
IL.II.G.K3c	c. Fuel requirements, including reserve
IL.II.G.K4	Elements of a VFR flight plan.
IL.II.G.K5	Procedures for activating and closing a VFR flight plan.
IL.II.G.K6	Diversion and lost procedures.
Risk Management	*The applicant demonstrates instructional knowledge by teaching how to identify, explain, and manage risk arising from:*
IL.II.G.R1	Pilot(s).
IL.II.G.R2	Aircraft.
IL.II.G.R3	Environment (e.g., weather, airports, airspace, terrain, obstacles).
IL.II.G.R4	External pressures.
IL.II.G.R5	Limitations of air traffic control (ATC) services.
IL.II.G.R6	Improper fuel planning.
Skills	*The applicant demonstrates and teaches how to:*
IL.II.G.S1	Prepare, present, and explain a cross-country flight plan assigned by the evaluator, including a risk analysis to the first fuel stop.
IL.II.G.S2	Apply pertinent information from appropriate and current aeronautical charts, Chart Supplements; NOTAMs relative to airport, runway and taxiway closures; and other flight publications.
IL.II.G.S3	Create a navigation plan and simulate filing a VFR flight plan.
IL.II.G.S4	Recalculate fuel reserves based on a scenario provided by the evaluator.

II. Technical Subject Areas

Task H. Night Operation

Note:	*The evaluator selects Tasks B, M, and at least one other Task from IL.II, Technical Subject Areas.*
References	*FAA-H-8083-2, FAA-H-8083-9, FAA-H-8083-25, FAA-H-8083-33; POH/RFM*
Objective	*To determine that the applicant understands the elements associated with night operations and applies that knowledge when delivering ground or flight instruction.*
Note:	*The standards throughout this document apply to any Task tested at night.*
Knowledge	*The applicant demonstrates instructional knowledge by describing and explaining:*
IL.II.H.K1	Physiological aspects of vision related to night flying.
IL.II.H.K2	Lighting systems identifying airports, heliports, runways, taxiways and obstructions, as well as pilot controlled lighting.
IL.II.H.K3	Aircraft equipment and lighting requirements for night operations.
IL.II.H.K4	Personal equipment essential for night flight.
IL.II.H.K5	Night orientation, navigation, and chart reading techniques.
Risk Management	*The applicant demonstrates instructional knowledge by teaching how to identify, explain, and manage risk arising from:*
IL.II.H.R1	Collision hazards, including aircraft, terrain, obstacles, wires, vehicles, vessels, persons, and wildlife.
IL.II.H.R2	Distractions, improper task management, loss of situational awareness, or disorientation.
IL.II.H.R3	Hazards specific to night flying.
Skills	*The applicant demonstrates and teaches how to:*
IL.II.H.S1	Teach at least one of the elements listed in K1-K5 in a lesson or scenario specified by the evaluator.

II. Technical Subject Areas

Task I. High Altitude Operations - Supplemental Oxygen

Note:	*The evaluator selects Tasks B, M, and at least one other Task from IL.II, Technical Subject Areas.*
References	*14 CFR part 91; AC 61-107; AIM; FAA-H-8083-2, FAA-H-8083-9, FAA-H-8083-25, FAA-H-8083-33; POH/RFM*
Objective	*To determine that the applicant understands the elements associated with flight at higher altitudes where supplemental oxygen is required or recommended as they relate to safety of flight and applies that knowledge when delivering ground or flight instruction.*
Knowledge	*The applicant demonstrates instructional knowledge by describing and explaining:*
IL.II.I.K1	Regulatory requirements for supplemental oxygen use by flight crew and passengers.
IL.II.I.K2	Physiological factors, including:
IL.II.I.K2a	a. Impairment
IL.II.I.K2b	b. Symptoms of hypoxia
IL.II.I.K2c	c. Time of useful consciousness (TUC)
IL.II.I.K3	Operational factors, including:
IL.II.I.K3a	a. Characteristics, limitations, and applicability of continuous flow, demand, and pressure-demand oxygen systems
IL.II.I.K3b	b. Differences between and identification of “aviator’s breathing oxygen” and other types of oxygen
IL.II.I.K3c	c. Necessary precautions when using supplemental oxygen systems
Risk Management	*The applicant demonstrates instructional knowledge by teaching how to identify, explain, and manage risk arising from:*
IL.II.I.R1	High altitude flight.
IL.II.I.R2	Use of supplemental oxygen.
IL.II.I.R3	Management of compressed gas containers.
IL.II.I.R4	Combustion hazards in an oxygen-rich environment.
Skills	*The applicant demonstrates and teaches how to:*
IL.II.I.S1	Determine the quantity of supplemental oxygen required in a scenario given by the evaluator.
IL.II.I.S2	Operate or simulate operation of the installed or portable oxygen equipment in the aircraft.
IL.II.I.S3	Brief passengers on use of supplemental oxygen in a scenario given by the evaluator, if equipment is installed.
IL.II.I.S4	Use SRM/CRM.

II. Technical Subject Areas

Task J. 14 CFR and Publications

Note:	*The evaluator selects Tasks B, M, and at least one other Task from IL.II, Technical Subject Areas.*
References	*14 CFR parts 1, 61, 91; 49 CFR part 830; AIM; Chart Supplements; FAA-H-8083-25; POH/AFM*
Objective	*To determine that the applicant understands the Code of Federal Regulations and other publications relevant to safe operation and applies that knowledge when delivering ground or flight instruction.*
Knowledge	The applicant demonstrates instructional knowledge by describing and explaining the purpose, general content, means of distribution/access and of verifying currency of:
IL.II.J.K1	14 CFR parts 1, 61, and 91.
IL.II.J.K2	NTSB part 830.
IL.II.J.K3	Advisory Circulars.
IL.II.J.K4	Airman Certification Standards.
IL.II.J.K5	Pilot's Operating Handbooks or FAA-approved flight manuals.
IL.II.J.K6	Aeronautical Information Manual (AIM).
Risk Management	*The applicant demonstrates instructional knowledge by teaching how to identify, explain, and manage risk arising from:*
IL.II.J.R1	Use of expired charts or manuals without current updates.
Skills	*The applicant demonstrates the ability to:*
IL.II.J.S1	Teach at least one of the elements listed in K1-K6 in a lesson or scenario specified by the evaluator.

II. Technical Subject Areas

Task K. National Airspace System

Note:	*The evaluator selects Tasks B, M, and at least one other Task from IL.II, Technical Subject Areas.*
References	*14 CFR parts 71, 91, 93; AIM; FAA-H-8083-2, FAA-H-8083-9; VFR Navigation Charts*
Objective	*To determine that the applicant understands the elements associated with operating under VFR in the National Airspace System as a private or commercial pilot and applies that knowledge when delivering ground or flight instruction.*
Knowledge	*The applicant demonstrates instructional knowledge by describing and explaining:*
IL.II.K.K1	Types of airspace/airspace classes and associated requirements and limitations.
IL.II.K.K2	Chart symbols.
IL.II.K.K3	Special use airspace (SUA), special flight rules areas (SFRA), temporary flight restrictions (TFR), and other airspace areas.
Risk Management	*The applicant demonstrates instructional knowledge by teaching how to identify, explain, and manage risk arising from:*
IL.II.K.R1	Various classes and types of airspace.
Skills	*The applicant demonstrates and teaches how to:*
IL.II.K.S1	Identify and comply with the requirements for basic VFR weather minimums and flying in particular classes of airspace.
IL.II.K.S2	Correctly identify airspace and operate in accordance with associated communication and equipment requirements.
IL.II.K.S3	Identify the requirements for operating in SUA or within a TFR. Identify and comply with SATR and SFRA operations, if applicable.

II. Technical Subject Areas

Task L. Navigation Systems and Radar Services

Note:	*The evaluator selects Tasks B, M, and at least one other Task from IL.II, Technical Subject Areas.*
References	*AIM; FAA-H-8083-2, FAA-H-8083-6, FAA-H-8083-9, FAA-H-8083-25, FAA-H-8083-33*
Objective	*To determine that the applicant understands the elements associated with navigation systems and radar services as they relate to safety of flight and applies that knowledge when delivering ground or flight instruction.*
Knowledge	*The applicant demonstrates instructional knowledge by describing and explaining:*
IL.II.L.K1	Ground-based navigation (orientation, course determination, equipment, tests, and regulations).
IL.II.L.K2	Satellite-based navigation (e.g., equipment, regulations, database considerations, and limitations of satellite navigation).
IL.II.L.K3	Radar assistance to VFR aircraft (e.g., operations, equipment, available services, traffic advisories).
IL.II.L.K4	Transponder (Mode(s) A, C, and S).
Risk Management	*The applicant demonstrates instructional knowledge by teaching how to identify, explain, and manage risk arising from:*
IL.II.L.R1	Management and monitoring of navigation and automated systems.
IL.II.L.R2	Distractions, improper task management, loss of situational awareness, or disorientation.
IL.II.L.R3	Limitations of the navigation system in use.
IL.II.L.R4	Loss of a navigation signal and radar service.
Skills	*The applicant demonstrates and teaches how to:*
IL.II.L.S1	Use an airborne electronic navigation system.
IL.II.L.S2	Determine the aircraft's position using the navigation system.
IL.II.L.S3	Intercept and track a given course, radial, or bearing, as appropriate.
IL.II.L.S4	Recognize and describe the indication of station or waypoint passage, if appropriate.
IL.II.L.S5	Recognize signal loss or interference and take appropriate action, if applicable.
IL.II.L.S6	Use proper communication procedures when utilizing radar services, if available.
IL.II.L.S7	Maintain the appropriate altitude, ±100 feet and heading, ±10°.
IL.II.L.S8	Use SRM/CRM.

II. Technical Subject Areas

Task M. Endorsements and Logbook Entries

Note:	*The evaluator selects Tasks B, M, and at least one other Task from IL.II, Technical Subject Areas.*
References	*14 CFR part 61; AC 61-65*
Objective	*To determine that the applicant understands the elements associated with logbook entries and endorsements and applies that knowledge when delivering ground or flight instruction.*
Knowledge	*The applicant demonstrates instructional knowledge by describing and explaining:*
IL.II.M.K1	Required logbook entries for instruction given.
IL.II.M.K2	Required student pilot solo endorsements and logbook entries.
IL.II.M.K3	Other required pilot logbook endorsements.
IL.II.M.K4	Preparation of a recommendation for a pilot practical test, including appropriate logbook entry and relevant certificate/rating application for:
IL.II.M.K4a	a. Initial pilot certification
IL.II.M.K4b	b. Additional pilot certification
IL.II.M.K4c	c. Additional aircraft qualification
IL.II.M.K5	Required endorsement of a pilot logbook for the satisfactory completion of the required FAA flight review.
IL.II.M.K6	Required flight instructor records.
Risk Management	*The applicant demonstrates instructional knowledge by teaching how to identify, explain, and manage risk arising from:*
IL.II.M.R1	Endorsements without appropriate limitations or expiration dates.
Skills	*The applicant demonstrates the ability to:*
IL.II.M.S1	Prepare simulated logbook entries and endorsements required for at least two of the events specified in K1-K6 above.

II. Technical Subject Areas

Task N. Pilotage and Dead Reckoning

Note:	*The evaluator selects Tasks B, M, and at least one other Task from IL.II, Technical Subject Areas.*
References	*14 CFR part 61; FAA-H-8083-2, FAA-H-8083-9, FAA-H-8083-25; VFR Navigation Charts*
Objective	*To determine that the applicant understands the elements associated with pilotage and dead reckoning as they relate to safety of flight and applies that knowledge when delivering ground or flight instruction.*
Knowledge	*The applicant demonstrates instructional knowledge by describing and explaining:*
IL.II.N.K1	Pilotage and dead reckoning.
IL.II.N.K2	Magnetic compass errors.
IL.II.N.K3	Topography.
IL.II.N.K4	Selection of appropriate:
IL.II.N.K4a	a. Route
IL.II.N.K4b	b. Altitude(s)
IL.II.N.K4c	c. Checkpoints
IL.II.N.K5	Plotting a course, including:
IL.II.N.K5a	a. Determining heading, speed, and course
IL.II.N.K5b	b. Wind correction angle
IL.II.N.K5c	c. Estimating time, speed, and distance
IL.II.N.K5d	d. True airspeed and density altitude
IL.II.N.K6	Aircraft configuration.
IL.II.N.K7	Planned versus actual flight plan calculations and required corrections.
Risk Management	*The applicant demonstrates instructional knowledge by teaching how to identify, explain, and manage risk arising from:*
IL.II.N.R1	Collision hazards, including aircraft, terrain, obstacles, wires, vehicles, vessels, persons, and wildlife.
IL.II.N.R2	Distractions, improper task management, loss of situational awareness, or disorientation.
Skills	*The applicant demonstrates and teaches how to:*
IL.II.N.S1	Prepare and use a flight log.
IL.II.N.S2	Navigate by pilotage.
IL.II.N.S3	Navigate by means of pre-computed headings, groundspeeds, and elapsed time.
IL.II.N.S4	Demonstrate use of the magnetic direction indicator in navigation, including turns to headings.
IL.II.N.S5	Verify position within two nautical miles of the flight-planned route.
IL.II.N.S6	Arrive at the en route checkpoints within three minutes of the initial or revised estimated time of arrival (ETA) and provide a destination estimate.
IL.II.N.S7	Maintain the selected altitude, ±100 feet and heading, ±10°.
IL.II.N.S8	Use SRM/CRM.

II. Technical Subject Areas

Task O. High Altitude Operations - Pressurization

Note:	*The evaluator selects Tasks B, M, and at least one other Task from IL.II, Technical Subject Areas.*
References	*AC 61-107; AIM; FAA-H-8083-2, FAA-H-8083-9, FAA-H-8083-25, FAA-H-8083-33; POH/RFM*
Objective	*To determine that the applicant understands the elements associated with flight in pressurized aircraft at high altitudes as they relate to safety of flight and applies that knowledge when delivering ground or flight instruction.*
Knowledge	*The applicant demonstrates instructional knowledge by describing and explaining:*
IL.II.O.K1	Fundamental concepts of aircraft pressurization systems, including failure modes.
IL.II.O.K2	Physiological factors, including:
IL.II.O.K2a	a. Impairment
IL.II.O.K2b	b. Symptoms of hypoxia
IL.II.O.K2c	c. Time of useful consciousness (TUC)
IL.II.O.K2d	d. Effects of rapid decompression on crew and passengers
IL.II.O.K3	Purpose of and how to conduct a controllability check.
Risk Management	*The applicant demonstrates instructional knowledge by teaching how to identify, explain, and manage risk arising from:*
IL.II.O.R1	High altitude flight.
IL.II.O.R2	Failure or malfunction of pressurization system, if equipment is installed.
IL.II.O.R3	Rapid decompression.
Skills	*The applicant demonstrates and teaches how to:*
IL.II.O.S1	Operate the pressurization system, if equipment is installed.
IL.II.O.S2	Respond appropriately to simulated pressurization malfunctions, if equipment is installed.
IL.II.O.S3	Determine the quantity of supplemental oxygen required in a scenario given by the evaluator.
IL.II.O.S4	Brief passengers on use of supplemental oxygen in a scenario given by the evaluator, if equipment is installed.
IL.II.O.S5	Use SRM/CRM.

III. Preflight Preparation

Task A. Pilot Qualifications

Note:	*The evaluator selects Task A and at least one other Task from IL.III, Preflight Preparation.*
References	*14 CFR parts 61, 67, 68, 91; AC 68-1; FAA-H-8083-2, FAA-H-8083-25, FAA-H-8083-33; POH/RFM*
Objective	*To determine that the applicant understands the elements associated with operating as pilot-in-command (PIC) as they relate to safety of flight and applies that knowledge when delivering ground or flight instruction.*
Knowledge	*The applicant demonstrates instructional knowledge by describing and explaining:*
IL.III.A.K1	Requirements for certification, recent flight experience, and recordkeeping.
IL.III.A.K2	Privileges and limitations.
IL.III.A.K3	Medical certificates: class, expiration, privileges, temporary disqualifications.
IL.III.A.K4	Documents required to exercise pilot privileges, as per 14 CFR part 61.
IL.III.A.K5	Privileges and limitations of medical certification under part 67 or under part 68 BasicMed.
Risk Management	*The applicant demonstrates instructional knowledge by teaching how to identify, explain, and manage risk arising from:*
IL.III.A.R1	Distinguishing between proficiency and currency.
IL.III.A.R2	Flying unfamiliar aircraft, or operating with unfamiliar flight display systems, and avionics.
IL.III.A.R3	Setting personal minimums.
IL.III.A.R4	Ensuring fitness for flight.
Skills	*The applicant demonstrates and teaches how to:*
IL.III.A.S1	Apply requirements to act as PIC under Visual Flight Rules (VFR) in a scenario given by the evaluator.

III. Preflight Preparation

Task B. Airworthiness Requirements

Note:	*The evaluator selects Task A and at least one other Task from IL.III, Preflight Preparation.*
References	*14 CFR parts 39, 43, 91; FAA-H-8083-2, FAA-H-8083-25, FAA-H-8083-33*
Objective	*To determine that the applicant understands the elements associated with airworthiness requirements, including aircraft certificates as they relate to safety of flight and applies that knowledge when delivering ground or flight instruction.*
Knowledge	*The applicant demonstrates instructional knowledge by describing and explaining:*
IL.III.B.K1	General airworthiness requirements and compliance for aircraft, including:
IL.III.B.K1a	a. Certificate location and expiration dates
IL.III.B.K1b	b. Required inspections and aircraft logbook documentation
IL.III.B.K1c	c. Airworthiness Directives and Special Airworthiness Information Bulletins
IL.III.B.K1d	d. Purpose and procedure for obtaining a special flight permit
IL.III.B.K2	Pilot-performed preventive maintenance.
IL.III.B.K3	Equipment requirements for day and night VFR flight, including:
IL.III.B.K3a	a. Flying with inoperative equipment
IL.III.B.K3b	b. Using an approved Minimum Equipment List (MEL)
IL.III.B.K3c	c. Kinds of Operation Equipment List (KOEL)
IL.III.B.K3d	d. Required discrepancy records or placards
Risk Management	*The applicant demonstrates instructional knowledge by teaching how to identify, explain, and manage risk arising from:*
IL.III.B.R1	Inoperative equipment discovered prior to flight.
Skills	*The applicant demonstrates and teaches how to:*
IL.III.B.S1	Locate and describe aircraft airworthiness and registration information.
IL.III.B.S2	Determine the aircraft is airworthy in a scenario given by the evaluator.
IL.III.B.S3	Apply appropriate procedures for operating with inoperative equipment in a scenario given by the evaluator.

III. Preflight Preparation

Task C. Weather Information

Note:	*The evaluator selects Task A and at least one other Task from IL.III, Preflight Preparation.*
References	*14 CFR part 91; AC 00-6, 00-45, 00-54; AIM; FAA-H-8083-25, FAA-H-8083-33*
Objective	*To determine that the applicant understands the elements associated with weather information for a flight under VFR as they relate to safety of flight and applies that knowledge when delivering ground or flight instruction.*
Knowledge	*The applicant demonstrates instructional knowledge by describing and explaining:*
IL.III.C.K1	Acceptable sources of weather data for flight planning purposes.
IL.III.C.K2	Weather products and resources required for preflight planning, current and forecast weather for departure, en route, and arrival phases of flight.
IL.III.C.K3	Meteorology applicable to the departure, en route, alternate, and destination under VFR in Visual Meteorological Conditions (VMC), including expected climate and hazardous conditions such as:
Note:	*If K3 is selected, the evaluator assesses the applicant's knowledge of at least three of the following sub-elements.*
IL.III.C.K3a	a. Atmospheric composition and stability
IL.III.C.K3b	b. Wind (e.g., crosswind, tailwind, windshear, mountain wave, etc.)
IL.III.C.K3c	c. Temperature
IL.III.C.K3d	d. Moisture/precipitation
IL.III.C.K3e	e. Weather system formation, including air masses and fronts
IL.III.C.K3f	f. Clouds
IL.III.C.K3g	g. Turbulence
IL.III.C.K3h	h. Thunderstorms and microbursts
IL.III.C.K3i	i. Icing and freezing level information
IL.III.C.K3j	j. Fog
IL.III.C.K3k	k. Frost
IL.III.C.K4	Flight deck displays of digital weather and aeronautical information.
Risk Management	*The applicant demonstrates instructional knowledge by teaching how to identify, explain, and manage risk arising from:*
IL.III.C.R1	Factors involved in making the go/no-go and continue/divert decisions, including:
IL.III.C.R1a	a. Circumstances that would make diversion prudent
IL.III.C.R1b	b. Personal weather minimums
IL.III.C.R1c	c. Hazardous weather conditions, including known or forecast icing or turbulence aloft
IL.III.C.R2	Limitations of:
IL.III.C.R2a	a. Onboard weather equipment
IL.III.C.R2b	b. Aviation weather reports and forecasts
IL.III.C.R2c	c. Inflight weather resources
Skills	*The applicant demonstrates and teaches how to:*

IL.III.C.S1	Use available aviation weather resources, obtain an adequate weather briefing, and correlate weather information to make a competent go/no-go decision.
IL.III.C.S2	Discuss the implications of at least three of the conditions listed in K3a through K3k above, using actual weather or weather conditions in a scenario provided by the evaluator.

III. Preflight Preparation

Task D. Cross-Country Flight Planning

Note:	*The evaluator selects Task A and at least one other Task from IL.III, Preflight Preparation.*
References	*14 CFR part 91; AC 91.21-1; AIM; Chart Supplements; FAA-H-8083-2, FAA-H-8083-25, FAA-H-8083-33; NOTAMs; POH/RFM; VFR Navigation Charts*
Objective	*To determine that the applicant understands the elements associated with cross-country flights and VFR flight planning as they relate to safety of flight and applies that knowledge when delivering ground or flight instruction.*
Knowledge	*The applicant demonstrates instructional knowledge by describing and explaining:*
IL.III.D.K1	Route planning, including consideration of different classes and special use airspace (SUA) and selection of appropriate and available navigation/communication systems and facilities.
IL.III.D.K2	Altitude selection accounting for terrain and obstacles, glide/autorotative distance of aircraft, VFR cruising altitudes, and effect of wind.
IL.III.D.K3	Calculating:
IL.III.D.K3a	a. Time, climb and descent rates, course, distance, heading, true airspeed, and groundspeed
IL.III.D.K3b	b. Estimated time of arrival, including conversion to universal coordinated time (UTC)
IL.III.D.K3c	c. Fuel requirements, including reserve
IL.III.D.K4	Elements of a VFR flight plan.
IL.III.D.K5	Procedures for activating and closing a VFR flight plan.
IL.III.D.K6	Use of electronic flight bag (EFB).
Risk Management	*The applicant demonstrates instructional knowledge by teaching how to identify, explain, and manage risk arising from:*
IL.III.D.R1	Pilot(s).
IL.III.D.R2	Aircraft.
IL.III.D.R3	Environment (e.g., weather, icing, airports/heliports/helipads/landing areas, airspace, terrain, obstacles).
IL.III.D.R4	External pressures.
IL.III.D.R5	Limitations of air traffic control (ATC) services.
IL.III.D.R6	Fuel planning.
Skills	*The applicant demonstrates and teaches how to:*
IL.III.D.S1	Prepare, present, and explain a cross-country flight plan assigned by the evaluator, including a risk analysis to the first fuel stop.
IL.III.D.S2	Apply pertinent information from appropriate and current aeronautical charts, Chart Supplements; NOTAMs relative to airport/heliport/helipad/landing area, runway and taxiway closures; and other flight publications.
IL.III.D.S3	Create a navigation plan and simulate filing a VFR flight plan.
IL.III.D.S4	Recalculate fuel reserves based on a scenario provided by the evaluator.

III. Preflight Preparation

Task E. Performance and Limitations

Note:	*The evaluator selects Task A and at least one other Task from IL.III, Preflight Preparation.*
References	*FAA-H-8083-1, FAA-H-8083-2, FAA-H-8083-25, FAA-H-8083-33; POH/RFM*
Objective	*To determine that the applicant understands the elements associated with operating an aircraft safely within the parameters of its performance capabilities and limitations as they relate to safety of flight and applies that knowledge when delivering ground or flight instruction.*
Knowledge	*The applicant demonstrates instructional knowledge by describing and explaining:*
IL.III.E.K1	Elements related to performance and limitations by explaining the use of charts, tables, and data to determine performance.
IL.III.E.K2	Factors affecting performance, including:
IL.III.E.K2a	a. Atmospheric conditions
IL.III.E.K2b	b. Pilot technique
IL.III.E.K2c	c. Aircraft configuration
IL.III.E.K2d	d. Airport/heliport/helipad/landing area environment
IL.III.E.K2e	e. Loading (e.g., center of gravity)
IL.III.E.K2f	f. Weight and balance
IL.III.E.K3	Aerodynamics.
Risk Management	*The applicant demonstrates instructional knowledge by teaching how to identify, explain, and manage risk arising from:*
IL.III.E.R1	Inaccurate use of manufacturer’s performance charts, tables, and data.
IL.III.E.R2	Aircraft limitations.
IL.III.E.R3	Possible differences between calculated performance and actual performance.
Skills	*The applicant demonstrates and teaches how to:*
IL.III.E.S1	Compute the weight and balance, correct out-of-center of gravity loading errors and determine if the weight and balance remains within limits during all phases and modes of flight.
IL.III.E.S2	Demonstrate use of the appropriate aircraft manufacturer's approved performance charts, tables, and data.

III. Preflight Preparation

Task F. Operation of Systems

Note:	*The evaluator selects Task A and at least one other Task from IL.III, Preflight Preparation.*
References	*FAA-H-8083-2, FAA-H-8083-25, FAA-H-8083-33; POH/RFM*
Objective	*To determine that the applicant understands the elements associated with safe operation of systems on the aircraft provided for the flight test as they relate to safety of flight and applies that knowledge when delivering ground or flight instruction.*
Knowledge	*The applicant demonstrates instructional knowledge by describing and explaining:*
IL.III.F.K1	Aircraft systems, including:
Note:	*If K1 is selected, the evaluator assesses the applicant's knowledge of at least three of the following sub-elements.*
IL.III.F.K1a	a. Primary flight controls
IL.III.F.K1b	b. Secondary flight controls
IL.III.F.K1c	c. Powerplant and means of producing thrust
IL.III.F.K1d	d. Landing gear
IL.III.F.K1e	e. Fuel, oil, and hydraulic
IL.III.F.K1f	f. Electrical
IL.III.F.K1g	g. Avionics
IL.III.F.K1h	h. Pitot-static, vacuum/pressure, and associated flight instruments
IL.III.F.K1i	i. Environmental
IL.III.F.K1j	j. Deicing and anti-icing
IL.III.F.K1k	k. Pressurization system
IL.III.F.K1l	l. Oxygen system
IL.III.F.K1m	m. Gearboxes and transmission systems
IL.III.F.K2	Indications of system abnormalities or failures.
Risk Management	*The applicant demonstrates instructional knowledge by teaching how to identify, explain, and manage risk arising from:*
IL.III.F.R1	Recognition and detection of system malfunctions or failures.
IL.III.F.R2	Management of a system failure.
IL.III.F.R3	Management and monitoring of automated systems.
Skills	*The applicant demonstrates and teaches how to:*
IL.III.F.S1	Explain and operate at least three of the systems listed in K1a through K1m above.
IL.III.F.S2	Use the appropriate checklist.

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

Task A. Maneuver Lesson

References	*FAA-H-8083-9, FAA-H-8083-25, FAA-H-8083-33; POH/AFM*
Objective	*To determine that the applicant understands the elements associated with a maneuver Task selected from IL.VII, Hovering Maneuvers through IL.XV, Special Operations and applies that knowledge when delivering ground or flight instruction.*
Knowledge	*The applicant demonstrates instructional knowledge by describing and explaining:*
IL.IV.A.K1	Purpose of the maneuver.
IL.IV.A.K2	Elements of the maneuver and common learner errors associated with it.
IL.IV.A.K3	Desired outcome(s), including completion standards.
Risk Management	*The applicant demonstrates instructional knowledge by teaching how to identify, explain, and manage risk arising from:*
IL.IV.A.R1	Selected maneuver Task.
Skills	*The applicant demonstrates the ability to:*
IL.IV.A.S1	Deliver instruction on the selected maneuver, using teaching methods and aids that incorporate K1 through K3 above as appropriate.

V. Preflight Procedures

Task A. Preflight Assessment

Note:	*The evaluator selects all Tasks from IL.V, Preflight Procedures.*
References	*AC 00-6; FAA-H-8083-2, FAA-H-8083-33; POH/RFM*
Objective	*To determine that the applicant understands the elements associated with preparing for safe flight as they relate to safety of flight and applies that knowledge when delivering ground or flight instruction.*
Knowledge	*The applicant demonstrates instructional knowledge by describing and explaining:*
IL.V.A.K1	Pilot self-assessment.
IL.V.A.K2	Determining that the aircraft to be used is appropriate and airworthy.
IL.V.A.K3	Aircraft preflight inspection, including:
IL.V.A.K3a	a. Which items should be inspected
IL.V.A.K3b	b. The reasons for checking each item
IL.V.A.K3c	c. How to detect possible defects
IL.V.A.K3d	d. The associated regulations
IL.V.A.K4	Environmental factors, including weather, terrain, route selection, and obstructions.
IL.V.A.K5	Common errors related to this Task and their appropriate remedies.
Risk Management	*The applicant identifies, explains, and manages risk arising from:*
IL.V.A.R1	Pilot(s).
IL.V.A.R2	Aircraft.
IL.V.A.R3	Environment (e.g., weather, icing, airports/heliports/helipads/landing areas, airspace, terrain, obstacles).
IL.V.A.R4	External pressures.
IL.V.A.R5	Aviation security concerns.
IL.V.A.R6	Instruction of this Task.
Skills	*The applicant demonstrates and teaches how to:*
IL.V.A.S1	Inspect the aircraft with reference to an appropriate checklist.
IL.V.A.S2	Verify the aircraft is in condition for safe flight and conforms to its type design.
IL.V.A.S3	Correct errors, as applicable.

V. Preflight Procedures

Task B. Flight Deck Management

Note:	*The evaluator selects all Tasks from IL.V, Preflight Procedures.*
References	*AC 120-71; FAA-H-8083-2, FAA-H-8083-33; POH/RFM*
Objective	*To determine that the applicant understands the elements associated with safe flight deck management practices as they relate to safety of flight and applies that knowledge when delivering ground or flight instruction.*
Knowledge	*The applicant demonstrates instructional knowledge by describing and explaining:*
IL.V.B.K1	Passenger briefing requirements, including operation and required use of safety restraint systems.
IL.V.B.K2	Use of appropriate checklists.
IL.V.B.K3	Requirements for current and appropriate navigation data.
IL.V.B.K4	Common errors related to this Task and their appropriate remedies.
Risk Management	*The applicant identifies, explains, and manages risk arising from:*
IL.V.B.R1	Use of systems or equipment, including automation and portable electronic devices.
IL.V.B.R2	Flying with unresolved discrepancies.
IL.V.B.R3	Instruction of this Task.
Skills	*The applicant demonstrates and teaches how to:*
IL.V.B.S1	Secure all items in the flight deck and cabin.
IL.V.B.S2	Conduct an appropriate pre-takeoff briefing, including identifying the PIC, use of safety belts, shoulder harnesses, doors, sterile flight deck, and emergency procedures.
IL.V.B.S3	Properly program and manage the aircraft's automation.
IL.V.B.S4	Correct errors, as applicable.

V. Preflight Procedures

Task C. Powerplant Starting

Note:	*The evaluator selects all Tasks from IL.V, Preflight Procedures.*
References	*AC 91-55; FAA-H-8083-2, FAA-H-8083-25, FAA-H-8083-33; POH/RFM*
Objective	*To determine that the applicant understands the elements associated with recommended powerplant starting procedures as they relate to safety of flight and applies that knowledge when delivering ground or flight instruction.*
Knowledge	*The applicant demonstrates instructional knowledge by describing and explaining:*
IL.V.C.K1	Starting under various atmospheric conditions.
IL.V.C.K2	Starting the powerplant by use of external power.
IL.V.C.K3	Powerplant limitations as they relate to starting.
IL.V.C.K4	Common errors related to this Task and their appropriate remedies.
Risk Management	*The applicant identifies, explains, and manages risk arising from:*
IL.V.C.R1	Rotor and exhaust safety.
IL.V.C.R2	Limitations associated with external power unit.
IL.V.C.R3	Instruction of this Task.
Skills	*The applicant demonstrates and teaches how to:*
IL.V.C.S1	Position the aircraft properly considering structures, other aircraft, wind, and the safety of nearby persons and property.
IL.V.C.S2	Complete the appropriate checklist(s).
IL.V.C.S3	Position the primary flight controls, including the thrust vector, for the prevailing environmental conditions.
IL.V.C.S4	Complete a successful powerplant start.
IL.V.C.S5	Use SRM/CRM.
IL.V.C.S6	Correct errors, as applicable.

V. Preflight Procedures

Task D. Taxiing

Note:	*The evaluator selects all Tasks from IL.V, Preflight Procedures.*
References	*AC 91-73; AIM; Chart Supplements; FAA-H-8083-2, FAA-H-8083-25, FAA-H-8083-33; POH/RFM*
Objective	*To determine that the applicant understands the elements associated with safe taxi operations, including runway incursion avoidance as they relate to safety of flight and applies that knowledge when delivering ground or flight instruction.*
Knowledge	*The applicant demonstrates instructional knowledge by describing and explaining:*
IL.V.D.K1	Current airport aeronautical references and information resources, including Chart Supplements, airport diagram, and appropriate references.
IL.V.D.K2	Taxi instructions/clearances.
IL.V.D.K3	Airport/heliport/helipad/landing area signs, markings, and lighting.
IL.V.D.K4	Visual indicators for wind.
IL.V.D.K5	Aircraft lighting.
IL.V.D.K6	Procedures for:
IL.V.D.K6a	a. Appropriate flight deck activities prior to taxi, including route planning and identifying the location of Hot Spots
IL.V.D.K6b	b. Aircraft configuration
IL.V.D.K6c	c. Radio communications at towered and non-towered airports/heliports/helipads/landing areas
IL.V.D.K6d	d. Entering or crossing runways
IL.V.D.K6e	e. Night taxi operations
IL.V.D.K6f	f. Low visibility taxi operations
IL.V.D.K6g	g. Taxi limitations
IL.V.D.K7	Common errors related to this Task and their appropriate remedies.
Risk Management	*The applicant identifies, explains, and manages risk arising from:*
IL.V.D.R1	Inappropriate activities and distractions.
IL.V.D.R2	Confirmation or expectation bias as related to taxi instructions.
IL.V.D.R3	A taxi route or departure runway change.
IL.V.D.R4	Speed during taxi and turns.
IL.V.D.R5	Appropriate thrust vector and brake use.
IL.V.D.R6	Airframe and rotor clearances during taxi.
IL.V.D.R7	Instruction of this Task.
Skills	*The applicant demonstrates and teaches how to:*
IL.V.D.S1	Receive and correctly read back clearances/instructions, if applicable.
IL.V.D.S2	Use an airport diagram or taxi chart during taxi, if published, and maintain situational awareness.
IL.V.D.S3	Position the flight controls and configure the aircraft considering wind conditions.
IL.V.D.S4	Complete the appropriate checklist(s).
IL.V.D.S5	Perform a brake check immediately after the aircraft begins moving.

IL.V.D.S6	Maintain positive control and speed of the aircraft during ground taxi operations using appropriate techniques.
IL.V.D.S7	Comply with airport/heliport/helipad/landing area taxiway markings, signals, and ATC clearances and instructions.
IL.V.D.S8	Position the aircraft relative to hold lines.
IL.V.D.S9	Use SRM/CRM.
IL.V.D.S10	Correct errors, as applicable.

V. Preflight Procedures

Task E. Before Takeoff Check

Note:	*The evaluator selects all Tasks from IL.V, Preflight Procedures.*
References	*FAA-H-8083-2, FAA-H-8083-33; POH/RFM*
Objective	*To determine that the applicant understands the elements associated with before takeoff check as they relate to safety of flight and applies that knowledge when delivering ground or flight instruction.*
Knowledge	*The applicant demonstrates instructional knowledge by describing and explaining:*
IL.V.E.K1	Purpose of pre-takeoff checklist items, including:
IL.V.E.K1a	a. Reasons for checking each item
IL.V.E.K1b	b. Detecting malfunctions
IL.V.E.K1c	c. Ensuring the aircraft is correctly configured as recommended by the manufacturer
IL.V.E.K2	Common errors related to this Task and their appropriate remedies.
Risk Management	*The applicant identifies, explains, and manages risk arising from:*
IL.V.E.R1	Division of attention while conducting pre-flight checks.
IL.V.E.R2	Unexpected runway changes.
IL.V.E.R3	Unexpected or unclear clearances from ATC.
IL.V.E.R4	Wake turbulence.
IL.V.E.R5	Downwash.
IL.V.E.R6	Instruction of this Task.
Skills	*The applicant demonstrates and teaches how to:*
IL.V.E.S1	Review takeoff performance.
IL.V.E.S2	Select the appropriate takeoff profile for aircraft and environmental conditions.
IL.V.E.S3	Complete the appropriate checklist(s).
IL.V.E.S4	Perform the takeoff briefing.
IL.V.E.S5	Properly position the aircraft considering other aircraft, vessels, and wind.
IL.V.E.S6	Verify that powerplant parameters and aircraft configuration are suitable for the takeoff profile.
IL.V.E.S7	Divide attention inside and outside the aircraft.
IL.V.E.S8	Use SRM/CRM.
IL.V.E.S8	Correct errors, as applicable.

V. Preflight Procedures

Task F. Night Preparation

Note:	*The evaluator selects all Tasks from IL.V, Preflight Procedures.*
References	*14 CFR part 91; FAA-H-8083-2, FAA-H-8083-33; POH/RFM*
Objective	*To determine that the applicant understands the elements associated with night preparation and flight as they relate to safety of flight and applies that knowledge when delivering ground or flight instruction.*
Knowledge	*The applicant demonstrates instructional knowledge by describing and explaining:*
IL.V.F.K1	Physiological aspects of night flying.
IL.V.F.K2	Required aircraft equipment and lighting for night operations.
IL.V.F.K3	Personal equipment essential for night flight.
IL.V.F.K4	Night orientation, navigation, and chart reading techniques.
IL.V.F.K5	Visual illusions at night.
IL.V.F.K6	Lighting systems identifying airports/heliports/helipads/landing areas, runways, taxiways and obstructions, as well as pilot controlled lighting.
IL.V.F.K7	Night traffic pattern limitations.
IL.V.F.K8	Common errors related to this Task and their appropriate remedies.
Risk Management	*The applicant identifies, explains, and manages risk arising from:*
IL.V.F.R1	Inoperative equipment.
IL.V.F.R2	Visual illusions.
IL.V.F.R3	Other category aircraft in traffic pattern(s).
IL.V.F.R4	Collision hazards, including aircraft, terrain, obstacles, wires, vehicles, vessels, persons, and wildlife.
IL.V.F.R5	Distractions, improper task management, loss of situational awareness, or disorientation.
IL.V.F.R6	Hazards specific to night flying.
IL.V.F.R7	Wake turbulence.
IL.V.F.R8	Instruction of this Task.
Skills	If the practical test is conducted at night, all ACS Tasks are evaluated in that environment; thus, there is no need for explicit Task elements to exist here.

VI. Airport and Heliport Operations

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

Note:	*The evaluator selects all Tasks from IL.VI, Airport and Heliport Operations.*
References	*14 CFR part 91; AIM; FAA-H-8083-2, FAA-H-8083-25, FAA-H-8083-33*
Objective	*To determine that the applicant understands the elements associated with normal and emergency radio communications, ATC light signals, and runway lighting systems to conduct safe airport/heliport/helipad/landing area operations as they relate to safety of flight and applies that knowledge when delivering ground or flight instruction.*
Knowledge	*The applicant demonstrates instructional knowledge by describing and explaining:*
IL.VI.A.K1	How to obtain proper radio frequencies.
IL.VI.A.K2	Proper radio communication procedures and ATC phraseology.
IL.VI.A.K3	ATC light signal recognition.
IL.VI.A.K4	Appropriate use of transponders.
IL.VI.A.K5	Lost communication procedures.
IL.VI.A.K6	Equipment issues that could cause loss of communication.
IL.VI.A.K7	Radar assistance.
IL.VI.A.K8	National Transportation Safety Board (NTSB) accident/incident reporting.
IL.VI.A.K9	Runway Status Lighting Systems.
IL.VI.A.K10	Common errors related to this Task and their appropriate remedies.
Risk Management	*The applicant identifies, explains, and manages risk arising from:*
IL.VI.A.R1	Communication(s).
IL.VI.A.R2	Recognition and declaration of an emergency.
IL.VI.A.R3	Confirmation or expectation bias.
IL.VI.A.R4	Instruction of this Task.
Skills	*The applicant demonstrates and teaches how to:*
IL.VI.A.S1	Select appropriate frequencies.
IL.VI.A.S2	Transmit using phraseology and procedures as specified in the AIM.
IL.VI.A.S3	Acknowledge radio communications and comply with instructions.
IL.VI.A.S4	Correct errors, as applicable.

VI. Airport and Heliport Operations

Task B. Traffic Patterns

Note:	*The evaluator selects all Tasks from IL.VI, Airport and Heliport Operations.*
References	*14 CFR part 91; AIM; FAA-H-8083-2, FAA-H-8083-25, FAA-H-8083-33*
Objective	*To determine that the applicant understands the elements associated with traffic patterns as they relate to safety of flight and applies that knowledge when delivering ground or flight instruction.*
Knowledge	*The applicant demonstrates instructional knowledge by describing and explaining:*
IL.VI.B.K1	Towered and nontowered airport/heliport/helipad/landing area operations and restrictions.
IL.VI.B.K2	Runway selection and traffic pattern parameters for the current conditions.
IL.VI.B.K3	Right-of-way rules.
IL.VI.B.K4	Use of automated weather and airport information.
IL.VI.B.K5	Aircraft configuration and mode of flight selection for the traffic pattern in use.
IL.VI.B.K6	Common errors related to this Task and their appropriate remedies.
Risk Management	*The applicant identifies, explains, and manages risk arising from:*
IL.VI.B.R1	Collision hazards, including aircraft, terrain, obstacles, wires, vehicles, vessels, persons, and wildlife.
IL.VI.B.R2	Distractions, improper task management, loss of situational awareness, or disorientation.
IL.VI.B.R3	Wake turbulence or windshear.
IL.VI.B.R4	Non-compliance with the traffic pattern.
IL.VI.B.R5	Instruction of this Task.
Skills	*The applicant demonstrates and teaches how to:*
IL.VI.B.S1	Properly identify and interpret airport/heliport/helipad/landing area runways, taxiways, markings, signs, and lighting.
IL.VI.B.S2	Comply with recommended traffic pattern procedures.
IL.VI.B.S3	Correct for wind drift to maintain the proper ground track.
IL.VI.B.S4	Maintain orientation with the runway/landing area in use.
IL.VI.B.S5	Maintain traffic pattern altitude, ±100 feet, and the appropriate airspeed, ±10 knots.
IL.VI.B.S6	Maintain situational awareness and proper spacing from other aircraft in the traffic pattern.
IL.VI.B.S7	Correct communications.
IL.VI.B.S8	Position the primary flight controls, including the thrust vector, for the prevailing environmental conditions.
IL.VI.B.S9	Use SRM/CRM.
IL.VI.B.S10	Correct errors, as applicable.

VI. Airport and Heliport Operations

Task C. Runway/Taxiway/Heliport/Helipad Signs, Markings, and Lighting

Note:	*The evaluator selects all Tasks from IL.VI, Airport and Heliport Operations.*
References	*14 CFR part 91; AIM; FAA-H-8083-25, FAA-H-8083-33*
Objective	*To determine that the applicant understands the elements associated with runway/taxiway/heliport/helipad signs, markings and lighting as they relate to safety of flight and applies that knowledge when delivering ground or flight instruction.*
Knowledge	*The applicant demonstrates instructional knowledge by describing and explaining:*
IL.VI.C.K1	Airport runways, airport/heliport taxiway signs, markings, and lighting.
IL.VI.C.K2	Common errors related to this Task and their appropriate remedies.
Risk Management	*The applicant identifies, explains, and manages risk arising from:*
IL.VI.C.R1	Improper interpretation of signs, markings, and lighting.
IL.VI.C.R2	Landing site dimensions and limitations.
IL.VI.C.R3	Conflict with aircraft, vehicles or persons.
IL.VI.C.R4	Distractions, improper task management, loss of situational awareness, or disorientation.
IL.VI.C.R5	Instruction of this Task.
Skills	*The applicant demonstrates and teaches how to:*
IL.VI.C.S1	Comply with airport/heliport/helipad signs, markings, and lighting.
IL.VI.C.S2	Correct errors, as applicable.

VII. Hovering Maneuvers

Task A. Vertical Liftoff and Hover Inside Ground Effect (HIGE)

Note:	*The evaluator selects all Tasks from IL.VII, Hovering Maneuvers.*
References	*14 CFR part 91; FAA-H-8083-2, FAA-H-8083-33; POH/RFM*
Objective	*To determine that the applicant understands the elements associated with vertical takeoffs and landings from an in ground effect hover as they relate to safety of flight and applies that knowledge when delivering ground or flight instruction.*
Knowledge	*The applicant demonstrates instructional knowledge by describing and explaining:*
IL.VII.A.K1	Elements related to a vertical liftoff to a hover.
IL.VII.A.K2	Appropriate aircraft configuration for a stationary hover.
IL.VII.A.K3	Effect of wind and flight control inputs.
IL.VII.A.K4	Ground effect.
IL.VII.A.K5	Common errors related to this Task and their appropriate remedies.
Risk Management	*The applicant identifies, explains, and manages risk arising from:*
IL.VII.A.R1	Obstacle and hazard avoidance.
IL.VII.A.R2	Dynamic rollover.
IL.VII.A.R3	Powerplant failure during HIGE.
IL.VII.A.R4	Downwash.
IL.VII.A.R5	Degraded Visual Environment (DVE).
IL.VII.A.R6	Ground resonance.
IL.VII.A.R7	Instruction of this Task.
Skills	*The applicant demonstrates and teaches how to:*
Note:	*If a crosswind condition does not exist, the applicant's knowledge of crosswind elements should be evaluated through oral testing.*
IL.VII.A.S1	Complete the appropriate checklist(s).
IL.VII.A.S2	Make radio calls as appropriate and follow ATC instructions or as directed by the evaluator.
IL.VII.A.S3	Position the primary flight controls, including the thrust vector, for the prevailing environmental conditions.
IL.VII.A.S4	Lift off, ascend to, and maintain recommended hovering altitude on a specific heading in headwind conditions.
IL.VII.A.S5	Demonstrate the maneuver in crosswind conditions on specified headings.
IL.VII.A.S6	Establish recommended hovering altitude ±3 feet.
IL.VII.A.S7	Maintain position within ±5 feet of a designated point.
IL.VII.A.S8	Maintain specified headings ±10°.
IL.VII.A.S9	Use SRM/CRM.
IL.VII.A.S10	Correct errors, as applicable.

VII. Hovering Maneuvers

Task B. Hover Taxi

Note:	*The evaluator selects all Tasks from IL.VII, Hovering Maneuvers.*
References	*AC 91-73; AIM; Chart Supplements; FAA-H-8083-2, FAA-H-8083-33; POH/RFM*
Objective	*To determine that the applicant understands the elements associated with hover taxi operations, including runway incursion avoidance as they relate to safety of flight and applies that knowledge when delivering ground or flight instruction.*
Knowledge	*The applicant demonstrates instructional knowledge by describing and explaining:*
IL.VII.B.K1	Airport information resources, including Chart Supplement information, airport diagram, and appropriate references.
IL.VII.B.K2	Taxi instructions/clearances.
IL.VII.B.K3	Airport/heliport/helipad/landing area signs, markings, and lighting.
IL.VII.B.K4	Visual indicators for wind.
IL.VII.B.K5	Aircraft lighting.
IL.VII.B.K6	Procedures for:
IL.VII.B.K6a	a. Appropriate flight deck activities during taxiing
IL.VII.B.K6b	b. Safe hover taxi at towered and non-towered airports/heliports/helipads/landing areas
IL.VII.B.K6c	c. Entering crossing runways
IL.VII.B.K7	Aircraft configuration.
IL.VII.B.K8	Aircraft operating limitations.
IL.VII.B.K9	Common errors related to this Task and their appropriate remedies.
Risk Management	*The applicant identifies, explains, and manages risk arising from:*
IL.VII.B.R1	Inappropriate activities and distractions.
IL.VII.B.R2	Low visibility hover taxi operations.
IL.VII.B.R3	Powerplant failure during hover taxi.
IL.VII.B.R4	Other aircraft and hazards.
IL.VII.B.R5	Hazardous effects of downwash.
IL.VII.B.R6	Aircraft configuration.
IL.VII.B.R7	Instruction of this Task.
Skills	*The applicant demonstrates and teaches how to:*
Note:	*If a crosswind condition does not exist, the applicant's knowledge of crosswind elements should be evaluated through oral testing.*
IL.VII.B.S1	Complete the appropriate checklist(s).
IL.VII.B.S2	Position the primary flight controls, including the thrust vector, for the prevailing environmental conditions.
IL.VII.B.S3	Hover taxi over specified ground references, demonstrating forward, sideward, and rearward hovering and spot turns.
IL.VII.B.S4	Maintain a designated ground track and hover height, ±10 feet.
IL.VII.B.S5	Demonstrate the maneuver in crosswind conditions on specified headings.
IL.VII.B.S6	Use SRM/CRM.

IL.VII.B.S7 Correct errors, as applicable.

VII. Hovering Maneuvers

Task C. Air Taxi

References	*The evaluator selects all Tasks from IL.VII, Hovering Maneuvers.*
Objective	*To determine that the applicant understands the elements associated with air taxi operations, including runway incursion avoidance as they relate to safety of flight and applies that knowledge when delivering ground or flight instruction.*
Knowledge	*The applicant demonstrates instructional knowledge by describing and explaining:*
IL.VII.C.K1	Airport information resources, including Chart Supplement information, airport diagram, and appropriate references.
IL.VII.C.K2	Taxi instructions/clearances.
IL.VII.C.K3	Aircraft configuration.
IL.VII.C.K4	Airport/heliport/helipad/landing area signs, markings, and lighting.
IL.VII.C.K5	Visual indicators for wind.
IL.VII.C.K6	Aircraft lighting.
IL.VII.C.K7	Procedures for:
IL.VII.C.K7a	a. Appropriate flight deck activities during taxiing
IL.VII.C.K7b	b. Safe air taxi at towered and non-towered airports/heliports/helipads/landing areas
IL.VII.C.K7c	c. Overflying of runways
IL.VII.C.K8	Aircraft operating limitations.
IL.VII.C.K9	Appropriate height and speed for air taxi.
IL.VII.C.K10	Common errors related to this Task and their appropriate remedies.
Risk Management	*The applicant identifies, explains, and manages risk arising from:*
IL.VII.C.R1	Inappropriate activities and distractions.
IL.VII.C.R2	Low visibility air taxi operations.
IL.VII.C.R3	Powerplant failure during air taxi.
IL.VII.C.R4	Other aircraft and hazards.
IL.VII.C.R5	Instruction of this Task.
Skills	*The applicant demonstrates and teaches how to:*
IL.VII.C.S1	Complete the appropriate checklist(s).
IL.VII.C.S2	Maintain an appropriate aircraft configuration throughout the maneuver.
IL.VII.C.S3	Maintain a designated airspeed, ±10 knots, taxi height, ±10 feet, and flight path.
IL.VII.C.S4	Air taxi from one point to another under various wind conditions.
IL.VII.C.S5	Comply with airport/heliport/helipad/landing area markings, lights, signs and ATC instructions.
IL.VII.C.S6	Use SRM/CRM.
IL.VII.C.S7	Correct errors, as applicable.

VIII. Takeoffs, Landings, and Go-Arounds

Task A. Takeoff and Climb from a Hover

Note:	*The evaluator selects Tasks A, B, E, F, I, and at least one other Task from IL.VIII, Takeoffs, Landings, and Go-Arounds.*
References	*AIM; FAA-H-8083-2, FAA-H-8083-33; POH/RFM*
Objective	*To determine that the applicant understands the elements associated with takeoff, climb operations, and rejected takeoff procedures as they relate to safety of flight and applies that knowledge when delivering ground or flight instruction.*
Note:	*If a crosswind condition does not exist, the applicant's knowledge of crosswind elements should be evaluated through oral testing.*
Knowledge	*The applicant demonstrates instructional knowledge by describing and explaining:*
IL.VIII.A.K1	Effects of atmospheric conditions, including wind, on takeoff and climb performance.
IL.VIII.A.K2	Recommended takeoff and climb profiles.
IL.VIII.A.K3	Aircraft configuration.
IL.VIII.A.K4	Common errors related to this Task and their appropriate remedies.
Risk Management	*The applicant identifies, explains, and manages risk arising from:*
IL.VIII.A.R1	Selection of helipad/deck, runway, or departure point based on pilot capability, aircraft performance and limitations, available distance, and wind.
IL.VIII.A.R2	Effects of:
IL.VIII.A.R2a	a. Crosswind
IL.VIII.A.R2b	b. Windshear
IL.VIII.A.R2c	c. Tailwind
IL.VIII.A.R2d	d. Wake turbulence
IL.VIII.A.R2e	e. Runway/departure point surface/condition
IL.VIII.A.R2f	f. Aircraft weight
IL.VIII.A.R3	Abnormal operations, including planning for:
IL.VIII.A.R3a	a. Rejected takeoff
IL.VIII.A.R3b	b. Powerplant failure in hover/takeoff/climb phase of flight
IL.VIII.A.R4	Collision hazards, including aircraft, terrain, obstacles, wires, vehicles, vessels, persons, and wildlife.
IL.VIII.A.R5	Low altitude maneuvering, including stall, spin, or CFIT.
IL.VIII.A.R6	Distractions, improper task management, loss of situational awareness, or disorientation.
IL.VIII.A.R7	Instruction of this Task.
Skills	*The applicant demonstrates and teaches how to:*
IL.VIII.A.S1	Complete the appropriate checklist(s).
IL.VIII.A.S2	Make radio calls as appropriate.
IL.VIII.A.S3	Verify assigned/correct runway.
IL.VIII.A.S4	Ascertain wind direction with or without visible wind direction indicators.
IL.VIII.A.S5	Position the flight controls and configure the aircraft for the existing wind conditions.

IL.VIII.A.S6	Clear the area; taxi into takeoff position and hover the aircraft above the departure point, aligned with the departure path.
IL.VIII.A.S7	Confirm takeoff power and instrument indications prior to forward movement.
IL.VIII.A.S8	Establish a pitch attitude and aircraft configuration and accelerate to the manufacturer's recommended speed.
IL.VIII.A.S9	Configure the aircraft and establish and maintain a positive rate of climb in accordance with aircraft manufacturer's instructions.
IL.VIII.A.S10	Maintain V_Y ±5 knots to a safe maneuvering altitude.
IL.VIII.A.S11	Maintain a specified route, track, or heading, as specified by the evaluator throughout the operation, ±5°.
IL.VIII.A.S12	Maintain directional control and proper wind-drift correction throughout takeoff and climb.
IL.VIII.A.S13	Comply with noise abatement procedures.
IL.VIII.A.S14	Correct errors, as applicable.

VIII. Takeoffs, Landings, and Go-Arounds

Task B. Rolling Takeoff and Climb

Note:	*The evaluator selects Tasks A, B, E, F, I, and at least one other Task from IL.VIII, Takeoffs, Landings, and Go-Arounds.*
References	*14 CFR part 91; FAA-H-8083-2, FAA-H-8083-33; POH/RFM*
Objective	*To determine that the applicant understands the elements associated with normal takeoff, climb operations, and rejected takeoff procedures as they relate to safety of flight and applies that knowledge when delivering ground or flight instruction.*
Knowledge	*The applicant demonstrates instructional knowledge by describing and explaining:*
IL.VIII.B.K1	Elements related to a rolling takeoff and the purpose of the maneuver.
IL.VIII.B.K2	Aircraft configurations.
IL.VIII.B.K3	Translational lift.
IL.VIII.B.K4	Takeoff and climb performance and the height velocity (H/V) diagram.
IL.VIII.B.K5	Aircraft limitations.
IL.VIII.B.K6	Common errors related to this Task and their appropriate remedies.
Risk Management	*The applicant identifies, explains, and manages risk arising from:*
IL.VIII.B.R1	Collision hazards, including aircraft, terrain, obstacles, wires, vehicles, vessels, persons, and wildlife.
IL.VIII.B.R2	Downwash.
IL.VIII.B.R3	Powerplant failure during rolling takeoff and climb out.
IL.VIII.B.R4	Aircraft configuration.
IL.VIII.B.R5	Distractions, improper task management, loss of situational awareness, or disorientation.
IL.VIII.B.R6	Effects of:
IL.VIII.B.R6a	a. Crosswind
IL.VIII.B.R6b	b. Windshear
IL.VIII.B.R6c	c. Tailwind
IL.VIII.B.R6d	d. Wake turbulence
IL.VIII.B.R6e	e. Runway/departure point surface/condition
IL.VIII.B.R6f	f. Aircraft weight
IL.VIII.B.R7	Low altitude maneuvering, including stall, spin, or CFIT.
IL.VIII.B.R8	Instruction of this Task.
Skills	*The applicant demonstrates and teaches how to:*
IL.VIII.B.S1	Make radio calls as appropriate and follow ATC instructions or as directed by the evaluator.
IL.VIII.B.S2	Complete the appropriate checklist(s).
IL.VIII.B.S3	Configure the aircraft correctly regarding environmental conditions and aircraft loading.
IL.VIII.B.S4	Maintain the aircraft within operating limits throughout the maneuver.
IL.VIII.B.S5	Maintain proper ground track with crosswind correction, if necessary.
IL.VIII.B.S6	Maintain a specified heading throughout the operation, ±5°.
IL.VIII.B.S7	Maintain a positive rate of climb.

IL.VIII.B.S8	Transition to recommended climb airspeed ±5 knots.
IL.VIII.B.S9	Use SRM/CRM.
IL.VIII.B.S10	Correct errors, as applicable.

VIII. Takeoffs, Landings, and Go-Arounds

Task C. Slope Operations

Note:	*The evaluator selects Tasks A, B, E, F, I, and at least one other Task from IL.VIII, Takeoffs, Landings, and Go-Arounds.*
References	*14 CFR part 91; FAA-H-8083-2, FAA-H-8083-33; POH/RFM*
Objective	*To determine that the applicant understands the elements associated with slope operations as they relate to safety of flight and applies that knowledge when delivering ground or flight instruction.*
Knowledge	*The applicant demonstrates instructional knowledge by describing and explaining:*
IL.VIII.C.K1	Selection of suitable and appropriate landing area.
IL.VIII.C.K2	Aircraft operating limitations.
IL.VIII.C.K3	Effects of wind.
IL.VIII.C.K4	Aircraft configuration.
IL.VIII.C.K5	Approach, landing, and takeoff procedures.
IL.VIII.C.K6	Common errors related to this Task and their appropriate remedies.
Risk Management	*The applicant identifies, explains, and manages risk arising from:*
IL.VIII.C.R1	Aircraft configuration.
IL.VIII.C.R2	Condition requiring an aborted approach or landing.
IL.VIII.C.R3	Exceeding control margins.
IL.VIII.C.R4	Exceeding power margins.
IL.VIII.C.R5	Surface conditions.
IL.VIII.C.R6	Personnel in the vicinity of the aircraft.
IL.VIII.C.R7	Dynamic rollover.
IL.VIII.C.R8	Exceeding the manufacturer's slope limitations.
IL.VIII.C.R9	Powerplant failure during slope operations.
IL.VIII.C.R10	Downwash.
IL.VIII.C.R11	Degraded Visual Environment (DVE).
IL.VIII.C.R12	Instruction of this Task.
Skills	*The applicant demonstrates and teaches how to:*
IL.VIII.C.S1	Select a suitable landing area.
IL.VIII.C.S2	Complete the appropriate checklist(s).
IL.VIII.C.S3	Position the primary flight controls, including the thrust vector, for the prevailing environmental conditions.
IL.VIII.C.S4	Make a smooth transition between hover and slope.
IL.VIII.C.S5	Approach and depart the hover.
IL.VIII.C.S6	Maintain positive control of aircraft throughout the maneuver.
IL.VIII.C.S7	Distinguishing between proficiency and currency.
IL.VIII.C.S8	Maintain specified headings throughout the operation, ±5°.
IL.VIII.C.S9	Maintain position within ±5 feet of a designated point.
IL.VIII.C.S10	Use SRM/CRM.

IL.VIII.C.S11 Correct errors, as applicable.

VIII. Takeoffs, Landings, and Go-Arounds

Task D. Takeoff at Maximum Gross Weight (MGW)

Note:	*The evaluator selects Tasks A, B, E, F, I, and at least one other Task from IL.VIII, Takeoffs, Landings, and Go-Arounds.*
References	*FAA-H-8083-33; POH/RFM*
Objective	*To determine that the applicant understands the elements associated with maximum gross weight takeoffs as they relate to safety of flight and applies that knowledge when delivering ground or flight instruction.*
Knowledge	*The applicant demonstrates instructional knowledge by describing and explaining:*
IL.VIII.D.K1	Aircraft information resources, including weight and balance information, performance charts, and appropriate references.
IL.VIII.D.K2	Perform appropriate calculations to obtain information relevant to MGW takeoffs.
IL.VIII.D.K3	Aircraft configuration.
IL.VIII.D.K4	Effects of wind.
IL.VIII.D.K5	MGW profile.
IL.VIII.D.K6	Common errors related to this Task and their appropriate remedies.
Risk Management	*The applicant identifies, explains, and manages risk arising from:*
IL.VIII.D.R1	Aircraft configuration.
IL.VIII.D.R2	Aircraft performance and structural limitations.
IL.VIII.D.R3	Powerplant failure during takeoff.
IL.VIII.D.R4	Maintaining an appropriate power margin.
IL.VIII.D.R5	Distractions, improper task management, loss of situational awareness, or disorientation.
IL.VIII.D.R6	Instruction of this Task.
Skills	*The applicant demonstrates and teaches how to:*
IL.VIII.D.S1	Complete the appropriate checklist(s).
IL.VIII.D.S2	Position the primary flight controls, including the thrust vector, for the prevailing environmental conditions.
IL.VIII.D.S3	Utilize proper control technique to initiate takeoff and forward climb.
IL.VIII.D.S4	Monitor aircraft performance, limitations, and relative position throughout the maneuver.
IL.VIII.D.S5	Establish profile, airspeed ±5 knots, maintains profile until clear of all obstacles.
IL.VIII.D.S6	Maintain appropriate ground track and specified heading(s) throughout the operation, ±5°.
IL.VIII.D.S7	Use SRM/CRM.
IL.VIII.D.S8	Correct errors, as applicable.

VIII. Takeoffs, Landings, and Go-Arounds

Task E. Normal Approach Profile to a Hover

Note:	*The evaluator selects Tasks A, B, E, F, I, and at least one other Task from IL.VIII, Takeoffs, Landings, and Go-Arounds.*
References	*14 CFR part 91; FAA-H-8083-2, FAA-H-8083-33; POH/RFM*
Objective	*To determine that the applicant understands the elements associated with approach profile to a hover as they relate to safety of flight and applies that knowledge when delivering ground or flight instruction.*
Knowledge	*The applicant demonstrates instructional knowledge by describing and explaining:*
IL.VIII.E.K1	Types of approaches and applicability.
IL.VIII.E.K2	Performance data and the height velocity (H/V) diagram.
IL.VIII.E.K3	Effects of atmospheric conditions, including wind and density altitude, on approach and hover performance.
IL.VIII.E.K4	Wind correction techniques on approach and hover.
IL.VIII.E.K5	Aircraft configurations for the approach and hover.
IL.VIII.E.K6	Aircraft limitations.
IL.VIII.E.K7	Common errors related to this Task and their appropriate remedies.
Risk Management	*The applicant identifies, explains, and manages risk arising from:*
IL.VIII.E.R1	Selection of runway/helipad/touchdown point based on pilot capability, aircraft performance and limitations, available distance, and wind.
IL.VIII.E.R2	Effects of:
IL.VIII.E.R2a	a. Crosswind
IL.VIII.E.R2b	b. Windshear
IL.VIII.E.R2c	c. Tailwind
IL.VIII.E.R2d	d. Wake turbulence
IL.VIII.E.R2e	e. VRS
IL.VIII.E.R2f	f. Runway/arrival point surface/condition
IL.VIII.E.R3	Planning for:
IL.VIII.E.R3a	a. Rejected landing and go-around
IL.VIII.E.R3b	b. Powerplant failure during the approach
IL.VIII.E.R4	Collision hazards, including aircraft, terrain, obstacles, wires, vehicles, vessels, persons, and wildlife.
IL.VIII.E.R5	Degraded Visual Environment (DVE) and flat light conditions.
IL.VIII.E.R6	Distractions, improper task management, loss of situational awareness, or disorientation.
IL.VIII.E.R7	Instruction of this Task.
Skills	*The applicant demonstrates and teaches how to:*
IL.VIII.E.S1	Complete the appropriate checklist(s).
IL.VIII.E.S2	Make radio calls as appropriate and follow ATC instructions or as directed by the evaluator.
IL.VIII.E.S3	Use the appropriate techniques and aircraft configurations through all stages of the approach.
IL.VIII.E.S4	Consider the wind conditions, landing surface, and obstructions and select a suitable hover point.
IL.VIII.E.S5	Maintain appropriate ground track with crosswind correction throughout the approach.

IL.VIII.E.S6	Fly a stabilized approach.
IL.VIII.E.S7	Arrive over the arrival point at a stabilized hover ±5 feet and 10°.
IL.VIII.E.S8	Execute a timely go-around for any condition that may result in an unsafe approach or landing.
IL.VIII.E.S9	Use SRM/CRM.
IL.VIII.E.S10	Correct errors, as applicable.

VIII. Takeoffs, Landings, and Go-Arounds

Task F. Normal Approach and Landing

Note:	*The evaluator selects Tasks A, B, E, F, I, and at least one other Task from IL.VIII, Takeoffs, Landings, and Go-Arounds.*
References	*AIM; FAA-H-8083-2, FAA-H-8083-33; POH/RFM*
Objective	*To determine that the applicant understands the elements associated with flying a VFR approach and landing the aircraft on the landing surface with zero ground speed as they relate to safety of flight and applies that knowledge when delivering ground or flight instruction.*
Knowledge	*The applicant demonstrates instructional knowledge by describing and explaining:*
IL.VIII.F.K1	Effects of atmospheric conditions, including wind, on approach speed and angle.
IL.VIII.F.K2	Atmospheric factors affecting performance.
IL.VIII.F.K3	Use of proper conversion angle for transition to landing.
IL.VIII.F.K4	Common errors related to this Task and their appropriate remedies.
Risk Management	*The applicant identifies, explains, and manages risk arising from:*
IL.VIII.F.R1	Selection of runway/takeoff path based on pilot capability, aircraft performance and limitations, available distance, and wind.
IL.VIII.F.R2	Effects of:
IL.VIII.F.R2a	a. Crosswind
IL.VIII.F.R2b	b. Windshear
IL.VIII.F.R2c	c. Tailwind
IL.VIII.F.R2d	d. Wake turbulence
IL.VIII.F.R2e	e. Runway/heliport/helipad surface condition and length
IL.VIII.F.R3	Planning for:
IL.VIII.F.R3a	a. Rejected landing and go-around
IL.VIII.F.R3b	b. Powerplant failure during the approach
IL.VIII.F.R4	Collision hazards, including aircraft, terrain, obstacles, wires, vehicles, vessels, persons, and wildlife.
IL.VIII.F.R5	Degraded Visual Environment (DVE) and flat light conditions.
IL.VIII.F.R6	Distractions, improper task management, loss of situational awareness, or disorientation.
IL.VIII.F.R7	Go-around considerations, including runway/takeoff path, aircraft performance and limitations, available distance, and wind.
IL.VIII.F.R8	Instruction of this Task.
Skills	*The applicant demonstrates and teaches how to:*
IL.VIII.F.S1	Complete the appropriate checklist(s).
IL.VIII.F.S2	Comply with noise abatement procedures.
IL.VIII.F.S3	Make radio calls as appropriate.
IL.VIII.F.S4	Verify assigned/correct runway/landing point if at an airport.
IL.VIII.F.S5	Ascertain wind direction with or without visible wind direction indicators.
IL.VIII.F.S6	Maintain proper ground track with crosswind correction, if necessary.
IL.VIII.F.S7	Maintain a stabilized approach profile.

IL.VIII.F.S8	Use manufacturer's recommended technique and remain within airspeed range allowed for each configuration change.
IL.VIII.F.S9	Use SRM/CRM.
IL.VIII.F.S10	Correct errors, as applicable.

VIII. Takeoffs, Landings, and Go-Arounds

Task G. Advanced Takeoff Profile and Climb

Note:	*The evaluator selects Tasks A, B, E, F, I, and at least one other Task from IL.VIII, Takeoffs, Landings, and Go-Arounds.*
References	*AIM; FAA-H-8083-2, FAA-H-8083-33; POH/RFM*
Objective	*To determine that the applicant understands the elements associated with advanced takeoff profile and climb as they relate to safety of flight and applies that knowledge when delivering ground or flight instruction.*
Knowledge	*The applicant demonstrates instructional knowledge by describing and explaining:*
IL.VIII.G.K1	Situations where this maneuver is appropriate.
IL.VIII.G.K2	Effects of atmospheric conditions, including wind and temperature, on takeoff and climb performance.
IL.VIII.G.K3	Appropriate aircraft configuration, takeoff, and climb profiles.
IL.VIII.G.K4	Common errors related to this Task and their appropriate remedies.
Risk Management	*The applicant identifies, explains, and manages risk arising from:*
IL.VIII.G.R1	Selection of takeoff path based on pilot capability, aircraft performance and limitations, available distance, and wind.
IL.VIII.G.R2	Effects of:
IL.VIII.G.R2a	a. Crosswind
IL.VIII.G.R2b	b. Windshear
IL.VIII.G.R2c	c. Tailwind
IL.VIII.G.R2d	d. Low level turbulence
IL.VIII.G.R2e	e. Low level surface/condition
IL.VIII.G.R3	Abnormal operations, including planning for:
IL.VIII.G.R3a	a. Rejected takeoff
IL.VIII.G.R3b	b. Powerplant failure in takeoff/climb phase of flight
IL.VIII.G.R4	Collision hazards, including aircraft, terrain, obstacles, wires, vehicles, vessels, persons, and wildlife.
IL.VIII.G.R5	Low altitude maneuvering, including CFIT.
IL.VIII.G.R6	Distractions, improper task management, loss of situational awareness, or disorientation.
IL.VIII.G.R7	Instruction of this Task.
Skills	*The applicant demonstrates and teaches how to:*
IL.VIII.G.S1	Complete the appropriate checklist(s).
IL.VIII.G.S2	Make radio calls as appropriate.
IL.VIII.G.S3	Verify assigned/correct takeoff path.
IL.VIII.G.S4	Ascertain wind direction with or without visible wind direction indicators.
IL.VIII.G.S5	Position the flight controls and configure the aircraft considering wind conditions.
IL.VIII.G.S6	Clear the area, taxi into takeoff position utilizing maximum available takeoff area and align the aircraft on the takeoff path.
IL.VIII.G.S7	Confirm takeoff power and proper powerplant and flight instrument indications prior to takeoff.
IL.VIII.G.S8	Establish and maintain the most efficient liftoff attitude/configuration.

IL.VIII.G.S9	Lift off at the recommended airspeed and aircraft configuration for obstacle clearance.
IL.VIII.G.S10	Maintain the recommended airspeed and aircraft configuration until the obstacle is cleared or until the aircraft is 50 feet above the surface, whichever is higher.
IL.VIII.G.S11	After clearing the obstacle, establish pitch attitude and aircraft configuration for VY and accelerate to and maintain VY ±5 knots during the climb.
IL.VIII.G.S12	Reconfigure the aircraft after a positive rate of climb has been verified or in accordance with the aircraft manufacturer's guidance.
IL.VIII.G.S13	Maintain directional control and proper wind-drift correction throughout takeoff and climb.
IL.VIII.G.S14	Comply with noise abatement procedures.
IL.VIII.G.S15	Use SRM/CRM.
IL.VIII.G.S16	Correct errors, as applicable.

VIII. Takeoffs, Landings, and Go-Arounds

Task H. Steep Approach and Landing

Note:	*The evaluator selects Tasks A, B, E, F, I, and at least one other Task from IL.VIII, Takeoffs, Landings, and Go-Arounds.*
References	*AIM; FAA-H-8083-2, FAA-H-8083-33; POH/RFM*
Objective	*To determine that the applicant understands the elements associated with steep approaches and landings as they relate to safety of flight and applies that knowledge when delivering ground or flight instruction.*
Knowledge	*The applicant demonstrates instructional knowledge by describing and explaining:*
IL.VIII.H.K1	Aircraft performance charts.
IL.VIII.H.K2	Factors related to height velocity (H/V) diagram and the steep approach profile.
IL.VIII.H.K3	Steep approach and landing profile selection criteria.
IL.VIII.H.K4	Aircraft configuration.
IL.VIII.H.K5	Common errors related to this Task and their appropriate remedies.
Risk Management	*The applicant identifies, explains, and manages risk arising from:*
IL.VIII.H.R1	Aircraft configuration.
IL.VIII.H.R2	Available power margins.
IL.VIII.H.R3	Exceeding aircraft performance limitations.
IL.VIII.H.R4	Powerplant failure during approach.
IL.VIII.H.R5	Low altitude maneuvering, including CFIT.
IL.VIII.H.R6	Collision hazards, including aircraft, terrain, obstacles, wires, vehicles, vessels, persons, and wildlife.
IL.VIII.H.R7	Excessive descent rate.
IL.VIII.H.R8	VRS.
IL.VIII.H.R9	Reasons for executing a go-around.
IL.VIII.H.R10	Instruction of this Task.
Skills	*The applicant demonstrates and teaches how to:*
IL.VIII.H.S1	Complete the appropriate checklist(s).
IL.VIII.H.S2	Position the primary flight controls, including the thrust vector, for the prevailing environmental conditions.
IL.VIII.H.S3	Maintain awareness of aircraft performance, limitations, and relative position throughout the maneuver.
IL.VIII.H.S4	Use correct control technique to initiate descent and establish HIGE above landing point ±5 feet.
IL.VIII.H.S5	Establish and maintain approach profile, airspeed ±5 knots.
IL.VIII.H.S6	Maintain intended ground track and specified heading(s) throughout the operation, ±5°.
IL.VIII.H.S7	Touch down at intended landing point within 5 feet.
IL.VIII.H.S8	Use SRM/CRM.
IL.VIII.H.S9	Correct errors, as applicable.

VIII. Takeoffs, Landings, and Go-Arounds

Task I. Running Landing

Note:	*The evaluator selects Tasks A, B, E, F, I, and at least one other Task from IL.VIII, Takeoffs, Landings, and Go-Arounds.*
References	*AIM; FAA-H-8083-2, FAA-H-8083-33; POH/RFM*
Objective	*To determine that the applicant understands the elements associated with running landing as they relate to safety of flight and applies that knowledge when delivering ground or flight instruction.*
Knowledge	*The applicant demonstrates instructional knowledge by describing and explaining:*
IL.VIII.I.K1	Landing performance data and the height velocity (H/V) diagram.
IL.VIII.I.K2	Aircraft limitations.
IL.VIII.I.K3	Aircraft configuration.
IL.VIII.I.K4	Effects of atmospheric conditions, including wind, on approach and landing performance.
IL.VIII.I.K5	Wind correction techniques on approach and landing.
IL.VIII.I.K6	Common errors related to this Task and their appropriate remedies.
Risk Management	*The applicant identifies, explains, and manages risk arising from:*
IL.VIII.I.R1	Planning for:
IL.VIII.I.R1a	a. Powerplant failure during approach
IL.VIII.I.R1b	b. Rejected landing
IL.VIII.I.R2	Effects of:
IL.VIII.I.R2a	a. Crosswind
IL.VIII.I.R2b	b. Windshear
IL.VIII.I.R2c	c. Tailwind
IL.VIII.I.R2d	d. Wake turbulence
IL.VIII.I.R2e	e. Runway surface/condition
IL.VIII.I.R3	Land and Hold Short Operations (LAHSO)
IL.VIII.I.R4	Collision hazards, including aircraft, terrain, obstacles, wires, vehicles, vessels, persons, and wildlife.
IL.VIII.I.R5	Low altitude maneuvering, including stall, spin, or CFIT.
IL.VIII.I.R6	Distractions, improper task management, loss of situational awareness, or disorientation.
IL.VIII.I.R7	Instruction of this Task.
Skills	*The applicant demonstrates and teaches how to:*
IL.VIII.I.S1	Coordinate with the crew, if applicable, and complete the appropriate checklist.
IL.VIII.I.S2	Ensure the aircraft is correctly configured for the landing.
IL.VIII.I.S3	Make radio calls as appropriate and follow ATC instructions or as directed by the evaluator.
IL.VIII.I.S4	Maintain a ground track that ensures the desired traffic pattern flown takes into consideration obstructions and ATC or evaluator instructions.
IL.VIII.I.S5	Ensure the aircraft is aligned with the correct/assigned runway or landing surface.
IL.VIII.I.S6	Consider the wind conditions, aircraft performance, landing surface, obstructions, and select a suitable touchdown point.

IL.VIII.I.S7	Maintain crosswind correction and directional control throughout the approach and landing.
IL.VIII.I.S8	Make smooth, timely, and correct control application during round out and touchdown.
IL.VIII.I.S9	Touch down at the appropriate speed, aircraft configuration and pitch attitude.
IL.VIII.I.S10	On touchdown, maintain proper ground track and specified heading ±5°.
IL.VIII.I.S11	After touchdown, reconfigure the aircraft to vacate the runway/landing surface or as directed by ATC or the evaluator.
IL.VIII.I.S12	Execute a timely go-around for any condition that may result in an unsafe approach or landing.
IL.VIII.I.S13	Use SRM/CRM.
IL.VIII.I.S14	Correct errors, as applicable.

IX. Fundamentals of Flight

Task A. Straight-and-Level Flight

Note:	*The evaluator selects Tasks A, B, and at least one other Task from IL.IX, Fundamentals of Flight.*
References	*FAA-H-8083-9, FAA-H-8083-33*
Objective	*To determine that the applicant understands the elements associated with straight-and-level flight and applies that knowledge when delivering ground or flight instruction.*
Knowledge	*The applicant demonstrates instructional knowledge by describing and explaining:*
IL.IX.A.K1	Purpose of the maneuver.
IL.IX.A.K2	Basic elements of the maneuver.
IL.IX.A.K3	Desired outcome.
IL.IX.A.K4	Flight control and trim use in various modes of flight.
IL.IX.A.K5	The pilot's visual references when performing the maneuver.
IL.IX.A.K6	Common errors related to this Task and their appropriate remedies.
Risk Management	*The applicant identifies, explains, and manages risk arising from:*
IL.IX.A.R1	Distractions, improper task management, loss of situational awareness, or disorientation.
IL.IX.A.R2	Collision hazards, including aircraft, terrain, obstacles, wires, vehicles, vessels, persons, and wildlife.
IL.IX.A.R3	Instruction of this Task.
Skills	*The applicant demonstrates and teaches how to:*
IL.IX.A.S1	Establish and maintain straight-and-level flight in any flight mode.
IL.IX.A.S2	Correct errors, as applicable.

IX. Fundamentals of Flight

Task B. Level Turns

Note:	*The evaluator selects Tasks A, B, and at least one other Task from IL.IX, Fundamentals of Flight.*
References	*FAA-H-8083-9, FAA-H-8083-33*
Objective	*To determine that the applicant understands the elements associated with level turns and applies that knowledge when delivering ground or flight instruction.*
Knowledge	*The applicant demonstrates instructional knowledge by describing and explaining:*
IL.IX.B.K1	Purpose of the maneuver.
IL.IX.B.K2	Basic elements of the maneuver in various modes of flight
IL.IX.B.K3	Desired outcome.
IL.IX.B.K4	Flight control and trim use in various modes of flight.
IL.IX.B.K5	The pilot's visual references when performing the maneuver.
IL.IX.B.K6	Common errors related to this Task and their appropriate remedies.
Risk Management	*The applicant identifies, explains, and manages risk arising from:*
IL.IX.B.R1	Distractions, improper task management, loss of situational awareness, or disorientation.
IL.IX.B.R2	Collision hazards, including aircraft, terrain, obstacles, wires, vehicles, vessels, persons, and wildlife.
IL.IX.B.R3	Instruction of this Task.
Skills	*The applicant demonstrates and teaches how to:*
IL.IX.B.S1	Establish, maintain, and roll out of a level turn in any flight mode.
IL.IX.B.S2	Correct errors, as applicable.

IX. Fundamentals of Flight

Task C. Straight Climbs and Climbing Turns

Note:	*The evaluator selects Tasks A, B, and at least one other Task from IL.IX, Fundamentals of Flight.*
References	*FAA-H-8083-9, FAA-H-8083-33*
Objective	*To determine that the applicant understands the elements associated with straight climbs and climbing turns and applies that knowledge when delivering ground or flight instruction.*
Knowledge	*The applicant demonstrates instructional knowledge by describing and explaining:*
IL.IX.C.K1	Purpose of the maneuver.
IL.IX.C.K2	Basic elements of the maneuver in various modes of flight
IL.IX.C.K3	Desired outcome.
IL.IX.C.K4	Flight control and trim use in various modes of flight.
IL.IX.C.K5	The pilot's visual references when performing the maneuver.
IL.IX.C.K6	Common errors related to this Task and their appropriate remedies.
Risk Management	*The applicant identifies, explains, and manages risk arising from:*
IL.IX.C.R1	Distractions, improper task management, loss of situational awareness, or disorientation.
IL.IX.C.R2	Collision hazards, including aircraft, terrain, obstacles, wires, vehicles, vessels, persons, and wildlife.
IL.IX.C.R3	Instruction of this Task.
Skills	*The applicant demonstrates and teaches how to:*
IL.IX.C.S1	Establish, maintain, and level off from climbs and climbing turns in any flight mode.
IL.IX.C.S2	Correct errors, as applicable.

IX. Fundamentals of Flight

Task D. Straight Descents and Descending Turns

Note:	*The evaluator selects Tasks A, B, and at least one other Task from IL.IX, Fundamentals of Flight.*
References	*FAA-H-8083-9, FAA-H-8083-33*
Objective	*To determine that the applicant understands the elements associated with straight descents and descending turns and applies that knowledge when delivering ground or flight instruction.*
Knowledge	*The applicant demonstrates instructional knowledge by describing and explaining:*
IL.IX.D.K1	Purpose of the maneuver.
IL.IX.D.K2	Basic elements of the maneuver in various modes of flight
IL.IX.D.K3	Desired outcome.
IL.IX.D.K4	Flight control and trim use in various modes of flight.
IL.IX.D.K5	The pilot's visual references when performing the maneuver.
IL.IX.D.K6	Common errors related to this Task and their appropriate remedies.
Risk Management	*The applicant identifies, explains, and manages risk arising from:*
IL.IX.D.R1	Distractions, improper task management, loss of situational awareness, or disorientation.
IL.IX.D.R2	Collision hazards, including aircraft, terrain, obstacles, wires, vehicles, vessels, persons, and wildlife.
IL.IX.D.R3	Instruction of this Task.
Skills	*The applicant demonstrates and teaches how to:*
IL.IX.D.S1	Establish, maintain, and level off from straight descents and descending turns in any flight mode.
IL.IX.D.S2	Correct errors, as applicable.

X. Performance Maneuvers

Task A. Rapid Deceleration/Quick Stop

Note:	*The evaluator selects at least two Tasks from IL.X, Performance Maneuvers.*
References	*FAA-H-8083-2, FAA-H-8083-33; POH/RFM*
Objective	*To determine that the applicant understands the elements associated with rapid deceleration/quick stop as they relate to safety of flight and applies that knowledge when delivering ground or flight instruction.*
Knowledge	*The applicant demonstrates instructional knowledge by describing and explaining:*
IL.X.A.K1	Purpose of the maneuver.
IL.X.A.K2	Aircraft transmission and powerplant limitations.
IL.X.A.K3	Airspeed limitations.
IL.X.A.K4	Aircraft maximum rate deceleration rate and technique.
IL.X.A.K5	Height velocity (H/V) awareness.
IL.X.A.K6	Common errors related to this Task and their appropriate remedies.
Risk Management	*The applicant identifies, explains, and manages risk arising from:*
IL.X.A.R1	Gaining or losing altitude.
IL.X.A.R2	Excessive pitch attitudes.
IL.X.A.R3	Effects of wind.
IL.X.A.R4	Airframe and airspeed limitations.
IL.X.A.R5	Collision hazards, including aircraft, terrain, obstacles, wires, vehicles, vessels, persons, and wildlife.
IL.X.A.R6	Dividing attention between aircraft control and orientation.
IL.X.A.R7	Distractions, improper task management, loss of situational awareness, or disorientation.
IL.X.A.R8	Uncoordinated flight.
IL.X.A.R9	VRS.
IL.X.A.R10	Instruction of this Task.
Skills	*The applicant demonstrates and teaches how to:*
Note:	*This maneuver may be performed from level flight or an aborted takeoff at the evaluator's discretion. If evaluated from an aborted takeoff profile, the height standard does not apply.*
IL.X.A.S1	Complete the appropriate checklist(s).
IL.X.A.S2	Clear the area.
IL.X.A.S3	Maintain an assigned height +20/-10 feet and heading ±10°.
IL.X.A.S4	Perform a maximum performance deceleration as directed by the evaluator.
IL.X.A.S5	Select an appropriate power setting and thrust vector to allow deceleration at maximum rate.
IL.X.A.S6	Maintain coordinated flight throughout the maneuver.
IL.X.A.S7	Correct errors, as applicable.

X. Performance Maneuvers

Task B. Inflight Transition/Conversion (Straight-and-Level)

Note:	*The evaluator selects at least two Tasks from IL.X, Performance Maneuvers.*
References	*FAA-H-8083-9, FAA-H-8083-33*
Objective	*To determine that the applicant understands the elements associated with transitioning to high-speed cruise mode and converting to VTOL mode as they relate to safety of flight and applies that knowledge when delivering ground or flight instruction.*
Knowledge	*The applicant demonstrates instructional knowledge by describing and explaining:*
IL.X.B.K1	Purpose of the maneuver.
IL.X.B.K2	Aerodynamic effects and basic elements of the maneuver in various modes of flight.
IL.X.B.K3	Desired outcome.
IL.X.B.K4	Flight control and trim use during transitions and conversions.
IL.X.B.K5	The pilot's visual references when performing the maneuver.
IL.X.B.K6	Common errors related to this Task and their appropriate remedies.
Risk Management	*The applicant identifies, explains, and manages risk arising from:*
IL.X.B.R1	Distractions, improper task management, loss of situational awareness, or disorientation.
IL.X.B.R2	Collision hazards, including aircraft, terrain, obstacles, wires, vehicles, vessels, persons, and wildlife.
IL.X.B.R3	Instruction of this Task.
Skills	*The applicant demonstrates and teaches how to:*
IL.X.B.S1	Establish and maintain straight-and-level flight during transitions and conversions between flight modes.
IL.X.B.S2	Transition the aircraft from VTOL mode to high-speed cruise mode during straight-and-level flight.
IL.X.B.S3	Convert the aircraft from high-speed cruise mode to VTOL mode during straight-and-level flight.
IL.X.B.S4	Utilize proper control technique throughout the maneuver.
IL.X.B.S5	Maintain awareness of aircraft performance, limitations, and relative position throughout the maneuver.
IL.X.B.S6	Maintain altitude ±100 feet and specified heading ±10° throughout the operation. Achieve and maintain targeted airspeed ±10 knots as directed by the evaluator.
IL.X.B.S7	Use SRM/CRM.
IL.X.B.S8	Correct errors, as applicable.

X. Performance Maneuvers

Task C. Speed Sweep

Note:	*The evaluator selects at least two Tasks from IL.X, Performance Maneuvers.*
References	*FAA-H-8083-2, FAA-H-8083-33; POH/RFM*
Objective	*To determine that the applicant understands the elements associated with maximum rate transitions and conversions as they relate to safety of flight and applies that knowledge when delivering ground or flight instruction.*
Knowledge	*The applicant demonstrates instructional knowledge by describing and explaining:*
IL.X.C.K1	Purpose of the maneuver.
IL.X.C.K2	Aircraft transmission and powerplant limitations.
IL.X.C.K3	Airspeed limitations.
IL.X.C.K4	Aircraft stall and recovery techniques.
IL.X.C.K5	Aircraft conversion/transition rate and technique.
IL.X.C.K6	Height velocity (H/V) limitations.
IL.X.C.K7	Common errors related to this Task and their appropriate remedies.
Risk Management	*The applicant identifies, explains, and manages risk arising from:*
IL.X.C.R1	Gaining or losing altitude.
IL.X.C.R2	Setting excessive nose attitude to correct altitude deviations.
IL.X.C.R3	Effects of wind.
IL.X.C.R4	Airframe and airspeed limitations.
IL.X.C.R5	Collision hazards, including aircraft, terrain, obstacles, wires, vehicles, vessels, persons, and wildlife.
IL.X.C.R6	Dividing attention between aircraft control and orientation.
IL.X.C.R7	Aircraft stall.
IL.X.C.R8	Distractions, improper task management, loss of situational awareness, or disorientation.
IL.X.C.R9	Uncoordinated flight.
IL.X.C.R10	VRS.
IL.X.C.R11	Instruction of this Task.
Skills	*The applicant demonstrates and teaches how to:*
IL.X.C.S1	Complete the appropriate checklist(s).
IL.X.C.S2	Clear the area.
IL.X.C.S3	Maintain an assigned altitude ±150 feet and heading ±10°.
IL.X.C.S4	Perform a maximum performance acceleration and deceleration as directed by the evaluator.
IL.X.C.S5	Select an appropriate power setting to allow conversion at maximum rate.
IL.X.C.S6	Maintain coordinated flight throughout the maneuver.
IL.X.C.S7	Correct errors, as applicable.

X. Performance Maneuvers

Task D. Steep Turns

Note:	*The evaluator selects at least two Tasks from IL.X, Performance Maneuvers.*
References	*FAA-H-8083-2, FAA-H-8083-33; POH/RFM*
Objective	*To determine that the applicant understands the elements associated with steep turns while relying on wing borne lift as they relate to safety of flight and applies that knowledge when delivering ground or flight instruction.*
Knowledge	*The applicant demonstrates instructional knowledge by describing and explaining:*
IL.X.D.K1	Purpose of steep turns.
IL.X.D.K2	Aerodynamics associated with steep turns, including:
IL.X.D.K2a	a. Coordinated and uncoordinated flight
IL.X.D.K2b	b. Overbanking tendencies
IL.X.D.K2c	c. Maneuvering speed, including the impact of weight changes
IL.X.D.K2d	d. Load factor and accelerated stalls
IL.X.D.K2e	e. Rate and radius of turn
IL.X.D.K3	Common errors related to this Task and their appropriate remedies.
Risk Management	*The applicant identifies, explains, and manages risk arising from:*
IL.X.D.R1	Dividing attention between aircraft control and orientation.
IL.X.D.R2	Collision hazards, including aircraft, terrain, obstacles, wires, vehicles, vessels, persons, and wildlife.
IL.X.D.R3	Low altitude maneuvering, including stall, spin, or CFIT.
IL.X.D.R4	Distractions, improper task management, loss of situational awareness, or disorientation.
IL.X.D.R5	Uncoordinated flight.
IL.X.D.R6	Instruction of this Task.
Skills	*The applicant demonstrates and teaches how to:*
IL.X.D.S1	Clear the area before and during the maneuver.
IL.X.D.S2	Establish the manufacturer's recommended airspeed or a safe airspeed.
IL.X.D.S3	Roll into a coordinated 360° steep turn as selected by the evaluator and according to the aircraft's operating limitations.
IL.X.D.S4	Perform the maneuver in the opposite direction.
IL.X.D.S5	Maintain the entry altitude ±100 feet, airspeed ±10 knots, bank ±5°, and roll out on the entry heading ±10°.
IL.X.D.S6	Correct errors, as applicable.

XI. Ground Reference Maneuvers

Task A. Ground Reference Maneuvers

References	*14 CFR part 61; FAA-H-8083-2, FAA-H-8083-9, FAA-H-8083-33*
Objective	*To determine that the applicant understands the elements associated with ground reference maneuvers and applies that knowledge when delivering ground or flight instruction.*
Note:	*Selection of the mode of flight is at the discretion of the evaluator.*
Knowledge	*The applicant demonstrates instructional knowledge by describing and explaining:*
IL.XI.A.K1	Purpose of ground reference maneuvers.
IL.XI.A.K2	Effects of wind on ground track and relation to a ground reference point.
IL.XI.A.K3	Effects of bank angle and groundspeed on rate and radius of turn.
IL.XI.A.K4	Relationship of rectangular course to airport traffic pattern.
IL.XI.A.K5	Common errors related to this Task and their appropriate remedies.
Risk Management	*The applicant identifies, explains, and manages risk arising from:*
IL.XI.A.R1	Failure to divide attention between aircraft control and orientation.
IL.XI.A.R2	Collision hazards, including aircraft, terrain, obstacles, wires, vehicles, vessels, persons, and wildlife.
IL.XI.A.R3	Low altitude maneuvering, including stall, spin, or CFIT.
IL.XI.A.R4	Distractions, improper task management, loss of situational awareness, or disorientation.
IL.XI.A.R5	Failure to maintain coordinated flight.
IL.XI.A.R6	Instruction of this Task.
Skills	*The applicant demonstrates and teaches how to:*
IL.XI.A.S1	Clear the area.
IL.XI.A.S2	Select a suitable ground reference area, line, or point as appropriate.
IL.XI.A.S3	Plan the maneuver:
Note:	*The evaluator selects at least one maneuver for the applicant to demonstrate.*
IL.XI.A.S3a	a. Rectangular course: enter a left or right pattern, 1,000 feet above ground level (AGL) at an appropriate distance from the selected reference area, 45° to the downwind leg
IL.XI.A.S3b	b. S-turns: enter perpendicular to the selected reference line, 1,000 feet AGL at an appropriate distance from the selected reference area
IL.XI.A.S4	Apply adequate wind-drift correction during straight and turning flight to maintain a constant ground track around a rectangular reference area, or to maintain a constant radius turn on each side of a selected reference line or point.
IL.XI.A.S5	If performing S-Turns, reverse the turn directly over the selected reference line.
IL.XI.A.S6	Divide attention between aircraft control, traffic avoidance and the ground track while maintaining coordinated flight.
IL.XI.A.S7	Maintain altitude ±100 feet; maintain airspeed ±10 knots.
IL.XI.A.S8	Correct errors, as applicable.

XII. Slow Flight and Stalls

Task A. Power-On Stalls

Note:	*The evaluator selects at least Tasks A or B and Task C from IL.XII, Slow Flight and Stalls.*
References	*AC 61-67; FAA-H-8083-2, FAA-H-8083-33; POH/RFM*
Objective	*To determine that the applicant understands the elements associated with power-on stalls as they relate to safety of flight and applies that knowledge when delivering ground or flight instruction.*
Note:	*See Appendix 6: Safety of Flight and Appendix 7: Aircraft, Equipment, and Operational Requirements &* Limitations for information related to this Task.
Knowledge	*The applicant demonstrates instructional knowledge by describing and explaining:*
IL.XII.A.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.
IL.XII.A.K2	Stall characteristics (i.e., aircraft design) and impending stall and full stall indications (i.e., how to recognize by sight, sound, or feel).
IL.XII.A.K3	Factors leading to a power-on stall and preventative actions.
IL.XII.A.K4	Fundamentals of stall recovery.
IL.XII.A.K5	Common errors related to this Task and their appropriate remedies.
Risk Management	*The applicant identifies, explains, and manages risk arising from:*
IL.XII.A.R1	Factors and situations that could lead to an inadvertent power-on stall, spin, and loss of control.
IL.XII.A.R2	Range and limitations of stall warning indicators (e.g., aircraft buffet, stall horn, etc.).
IL.XII.A.R3	Recognition of and recovery from the stall warning during normal operations.
IL.XII.A.R4	Improper or delayed stall recovery procedures.
IL.XII.A.R5	Secondary stalls, accelerated stalls, elevator trim stalls, and cross-control stalls.
IL.XII.A.R6	Effect of environmental elements on aircraft performance related to power-on stalls (e.g., turbulence, microbursts, and high-density altitude).
IL.XII.A.R7	Collision hazards, including aircraft, terrain, obstacles, wires, vehicles, vessels, persons, and wildlife.
IL.XII.A.R8	Distractions, improper task management, loss of situational awareness, or disorientation.
IL.XII.A.R9	Instruction of this Task.
Skills	*The applicant demonstrates and teaches how to:*
IL.XII.A.S1	Clear the area.
IL.XII.A.S2	Select an entry altitude that will allow the Task to be completed no lower than 3,000 feet AGL or as recommended by the manufacturer.
IL.XII.A.S3	Establish the takeoff, departure, or cruise configuration, as specified by the evaluator, and maintain coordinated flight throughout the maneuver.
IL.XII.A.S4	Transition smoothly from the takeoff or departure attitude to the pitch attitude that will induce a stall using power and pitch attitude assigned by the evaluator.
IL.XII.A.S5	Maintain a specified heading ±10° if in straight flight; maintain a specified angle of bank not to exceed 20°, ± 10° if in turning flight, until an impending or full stall is reached, as specified by the evaluator.
IL.XII.A.S6	Acknowledge the cues at the first indication of a stall (e.g., airplane buffet, stall horn, etc.).
IL.XII.A.S7	Recover at the first indication of a stall or after a full stall has occurred, as specified by the evaluator.
IL.XII.A.S8	Configure the aircraft as recommended by the manufacturer and accelerate to VX or VY.

IL.XII.A.S9	Return to the altitude, heading, and airspeed specified by the evaluator.
IL.XII.A.S10	Use SRM/CRM.
IL.XII.A.S11	Correct errors, as applicable.

XII. Slow Flight and Stalls

Task B. Power-Off Stalls

Note:	*The evaluator selects at least Tasks A or B and Task C from IL.XII, Slow Flight and Stalls.*
References	*AC 61-67; FAA-H-8083-2, FAA-H-8083-33; POH/RFM*
Objective	*To determine that the applicant understands the elements associated with power-off stalls as they relate to safety of flight and applies that knowledge when delivering ground or flight instruction.*
Note:	*See Appendix 7: Aircraft, Equipment, and Operational Requirements & Limitations for information related to this Task.*
Knowledge	*The applicant demonstrates instructional knowledge by describing and explaining:*
IL.XII.B.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.
IL.XII.B.K2	Stall characteristics (i.e., aircraft design) and impending stall and full stall indications (i.e., how to recognize by sight, sound, or feel).
IL.XII.B.K3	Factors leading to a power-off stall and preventative actions.
IL.XII.B.K4	Fundamentals of stall recovery.
IL.XII.B.K5	Common errors related to this Task and their appropriate remedies.
Risk Management	*The applicant identifies, explains, and manages risk arising from:*
IL.XII.B.R1	Factors and situations that could lead to an inadvertent power-off stall, spin, and loss of control.
IL.XII.B.R2	Range and limitations of stall warning indicators (e.g., aircraft buffet, stall horn, etc.).
IL.XII.B.R3	Recognition of and recovery from the stall warning during normal operations.
IL.XII.B.R4	Improper or delayed stall recovery procedures.
IL.XII.B.R5	Secondary stalls, accelerated stalls, and cross-control stalls.
IL.XII.B.R6	Effect of environmental elements on aircraft performance related to power-off stalls (e.g., turbulence, microbursts, and high-density altitude).
IL.XII.B.R7	Collision hazards, including aircraft, terrain, obstacles, wires, vehicles, vessels, persons, and wildlife.
IL.XII.B.R8	Distractions, improper task management, loss of situational awareness, or disorientation.
IL.XII.B.R9	Instruction of this Task.
Skills	*The applicant demonstrates and teaches how to:*
IL.XII.B.S1	Clear the area.
IL.XII.B.S2	Select an entry altitude that will allow the Task to be completed no lower than 3,000 feet AGL or as recommended by the manufacturer.
IL.XII.B.S3	Configure the aircraft in the approach or landing configuration, as specified by the evaluator, and maintain coordinated flight throughout the maneuver.
IL.XII.B.S4	Establish a stabilized descent.
IL.XII.B.S5	Transition smoothly from the approach or landing attitude to a pitch attitude that will induce a stall.
IL.XII.B.S6	Maintain a specified heading, ±10° if in straight flight; maintain a specified angle of bank not to exceed 20°, ± 5°, if in turning flight, until an impending or full stall occurs, as specified by the evaluator.
IL.XII.B.S7	Acknowledge the cues at the first indication of a stall (e.g., aircraft buffet, stall horn, etc.).
IL.XII.B.S8	Recover at the first indication of a stall or after a full stall has occurred, as specified by the evaluator.

IL.XII.B.S9	Configure the aircraft as recommended by the manufacturer and accelerate to VX or VY.
IL.XII.B.S10	Return to the altitude, heading, and airspeed specified by the evaluator.
IL.XII.B.S11	Use SRM/CRM.
IL.XII.B.S12	Correct errors, as applicable.

XII. Slow Flight and Stalls

Task C. Accelerated Stalls (Cruise Configuration)

Note:	*The evaluator selects at least Tasks A or B and Task C from IL.XII, Slow Flight and Stalls.*
References	*AC 61-67; FAA-H-8083-2, FAA-H-8083-33; POH/RFM*
Objective	*Filler*
Note:	*See Appendix 6: Safety of Flight and Appendix 7: Aircraft, Equipment, and Operational Requirements &* Limitations for information related to this Task.
Knowledge	*The applicant demonstrates instructional knowledge by describing and explaining:*
IL.XII.C.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.
IL.XII.C.K2	Stall characteristics (i.e., aircraft design) and impending stall and full stall indications (i.e., how to recognize by sight, sound, or feel).
IL.XII.C.K3	Factors leading to an accelerated stall and preventative actions.
IL.XII.C.K4	Fundamentals of stall recovery.
IL.XII.C.K5	Common errors related to this Task and their appropriate remedies.
Risk Management	*The applicant identifies, explains, and manages risk arising from:*
IL.XII.C.R1	Factors and situations that could lead to an inadvertent power-on stall, spin, and loss of control.
IL.XII.C.R2	Range and limitations of stall warning indicators (e.g., aircraft buffet, stall horn, etc.).
IL.XII.C.R3	Recognition of and recovery from the stall warning during normal operations.
IL.XII.C.R4	Improper or delayed stall recovery procedures.
IL.XII.C.R5	Secondary stalls, accelerated stalls, and cross-control stalls.
IL.XII.C.R6	Effect of environmental elements on aircraft performance related to power-on stalls (e.g., turbulence, microbursts, and high-density altitude).
IL.XII.C.R7	Collision hazards, including aircraft, terrain, obstacles, wires, vehicles, vessels, persons, and wildlife.
IL.XII.C.R8	Distractions, improper task management, loss of situational awareness, or disorientation.
IL.XII.C.R9	Instruction of this Task.
Skills	*The applicant demonstrates and teaches how to:*
IL.XII.C.S1	Clear the area.
IL.XII.C.S2	Select an entry altitude that will allow the Task to be completed no lower than 3,000 feet AGL or as recommended by the manufacturer.
IL.XII.C.S3	Establish the takeoff, departure, or cruise configuration, as specified by the evaluator, and maintain coordinated flight throughout the maneuver.
IL.XII.C.S4	Set power as assigned by the evaluator.
IL.XII.C.S5	Establish and maintain a coordinated turn in a 45° bank (or as limited by the manufacturer), increasing elevator back pressure smoothly and firmly until an impending stall is reached.
IL.XII.C.S6	Acknowledge the cues at the first indication of a stall (e.g., aircraft buffet, stall horn, etc.).
IL.XII.C.S7	Recover at the first indication of a stall as specified by the evaluator.
IL.XII.C.S8	Configure the aircraft as recommended by the manufacturer and accelerate to VX or VY.
IL.XII.C.S9	Return to the altitude, heading, and airspeed specified by the evaluator.

IL.XII.C.S10	Use SRM/CRM.
IL.XII.C.S11	Correct errors, as applicable.

XIII. Basic Instrument Maneuvers

Task A. Straight and Level Flight

Note:	*The evaluator selects all Tasks from IL.XIII, Basic Instrument Maneuvers.*
References	*FAA-H-8083-2, FAA-H-8083-9, FAA-H-8083-15, FAA-H-8083-33*
Objective	*To determine that the applicant understands the elements of attitude instrument flying during straight-and-level flight and applies that knowledge when delivering ground or flight instruction.*
Knowledge	*The applicant demonstrates instructional knowledge by describing and explaining:*
IL.XIII.A.K1	Flight instruments as related to:
IL.XIII.A.K1a	a. Sensitivity, limitations, and potential errors in unusual attitudes
IL.XIII.A.K1b	b. Correlation (pitch instruments/bank instruments)
IL.XIII.A.K1c	c. Function and operation
IL.XIII.A.K1d	d. Accelerated stalls
IL.XIII.A.K2	Common errors related to this Task and their appropriate remedies.
Risk Management	*The applicant identifies, explains, and manages risk arising from:*
IL.XIII.A.R1	Instrument flying hazards, including failure to maintain VFR, spatial disorientation, loss of control, fatigue, stress, and emergency off airport landings.
IL.XIII.A.R2	Failure to seek assistance or declare an emergency in a deteriorating situation.
IL.XIII.A.R3	Collision hazards, including aircraft, terrain, obstacles, wires, vehicles, vessels, persons, and wildlife.
IL.XIII.A.R4	Distractions, improper task management, loss of situational awareness, or disorientation.
IL.XIII.A.R5	Instruction of this Task.
Skills	*The applicant demonstrates and teaches how to:*
IL.XIII.A.S1	Maintain straight-and-level flight using proper instrument cross-check and interpretation, and coordinated control application in any mode of flight.
IL.XIII.A.S2	Maintain altitude ±200 feet, heading ±20°, and airspeed ±20 knots.
IL.XIII.A.S3	Correct errors, as applicable.

XIII. Basic Instrument Maneuvers

Task B. Constant Airspeed Climbs

Note:	*The evaluator selects all Tasks from IL.XIII, Basic Instrument Maneuvers.*
References	*FAA-H-8083-2, FAA-H-8083-9, FAA-H-8083-15, FAA-H-8083-33*
Objective	*To determine that the applicant understands the elements of attitude instrument flying during constant airspeed climbs and applies that knowledge when delivering ground or flight instruction.*
Knowledge	*The applicant demonstrates instructional knowledge by describing and explaining:*
IL.XIII.B.K1	Flight instruments as related to:
IL.XIII.B.K1a	a. Sensitivity, limitations, and potential errors in unusual attitudes
IL.XIII.B.K1b	b. Correlation (pitch instruments/bank instruments)
IL.XIII.B.K1c	c. Function and operation
IL.XIII.B.K1d	d. Proper instrument cross-check techniques
IL.XIII.B.K2	Common errors related to this Task and their appropriate remedies.
Risk Management	*The applicant identifies, explains, and manages risk arising from:*
IL.XIII.B.R1	Instrument flying hazards, including failure to maintain VFR, spatial disorientation, loss of control, fatigue, stress, and emergency off airport landings.
IL.XIII.B.R2	Failure to seek assistance or declare an emergency in a deteriorating situation.
IL.XIII.B.R3	Collision hazards, including aircraft, terrain, obstacles, wires, vehicles, vessels, persons, and wildlife.
IL.XIII.B.R4	Distractions, improper task management, loss of situational awareness, or disorientation.
IL.XIII.B.R5	Instruction of this Task.
Skills	*The applicant demonstrates and teaches how to:*
IL.XIII.B.S1	Establish the aircraft configuration, climb pitch attitude and power setting on an assigned heading using proper instrument cross-check in any mode of flight.
IL.XIII.B.S2	Climb at a constant airspeed to specific altitudes in straight flight and turns.
IL.XIII.B.S3	Level off at the assigned altitude and maintain altitude ±200 feet, heading ±20°, and airspeed ±20 knots.
IL.XIII.B.S4	Correct errors, as applicable.

XIII. Basic Instrument Maneuvers

Task C. Constant Airspeed Descents

Note:	*The evaluator selects all Tasks from IL.XIII, Basic Instrument Maneuvers.*
References	*FAA-H-8083-2, FAA-H-8083-9, FAA-H-8083-15, FAA-H-8083-33*
Objective	*To determine that the applicant understands the elements of attitude instrument flying during constant airspeed descents and applies that knowledge when delivering ground or flight instruction.*
Knowledge	*The applicant demonstrates instructional knowledge by describing and explaining:*
IL.XIII.C.K1	Flight instruments as related to:
IL.XIII.C.K1a	a. Sensitivity, limitations, and potential errors in unusual attitudes
IL.XIII.C.K1b	b. Correlation (pitch instruments/bank instruments)
IL.XIII.C.K1c	c. Function and operation
IL.XIII.C.K1d	d. Proper instrument cross-check techniques
IL.XIII.C.K2	Common errors related to this Task and their appropriate remedies.
Risk Management	*The applicant identifies, explains, and manages risk arising from:*
IL.XIII.C.R1	Instrument flying hazards, including failure to maintain VFR, spatial disorientation, loss of control, fatigue, stress, and emergency off airport landings.
IL.XIII.C.R2	Failure to seek assistance or declare an emergency in a deteriorating situation.
IL.XIII.C.R3	Collision hazards, including aircraft, terrain, obstacles, wires, vehicles, vessels, persons, and wildlife.
IL.XIII.C.R4	Distractions, improper task management, loss of situational awareness, or disorientation.
IL.XIII.C.R5	Instruction of this Task.
Skills	*The applicant demonstrates and teaches how to:*
IL.XIII.C.S1	Establish the descent configuration, pitch attitude, and power setting on an assigned heading using proper instrument cross-check in any mode of flight.
IL.XIII.C.S2	Descend at a constant airspeed to specific altitudes in straight flight and turns.
IL.XIII.C.S3	Level off at the assigned altitude and maintain altitude ±200 feet, heading ±20°, and airspeed ±20 knots.
IL.XIII.C.S4	Correct errors, as applicable.

XIII. Basic Instrument Maneuvers

Task D. Turns to Headings

Note:	*The evaluator selects all Tasks from IL.XIII, Basic Instrument Maneuvers.*
References	*FAA-H-8083-2, FAA-H-8083-9, FAA-H-8083-15, FAA-H-8083-33*
Objective	*To determine that the applicant understands the elements of attitude instrument flying during turns to headings and applies that knowledge when delivering ground or flight instruction.*
Knowledge	*The applicant demonstrates instructional knowledge by describing and explaining:*
IL.XIII.D.K1	Flight instruments as related to:
IL.XIII.D.K1a	a. Sensitivity, limitations, and potential errors in unusual attitudes
IL.XIII.D.K1b	b. Correlation (pitch instruments/bank instruments)
IL.XIII.D.K1c	c. Function and operation
IL.XIII.D.K1d	d. Proper instrument cross-check techniques
IL.XIII.D.K2	The effects of aircraft mode of flight on the conduct of the maneuver.
IL.XIII.D.K3	Common errors related to this Task and their appropriate remedies.
Risk Management	*The applicant identifies, explains, and manages risk arising from:*
IL.XIII.D.R1	Instrument flying hazards, including failure to maintain VFR, spatial disorientation, loss of control, fatigue, stress, and emergency off airport landings.
IL.XIII.D.R2	Failure to seek assistance or declare an emergency in a deteriorating situation.
IL.XIII.D.R3	Collision hazards, including aircraft, terrain, obstacles, wires, vehicles, vessels, persons, and wildlife.
IL.XIII.D.R4	Distractions, improper task management, loss of situational awareness, or disorientation.
IL.XIII.D.R5	Instruction of this Task.
Skills	*The applicant demonstrates and teaches how to:*
IL.XIII.D.S1	Turn to headings, maintain altitude ±200 feet, maintain a standard rate turn, roll out on the assigned heading ±20°, and maintain airspeed ±20 knots.
IL.XIII.D.S2	Correct errors, as applicable.

XIII. Basic Instrument Maneuvers

Task E. Recovery from Unusual Flight Attitudes

Note:	*The evaluator selects all Tasks from IL.XIII, Basic Instrument Maneuvers.*
References	*FAA-H-8083-2, FAA-H-8083-9, FAA-H-8083-15, FAA-H-8083-33; POH/RFM*
Objective	*To determine that the applicant understands the elements associated with recovering from an unusual attitude as they relate to safety of flight and applies that knowledge when delivering ground or flight instruction.*
Knowledge	*The applicant demonstrates instructional knowledge by describing and explaining:*
IL.XIII.E.K1	Pitch, roll, or other parameters that constitute an unusual attitude for the aircraft.
IL.XIII.E.K2	Effects of the flight controls during various modes of flight.
IL.XIII.E.K3	Effects of stability systems on the aircraft, if installed.
IL.XIII.E.K4	Techniques to recover from unusual flight attitudes.
IL.XIII.E.K5	Common errors related to this Task and their appropriate remedies.
Risk Management	*The applicant identifies, explains, and manages risk arising from:*
IL.XIII.E.R1	Limitations of transitioning between aircraft modes of flight.
IL.XIII.E.R2	Assessment of the unusual attitude.
IL.XIII.E.R3	Slow or delayed recovery.
IL.XIII.E.R4	Instruction of this Task.
Skills	*The applicant demonstrates and teaches how to:*
IL.XIII.E.S1	Diagnose the unusual attitude, aircraft configuration, mode of flight, and the appropriate recovery technique.
IL.XIII.E.S2	Recover the aircraft from an unusual attitude using the proper control inputs for the mode of flight and aircraft configuration as selected by the evaluator.
IL.XIII.E.S3	Change the mode of flight and configuration of the aircraft as necessary to recover from an unusual attitude.
IL.XIII.E.S4	Use SRM/CRM.
IL.XIII.E.S5	Correct errors, as applicable.

XIV. Emergency Operations

Task A. Powerplant Failure during Transition from a Hover

Note:	*The evaluator selects at least two Tasks from A, B, C, E, F, G, H, I to be accomplished inflight and at least Task D or J to be evaluated orally on the ground from IL.XIV, Emergency Operations.*
References	*FAA-H-8083-2, FAA-H-8083-33; POH/RFM*
Objective	*To determine that the applicant understands the elements associated with indications and pilot actions after powerplant failure during transition from a hover as they relate to safety of flight and applies that knowledge when delivering ground or flight instruction.*
Note:	*See Appendix 6: Safety of Flight and Appendix 7: Aircraft, Equipment, and Operational Requirements &* Limitations for information related to this Task.
Knowledge	*The applicant demonstrates instructional knowledge by describing and explaining:*
IL.XIV.A.K1	Aircraft performance and limitations, including the height velocity (H/V) diagram information.
IL.XIV.A.K2	Recognition of powerplant failure.
IL.XIV.A.K3	Pilot actions required on recognition of powerplant failure, including checklist memory items.
IL.XIV.A.K4	Aircraft configuration for landing with powerplant(s) failure.
IL.XIV.A.K5	Causes of asymmetric thrust conditions and appropriate responses.
IL.XIV.A.K6	Common errors related to this Task and their appropriate remedies.
Risk Management	*The applicant identifies, explains, and manages risk arising from:*
IL.XIV.A.R1	Planning for powerplant failure during takeoff.
IL.XIV.A.R2	Identification of powerplant(s) failure conditions.
IL.XIV.A.R3	Incorrect or delayed reaction to powerplant(s) failure conditions.
IL.XIV.A.R4	Aircraft configuration.
IL.XIV.A.R5	Instruction of this Task.
Skills	*The applicant demonstrates and teaches how to:*
IL.XIV.A.S1	Recognize that a powerplant failure has occurred.
IL.XIV.A.S2	Input the appropriate flight control(s) and configure the aircraft correctly.
IL.XIV.A.S3	Maintain the operating powerplant(s) within acceptable operating limits.
IL.XIV.A.S4	Land the aircraft and complete shut down as appropriate.
IL.XIV.A.S5	Complete the appropriate checklist(s).
IL.XIV.A.S6	Make radio calls as appropriate.
IL.XIV.A.S7	Use SRM/CRM.
IL.XIV.A.S8	Correct errors, as applicable.

XIV. Emergency Operations

Task B. Powerplant Failure during Rolling Takeoff

Note:	*The evaluator selects at least two Tasks from A, B, C, E, F, G, H, I to be accomplished inflight and at least Task D or J to be evaluated orally on the ground from IL.XIV, Emergency Operations.*
References	*FAA-H-8083-2, FAA-H-8083-33; POH/RFM*
Objective	*To determine that the applicant understands the elements associated with indications and pilot actions after powerplant failure during a rolling takeoff as they relate to safety of flight and applies that knowledge when delivering ground or flight instruction.*
Note:	*See Appendix 6: Safety of Flight and Appendix 7: Aircraft, Equipment, and Operational Requirements &* Limitations for information related to this Task.
Knowledge	*The applicant demonstrates instructional knowledge by describing and explaining:*
IL.XIV.B.K1	Recognition of a powerplant failure.
IL.XIV.B.K2	Pilot actions required, including checklist memory items.
IL.XIV.B.K3	Achieving maximum deceleration if rejecting the takeoff.
IL.XIV.B.K4	Aircraft Takeoff Safety Speed.
IL.XIV.B.K5	Changes in powerplant/power limitations that may occur after the loss of one powerplant, if applicable.
IL.XIV.B.K6	Causes of asymmetric thrust conditions and appropriate responses.
IL.XIV.B.K7	Common errors related to this Task and their appropriate remedies.
Risk Management	*The applicant identifies, explains, and manages risk arising from:*
IL.XIV.B.R1	Planning for powerplant failure during takeoff.
IL.XIV.B.R2	Reaction to the loss of power from one powerplant.
IL.XIV.B.R3	Failing to achieve maximum deceleration.
IL.XIV.B.R4	Instruction of this Task.
Skills	*The applicant demonstrates and teaches how to:*
IL.XIV.B.S1	Recognize that a powerplant failure has occurred while performing a rolling takeoff.
IL.XIV.B.S2	Input the appropriate flight control(s) and configure the aircraft for maximum deceleration.
IL.XIV.B.S3	Maintain the operating powerplant(s) within acceptable operating limits.
IL.XIV.B.S4	Apply braking as appropriate.
IL.XIV.B.S5	Refer to the checklist to insure that the emergency procedure was followed correctly.
IL.XIV.B.S6	Make radio calls as appropriate.
IL.XIV.B.S7	Use SRM/CRM.
IL.XIV.B.S8	Correct errors, as applicable.

XIV. Emergency Operations

Task C. Inflight Powerplant Failure and Restart

Note:	*The evaluator selects at least two Tasks from A, B, C, E, F, G, H, I to be accomplished inflight and at least Task D or J to be evaluated orally on the ground from IL.XIV, Emergency Operations.*
References	*FAA-H-8083-2, FAA-H-8083-33; POH/RFM; QRH*
Objective	*To determine that the applicant understands the elements associated with inflight powerplant failure in a multi-engine aircraft and restart procedures as they relate to safety of flight and applies that knowledge when delivering ground or flight instruction.*
Note:	*See Appendix 6: Safety of Flight and Appendix 7: Aircraft, Equipment, and Operational Requirements &* Limitations for information related to this Task.
Knowledge	*The applicant demonstrates instructional knowledge by describing and explaining:*
IL.XIV.C.K1	Flight characteristics and controllability associated with maneuvering the aircraft with powerplant(s) inoperative.
IL.XIV.C.K2	Powerplant restart procedures and conditions where a restart attempt is appropriate.
IL.XIV.C.K3	Aircraft limitations.
IL.XIV.C.K4	Abnormal/emergency checklist associated with engine failure and restart.
IL.XIV.C.K5	Causes of asymmetric thrust conditions and appropriate responses.
IL.XIV.C.K6	Common errors related to this Task and their appropriate remedies.
Risk Management	*The applicant identifies, explains, and manages risk arising from:*
IL.XIV.C.R1	Planning for a powerplant failure during flight.
IL.XIV.C.R2	Diagnosing the cause of the powerplant failure.
IL.XIV.C.R3	Collision hazards, including aircraft, terrain, obstacles, wires, vehicles, vessels, persons, and wildlife.
IL.XIV.C.R4	Aircraft configuration and mode of flight.
IL.XIV.C.R5	Factors and situations that could lead to loss of control with an inflight powerplant failure.
IL.XIV.C.R6	Distractions, improper task management, loss of situational awareness, or disorientation.
IL.XIV.C.R7	Instruction of this Task.
Skills	*The applicant demonstrates and teaches how to:*
IL.XIV.C.S1	Recognize and correctly identify powerplant failure(s), maintain positive aircraft control while completing memory items, if applicable.
IL.XIV.C.S2	Use flight controls and configure the aircraft as required to maintain best performance or as recommended by the manufacturer.
IL.XIV.C.S3	Maintain the operating powerplant(s) within acceptable operating limits.
IL.XIV.C.S4	Determine the cause for the powerplant(s) failure and if restart is a viable option.
IL.XIV.C.S5	Demonstrate powerplant restart procedures in accordance with manufacturer or operator specified procedures and checklist.
IL.XIV.C.S6	After recovery from powerplant(s) failure conditions, maintain the airspeed ±10 knots, the specified heading ±10°, and altitude ±100 feet as specified by ATC or the evaluator.
IL.XIV.C.S7	Use SRM/CRM.
IL.XIV.C.S8	Correct errors, as applicable.

XIV. Emergency Operations

Task D. Vortex Ring State (VRS) Prevention and Recovery Procedure

Note:	*The evaluator selects at least two Tasks from A, B, C, E, F, G, H, I to be accomplished inflight and at least Task D or J to be evaluated orally on the ground from IL.XIV, Emergency Operations.*
References	*FAA-H-8083-33; POH/RFM*
Objective	*To determine that the applicant understands the elements associated with preventing the aircraft from entering and the procedure for recovering from Vortex Ring State (VRS) as they relate to safety of flight and applies that knowledge when delivering ground or flight instruction.*
Note:	*See Appendix 6: Safety of Flight and Appendix 7: Aircraft, Equipment, and Operational Requirements & Limitations.*
Knowledge	*The applicant demonstrates instructional knowledge by describing and explaining:*
IL.XIV.D.K1	Factors and situations that can lead to VRS and actions that can be taken to prevent it.
IL.XIV.D.K2	Causes of VRS.
IL.XIV.D.K3	Aircraft systems that aid the pilot in avoiding VRS.
IL.XIV.D.K4	Effects on the aircraft when entering VRS.
IL.XIV.D.K5	Asymmetric VRS, if applicable.
IL.XIV.D.K6	Control inputs and configuration changes to recover from VRS.
IL.XIV.D.K7	Common errors related to this Task and their appropriate remedies.
Risk Management	*The applicant identifies, explains, and manages risk arising from:*
IL.XIV.D.R1	Conditions for entering VRS.
IL.XIV.D.R2	Recognition of VRS.
IL.XIV.D.R3	Slow or incorrect recovery from VRS.
IL.XIV.D.R4	Instruction of this Task.
Skills	Intentionally left blank.

XIV. Emergency Operations

Task E. Approach and Landing with Simulated Powerplant Failure (Multiengine Aircraft Only)

Note:	*The evaluator selects at least two Tasks from A, B, C, E, F, G, H, I to be accomplished inflight and at least Task D or J to be evaluated orally on the ground from IL.XIV, Emergency Operations.*
References	*FAA-H-8083-2, FAA-H-8083-33; POH/RFM*
Objective	*To determine that the applicant understands the elements associated with approach and landing with simulated powerplant failure as they relate to safety of flight and applies that knowledge when delivering ground or flight instruction.*
Note:	*See Appendix 6: Safety of Flight and Appendix 7: Aircraft, Equipment, and Operational Requirements &* Limitations for information related to this Task.
Knowledge	*The applicant demonstrates instructional knowledge by describing and explaining:*
IL.XIV.E.K1	Immediate checklist items and emergency procedures.
IL.XIV.E.K2	Effects of atmospheric conditions on emergency approach and landing.
IL.XIV.E.K3	A stabilized approach, including energy management concepts.
IL.XIV.E.K4	ATC services to aircraft in distress.
IL.XIV.E.K5	Appropriate approach and landing profiles and aircraft configurations.
IL.XIV.E.K6	Causes of asymmetric thrust conditions and appropriate responses.
IL.XIV.E.K7	Common errors related to this Task and their appropriate remedies.
Risk Management	*The applicant identifies, explains, and manages risk arising from:*
IL.XIV.E.R1	Consideration of altitude, wind, terrain, obstructions, gliding distance, and available landing distance.
IL.XIV.E.R2	Planning and following a flightpath to the selected landing area.
IL.XIV.E.R3	Collision hazards, including aircraft, terrain, obstacles, wires, vehicles, vessels, persons, and wildlife.
IL.XIV.E.R4	Incorrect flight control input(s).
IL.XIV.E.R5	Low altitude maneuvering, including stall, spin, or CFIT.
IL.XIV.E.R6	Distractions, improper task management, loss of situational awareness, or disorientation.
IL.XIV.E.R7	Instruction of this Task.
Skills	*The applicant demonstrates and teaches how to:*
IL.XIV.E.S1	Maintain the operating powerplant within limits.
IL.XIV.E.S2	Establish and maintain the recommended flight profile, airspeed, ±10 knots and heading, ±5°.
IL.XIV.E.S3	Input the appropriate flight control(s) and configure the aircraft correctly.
IL.XIV.E.S4	Select a suitable landing area considering altitude, wind, terrain and obstructions.
IL.XIV.E.S5	Plan and follow a flightpath to the selected landing area considering altitude, wind, terrain, and obstructions.
IL.XIV.E.S6	Prepare for landing as specified by the evaluator.
IL.XIV.E.S7	Complete the appropriate checklist(s).
IL.XIV.E.S8	Use SRM/CRM.
IL.XIV.E.S9	Correct errors, as applicable.

XIV. Emergency Operations

Task F. Emergency Descent

Note:	*The evaluator selects at least two Tasks from A, B, C, E, F, G, H, I to be accomplished inflight and at least Task D or J to be evaluated orally on the ground from IL.XIV, Emergency Operations.*
References	*FAA-H-8083-2, FAA-H-8083-33; POH/RFM*
Objective	*To determine that the applicant understands the elements associated with emergency descent as they relate to safety of flight and applies that knowledge when delivering ground or flight instruction.*
Note:	*See Appendix 6: Safety of Flight.*
Knowledge	*The applicant demonstrates instructional knowledge by describing and explaining:*
IL.XIV.F.K1	Situations that require an emergency descent (e.g., depressurization, smoke, and fire).
IL.XIV.F.K2	Immediate action items and emergency procedures.
IL.XIV.F.K3	Aircraft limitations.
IL.XIV.F.K4	Common errors related to this Task and their appropriate remedies.
Risk Management	*The applicant identifies, explains, and manages risk arising from:*
IL.XIV.F.R1	Consideration of altitude, wind, and obstructions.
IL.XIV.F.R2	Collision hazards, including aircraft, terrain, obstacles, wires, vehicles, vessels, persons, and wildlife.
IL.XIV.F.R3	Incorrect flight control input(s) and aircraft configuration.
IL.XIV.F.R4	Distractions, improper task management, loss of situational awareness, or disorientation.
IL.XIV.F.R5	Instruction of this Task.
Skills	*The applicant demonstrates and teaches how to:*
IL.XIV.F.S1	Clear the area.
IL.XIV.F.S2	Establish and maintain the appropriate airspeed and configuration appropriate to the scenario specified by the evaluator and as covered in the manufacturer's flight manual for the emergency descent.
IL.XIV.F.S3	Demonstrate orientation, division of attention and proper planning.
IL.XIV.F.S4	Use bank angles between 30° and 45° to maintain positive load factors during the descent.
IL.XIV.F.S5	Maintain appropriate airspeed, +0/-10 knots, and level off at specified altitude, ±100 feet.
IL.XIV.F.S6	Make radio calls as appropriate.
IL.XIV.F.S7	Complete the appropriate checklist(s).
IL.XIV.F.S8	Use SRM/CRM.
IL.XIV.F.S9	Correct errors, as applicable.

XIV. Emergency Operations

Task G. Autorotation with Power Recovery (Single Powerplant Aircraft Only)

Note:	*The evaluator selects at least two Tasks from A, B, C, E, F, G, H, I to be accomplished inflight and at least Task D or J to be evaluated orally on the ground from IL.XIV, Emergency Operations.*
References	*FAA-H-8083-33; POH/RFM*
Objective	*To determine that the applicant understands the elements associated with autorotation with power recovery (applicable to single powerplant aircraft only) as they relate to safety of flight and applies that knowledge when delivering ground or flight instruction.*
Knowledge	*The applicant demonstrates instructional knowledge by describing and explaining:*
IL.XIV.G.K1	Glide and autorotative profiles, including energy management concepts.
IL.XIV.G.K2	Effects of atmospheric conditions, including wind and density altitude, and height velocity (H/V) information.
IL.XIV.G.K3	Undershooting or overshooting the selected landing area.
IL.XIV.G.K4	Rotor (Nr) rpm management.
IL.XIV.G.K5	Engine throttle control management during power recovery.
IL.XIV.G.K6	Emergency operating procedures.
IL.XIV.G.K7	Common errors related to this Task and their appropriate remedies.
Risk Management	*The applicant identifies, explains, and manages risk arising from:*
IL.XIV.G.R1	Entry altitude.
IL.XIV.G.R2	Delayed flight control inputs and aircraft configuration changes.
IL.XIV.G.R3	Rotor (Nr) rpm management.
IL.XIV.G.R4	Powerplant management.
IL.XIV.G.R5	Excessive rate of descent.
IL.XIV.G.R6	Vortex Ring State on power recovery.
IL.XIV.G.R7	Powerplant failure during recovery.
IL.XIV.G.R8	Collision hazards, including aircraft, terrain, obstacles, wires, vehicles, vessels, persons, and wildlife.
IL.XIV.G.R9	Delayed decision to go-around.
IL.XIV.G.R10	Low altitude maneuvering.
IL.XIV.G.R11	Distractions, improper task management, loss of situational awareness, or disorientation.
IL.XIV.G.R12	Instruction of this Task.
Skills	*The applicant demonstrates and teaches how to:*
IL.XIV.G.S1	Complete the appropriate checklist(s).
IL.XIV.G.S2	Make radio calls as appropriate.
IL.XIV.G.S3	Select a suitable touchdown area.
IL.XIV.G.S4	Clear the area.
IL.XIV.G.S5	Select an appropriate entry altitude.
IL.XIV.G.S6	Initiate the maneuver at the proper point.
IL.XIV.G.S7	Establish power-off glide with the aircraft properly trimmed and autorotation airspeed, ±10 knots.
IL.XIV.G.S8	Maintain rotor (Nr) rpm within normal limits.

IL.XIV.G.S9	Compensate for wind speed and direction as necessary to avoid undershooting or overshooting the selected landing area.
IL.XIV.G.S10	Utilize proper deceleration, collective pitch application that permits safe clearance between the aft fuselage and the surface.
IL.XIV.G.S11	Initiate proper powerplant power recovery.
IL.XIV.G.S12	Terminate autorotation to a stationary hover at the recommended hovering altitude within 200 feet of a designated point.
IL.XIV.G.S13	Use SRM/CRM.
IL.XIV.G.S14	Correct errors, as applicable.

XIV. Emergency Operations

Task H. Emergency Equipment and Survival Gear

Note:	*The evaluator selects at least two Tasks from A, B, C, E, F, G, H, I to be accomplished inflight and at least Task D or J to be evaluated orally on the ground from IL.XIV, Emergency Operations.*
References	*FAA-H-8083-2, FAA-H-8083-33; POH/RFM*
Objective	*To determine that the applicant understands the elements associated with emergency equipment and survival gear appropriate to the aircraft and environment, identifies appropriate equipment that should be onboard, and applies that knowledge when delivering ground or flight instruction.*
Knowledge	*The applicant demonstrates instructional knowledge by describing and explaining:*
IL.XIV.H.K1	Emergency Locator Transmitter (ELT) operations, limitations, and testing requirements.
IL.XIV.H.K2	Fire extinguisher operations and limitations.
IL.XIV.H.K3	Emergency equipment and survival gear needed for:
IL.XIV.H.K3a	a. Climate extremes (hot/cold)
IL.XIV.H.K3b	b. Mountainous terrain
IL.XIV.H.K3c	c. Overwater operations
IL.XIV.H.K4	Common errors related to this Task and their appropriate remedies.
Risk Management	*The applicant identifies, explains, and manages risk arising from:*
IL.XIV.H.R1	Planning for basic survival needs (water, clothing, shelter) for 48 to 72 hours.
IL.XIV.H.R2	Instruction of this Task.
Skills	*The applicant demonstrates and teaches how to:*
IL.XIV.H.S1	Identify appropriate equipment and personal gear.
IL.XIV.H.S2	Brief passengers on proper use of on-board emergency equipment and survival gear.
IL.XIV.H.S3	Correct errors, as applicable.

XIV. Emergency Operations

Task I. Systems and Equipment Malfunctions

Note:	*The evaluator selects at least two Tasks from A, B, C, E, F, G, H, I to be accomplished inflight and at least Task D or J to be evaluated orally on the ground from IL.XIV, Emergency Operations.*
References	*FAA-H-8083-2, FAA-H-8083-33; POH/RFM*
Objective	*To determine that the applicant understands the elements associated with causes, indications, and pilot actions for at least 3 system malfunctions determined by the evaluator as they relate to safety of flight and applies that knowledge when delivering ground or flight instruction.*
Knowledge	*The applicant demonstrates instructional knowledge by describing and explaining:*
IL.XIV.I.K1	Malfunction scenarios provided by the evaluator.
IL.XIV.I.K2	Common errors related to this Task and their appropriate remedies.
Risk Management	*The applicant identifies, explains, and manages risk arising from:*
IL.XIV.I.R1	Startle response.
IL.XIV.I.R2	Recognition of the malfunction scenario.
IL.XIV.I.R3	Distractions.
IL.XIV.I.R4	Checklist selection and completion.
IL.XIV.I.R5	Undesired aircraft state.
IL.XIV.I.R6	Instruction of this Task.
Skills	*The applicant demonstrates and teaches how to:*
IL.XIV.I.S1	Identify each malfunction correctly.
IL.XIV.I.S2	Respond appropriately to each simulated threat scenario (as briefed or initiated by the evaluator) while continuing to aviate, navigate and communicate.
IL.XIV.I.S3	Complete the appropriate checklist(s).
IL.XIV.I.S4	Use SRM/CRM.
IL.XIV.I.S5	Correct errors, as applicable.

XIV. Emergency Operations

Task J. Dynamic Rollover

Note:	*The evaluator selects at least two Tasks from A, B, C, E, F, G, H, I to be accomplished inflight and at least Task D or J to be evaluated orally on the ground from IL.XIV, Emergency Operations.*
References	*FAA-H-8083-2, FAA-H-8083-33; POH/RFM*
Objective	*To determine that the applicant understands the elements associated with dynamic rollover as they relate to safety of flight and applies that knowledge when delivering ground or flight instruction.*
Knowledge	*The applicant demonstrates instructional knowledge by describing and explaining:*
IL.XIV.J.K1	Aerodynamics of dynamic rollover.
IL.XIV.J.K2	Interactions between thrust, crosswind, slope, lateral CG, aircraft weight, cyclic, and collective pitch control in contributing to dynamic rollover.
IL.XIV.J.K3	Preventive flight technique and chain of recovery sequence during takeoffs, landings, and slope operations.
IL.XIV.J.K4	Common errors related to this Task and their appropriate remedies.
Risk Management	*The applicant identifies, explains, and manages risk arising from:*
IL.XIV.J.R1	Takeoff surface condition conducive to dynamic rollover.
IL.XIV.J.R2	Ability to ensure landing gear is clear of the surface.
IL.XIV.J.R3	Flight control inputs and restrictions to full movement to arrest rolling tendency during liftoff or landing.
IL.XIV.J.R4	Excessive sideward hover speeds.
IL.XIV.J.R5	Exceeding aircraft slope limitations.
IL.XIV.J.R6	Awareness of angle of bank and roll rate throughout the maneuver.
IL.XIV.J.R7	Compensation for translating tendency.
IL.XIV.J.R8	Instruction of this Task.
Skills	Intentionally left blank.

XV. Special Operations

Task A. Specific Flight Characteristics

Note:	*The evaluator selects at least two Tasks from IL.XV, Special Operations.*
References	*14 CFR part 61; FAA-H-8083-2, FAA-H-8083-33; FSB Report (type specific); POH/RFM*
Objective	*To determine that the applicant understands the elements associated with flight and performance characteristics unique to a specific aircraft type as they relate to safety of flight and applies that knowledge when delivering ground or flight instruction.*
Knowledge	*The applicant demonstrates instructional knowledge by describing and explaining:*
IL.XV.A.K1	All specific flight and performance characteristics and limitations associated with the aircraft.
IL.XV.A.K2	Common errors related to this Task and their appropriate remedies.
Risk Management	*The applicant identifies, explains, and manages risk arising from:*
IL.XV.A.R1	Specific flight and performance characteristics and their effects.
IL.XV.A.R2	Following improper procedures.
IL.XV.A.R3	Distractions, improper task management, loss of situational awareness, or disorientation.
IL.XV.A.R4	Instruction of this Task.
Skills	*The applicant demonstrates and teaches how to:*
IL.XV.A.S1	Complete the appropriate checklist(s).
IL.XV.A.S2	Configure the aircraft as directed by the evaluator, if applicable.
IL.XV.A.S3	Use appropriate techniques and procedures to enter into, operate within, and recover from specific flight situations.
IL.XV.A.S4	Use SRM/CRM.
IL.XV.A.S5	Correct errors, as applicable.

XV. Special Operations

Task B. Hover Out-of-Ground Effect (HOGE)

Note:	*The evaluator selects at least two Tasks from IL.XV, Special Operations.*
References	*FAA-H-8083-2, FAA-H-8083-33; POH/RFM*
Objective	*To determine that the applicant understands the elements associated with hovering out-of-ground effect (HOGE) as they relate to safety of flight and applies that knowledge when delivering ground or flight instruction.*
Note:	*If environmental or performance factors preclude OGE hovering, the applicant demonstrates knowledge and risk management elements only.*
Knowledge	*The applicant demonstrates instructional knowledge by describing and explaining:*
IL.XV.B.K1	Aerodynamics of OGE hover.
IL.XV.B.K2	Effects of wind, weight, and density altitude.
IL.XV.B.K3	Determining power available.
IL.XV.B.K4	Using performance charts to determine OGE capability.
IL.XV.B.K5	Common errors related to this Task and their appropriate remedies.
Risk Management	*The applicant identifies, explains, and manages risk arising from:*
IL.XV.B.R1	Operations within the shaded area of the height velocity (H/V) diagram.
IL.XV.B.R2	Power management.
IL.XV.B.R3	VRS.
IL.XV.B.R4	Downwash recirculation recovery.
IL.XV.B.R5	Instruction of this Task.
Skills	*The applicant demonstrates and teaches how to:*
IL.XV.B.S1	Clear the area.
IL.XV.B.S2	Ascend from an IGE hover to an OGE hover or terminate an approach at an OGE hover.
IL.XV.B.S3	Select and use appropriate reference points.
IL.XV.B.S4	Correct for drift.
IL.XV.B.S5	Conduct up to a 90° pedal turn (left or right) then return to original heading if safe to do so.
IL.XV.B.S6	Maintain OGE hover altitude ±10 percent of the selected hover altitude up to 500 feet AGL and ±50 feet above 500 feet AGL.
IL.XV.B.S7	Maintain position over the selected spot ±10 percent of the selected hover altitude up to 500 feet AGL and ± 50 feet above 500 feet AGL.
IL.XV.B.S8	Descend to an IGE hover using a safe descent rate and controlling drift or transition to forward flight, as appropriate.
IL.XV.B.S9	Correct errors, as applicable.

XV. Special Operations

Task C. Confined Area Operations

Note:	*The evaluator selects at least two Tasks from IL.XV, Special Operations.*
References	*FAA-H-8083-2, FAA-H-8083-33; POH/RFM*
Objective	*To determine that the applicant understands the elements associated with confined area operation as they relate to safety of flight and applies that knowledge when delivering ground or flight instruction.*
Knowledge	*The applicant demonstrates instructional knowledge by describing and explaining:*
IL.XV.C.K1	Effects of atmospheric conditions, including wind and density altitude on approach, landing, and takeoff performance.
IL.XV.C.K2	Situations when a confined area approach and landing is recommended and factors related to landing performance, including H/V diagram information.
IL.XV.C.K3	Elements of a proper high and low reconnaissance, including takeoff and departure planning.
IL.XV.C.K4	Common errors related to this Task and their appropriate remedies.
Risk Management	*The applicant identifies, explains, and manages risk arising from:*
IL.XV.C.R1	Selection of approach path, termination point and departure path based on pilot capability, aircraft performance and limitations, wind and availability of alternate sites.
IL.XV.C.R2	Effects of:
IL.XV.C.R2a	a. Crosswind
IL.XV.C.R2b	b. Windshear
IL.XV.C.R2c	c. Wake turbulence
IL.XV.C.R3	H/V diagram information.
IL.XV.C.R4	Go-around/rejected landing.
IL.XV.C.R5	Forced landing during approach.
IL.XV.C.R6	Collision hazards, including aircraft, terrain, obstacles, wires, vehicles, vessels, persons, and wildlife.
IL.XV.C.R7	VRS.
IL.XV.C.R8	Exceeding aircraft limitations.
IL.XV.C.R9	Low altitude maneuvering.
IL.XV.C.R10	Distractions, improper task management, loss of situational awareness, or disorientation.
IL.XV.C.R11	Instruction of this Task.
Skills	*The applicant demonstrates and teaches how to:*
IL.XV.C.S1	Complete the appropriate checklist(s).
IL.XV.C.S2	Make radio calls as appropriate.
IL.XV.C.S3	Ascertain wind direction with or without visible wind direction indicators.
IL.XV.C.S4	Accomplish a proper high and low reconnaissance of the confined landing area.
IL.XV.C.S5	Select a suitable approach path, termination point, and departure path.
IL.XV.C.S6	Track the selected approach path at an acceptable approach angle and rate of closure to the termination point.
IL.XV.C.S7	Continually evaluate the suitability of the confined landing area and termination point.
IL.XV.C.S8	Terminate in a hover or to a landing, as conditions allow.

IL.XV.C.S9	Accomplish a proper ground reconnaissance.
IL.XV.C.S10	Select a suitable takeoff point, considers factors affecting takeoff and climb performance under various conditions.
IL.XV.C.S11	Conduct a takeoff and departure using the appropriate technique and aircraft configuration.
IL.XV.C.S12	Use SRM/CRM.
IL.XV.C.S13	Correct errors, as applicable.

XV. Special Operations

Task D. Pinnacle/Platform Operations

Note:	*The evaluator selects at least two Tasks from IL.XV, Special Operations.*
References	*FAA-H-8083-2, FAA-H-8083-33; POH/RFM*
Objective	*To determine that the applicant understands the elements associated with pinnacle/platform operation as they relate to safety of flight and applies that knowledge when delivering ground or flight instruction.*
Knowledge	*The applicant demonstrates instructional knowledge by describing and explaining:*
IL.XV.D.K1	Effects of atmospheric conditions, including wind, on approach, landing, takeoff, and climb performance.
IL.XV.D.K2	Suitable takeoff point and departure flight path during climb.
IL.XV.D.K3	Situations when a pinnacle/platform approach, landing, and takeoff is recommended and factors related to aircraft performance.
IL.XV.D.K4	Appropriate techniques for pinnacle/platform operations.
IL.XV.D.K5	Elements of a proper high and low reconnaissance.
IL.XV.D.K6	Common errors related to this Task and their appropriate remedies.
Risk Management	*The applicant identifies, explains, and manages risk arising from:*
IL.XV.D.R1	Selection of approach path, termination point and departure path based on pilot capability, aircraft performance and limitations, and wind.
IL.XV.D.R2	Effects of:
IL.XV.D.R2a	a. Crosswind
IL.XV.D.R2b	b. Windshear
IL.XV.D.R2c	c. Wake turbulence
IL.XV.D.R3	H/V diagram information.
IL.XV.D.R4	Go-around/rejected landing.
IL.XV.D.R5	Forced landing during approach.
IL.XV.D.R6	Collision hazards, including aircraft, terrain, obstacles, wires, vehicles, vessels, persons, and wildlife.
IL.XV.D.R7	VRS.
IL.XV.D.R8	Landing surface.
IL.XV.D.R9	Low altitude maneuvering, including stall or CFIT.
IL.XV.D.R10	Distractions, improper task management, loss of situational awareness, or disorientation.
IL.XV.D.R11	Passenger access.
IL.XV.D.R12	Availability of a forced landing area.
IL.XV.D.R13	Instruction of this Task.
Skills	*The applicant demonstrates and teaches how to:*
IL.XV.D.S1	Complete the appropriate checklist(s).
IL.XV.D.S2	Make radio calls as appropriate.
IL.XV.D.S3	Accomplish proper high and low reconnaissance.
IL.XV.D.S4	Ascertain wind direction with or without visible wind direction indicators.
IL.XV.D.S5	Select a suitable approach path, termination point, and departure path.

IL.XV.D.S6	Select an approach path considering wind direction.
IL.XV.D.S7	Track the selected approach path at an acceptable approach angle and rate of closure to the termination point.
IL.XV.D.S8	Maintain aircraft within normal limits.
IL.XV.D.S9	Terminate in a hover or to a landing, as conditions allow.
IL.XV.D.S10	Select a suitable takeoff point, and consider factors affecting takeoff and climb performance under various conditions.
IL.XV.D.S11	Conduct a takeoff using the appropriate technique and aircraft configuration.
IL.XV.D.S12	Use SRM/CRM.
IL.XV.D.S13	Correct errors, as applicable.

XVI. Postflight Procedures

Task A. After Landing, Parking, and Securing

References	*FAA-H-8083-2, FAA-H-8083-33; POH/RFM*
Objective	*To determine that the applicant understands the elements associated with after landing, parking, and securing procedures as they relate to safety of flight and applies that knowledge when delivering ground or flight instruction.*
Knowledge	*The applicant demonstrates instructional knowledge by describing and explaining:*
IL.XVI.A.K1	Aircraft shutdown, securing, and postflight inspection.
IL.XVI.A.K2	Documenting in-flight/postflight discrepancies.
IL.XVI.A.K3	Common errors related to this Task and their appropriate remedies.
Risk Management	*The applicant identifies, explains, and manages risk arising from:*
IL.XVI.A.R1	Inappropriate activities and distractions.
IL.XVI.A.R2	Confirmation or expectation bias as related to taxi instructions.
IL.XVI.A.R3	Collision hazards, including aircraft, terrain, obstacles, wires, vehicles, vessels, persons, and wildlife.
IL.XVI.A.R4	Airport/heliport/helipad/landing area specific security procedures.
IL.XVI.A.R5	Disembarking passengers.
IL.XVI.A.R6	Instruction of this Task.
Skills	*The applicant demonstrates and teaches how to:*
IL.XVI.A.S1	Demonstrate taxiway/runway incursion avoidance procedures.
IL.XVI.A.S2	Park in an appropriate area considering the safety of nearby persons and property.
IL.XVI.A.S3	Complete the appropriate checklist(s).
IL.XVI.A.S4	Conduct a postflight inspection and document discrepancies and servicing requirements, if any.
IL.XVI.A.S5	Secure the aircraft.
IL.XVI.A.S6	Correct errors, as applicable.

Private Pilot – Balloon

Airman Certification Standards

Table of Contents

I. Preflight Preparation

Task A. Certificates and Documents

References	*14 CFR parts 43, 61, 91; BFM; FAA-H-8083-11, FAA-H-8083-25*
Objective	*To determine that the applicant exhibits satisfactory knowledge, risk management, and skills associated with certificates and documents.*
Knowledge	*The applicant demonstrates understanding of:*
PB.I.A.K1	Pilot certificate privileges and limitations.
PB.I.A.K2	Medical self-certification.
PB.I.A.K3	Pilot logbook or flight record required entries.
PB.I.A.K4	Locating and explaining:
PB.I.A.K4a	a. Airworthiness and registration certificates
PB.I.A.K4b	b. Operating limitations, placards, instrument markings, handbooks, and manuals
PB.I.A.K4c	c. Weight data, including the equipment list as appropriate
PB.I.A.K4d	d. Airworthiness directives and compliance records, maintenance/inspection requirements and appropriate records
Risk Management	*The applicant demonstrates the ability to identify, assess, and mitigate risks, encompassing:*
PB.I.A.R1	Failure to keep the aircraft in an airworthy condition (inspections registration and directives).
Skills	*The applicant demonstrates the ability to:*
PB.I.A.S1	Locate aircraft airworthiness and registration.
PB.I.A.S2	Determine the aircraft is airworthy in a scenario given by the evaluator.

I. Preflight Preparation

Task B. Weather Information

References	*AC 00-6, AC 00-45; AIM; BFM; FAA-H-8083-11, FAA-H-8083-25*
Objective	*To determine that the applicant exhibits satisfactory knowledge, risk management, and skills associated with the elements related to weather information for a flight.*
Knowledge	*The applicant demonstrates understanding of:*
PB.I.B.K1	Analyzing weather reports and forecasts from various sources of data (e.g., National Weather Service and Flight Service) for flight planning purposes with emphasis on:
Note	*Evaluator assesses at least sub-elements a, b, and l and five out of the thirteen sub-elements.*
PB.I.B.K1a	a. Surface wind
PB.I.B.K1b	b. Winds aloft
PB.I.B.K1c	c. Windshear
PB.I.B.K1d	d. SIGMETS, AIRMETS, and PIREPS
PB.I.B.K1e	e. Temperature and pressure variations
PB.I.B.K1f	f. Atmospheric stability
PB.I.B.K1g	g. Cloud formation
PB.I.B.K1h	h. Thunderstorm-associated turbulence
PB.I.B.K1i	i. Thermals
PB.I.B.K1j	j. Land and sea or lake breezes
PB.I.B.K1k	k. Orographic winds
PB.I.B.K1l	l. Fog
PB.I.B.K1m	m. False lift
PB.I.B.K2	Interpretation of forecasts, including temperature and dew point in a scenario given by the evaluator.
Risk Management	*The applicant demonstrates the ability to identify, assess, and mitigate risks, encompassing:*
PB.I.B.R1	Factors involved in determining a valid go/no-go decision.
PB.I.B.R2	Dynamic weather affecting flight (e.g., temperature inversion and convective outflow).
PB.I.B.R3	Limitations of aviation weather reports and forecasts.
PB.I.B.R4	Weather conditions for the planned flight (e.g., winds speeds, ceilings, visibility, temperature, dew point).
PB.I.B.R5	Personal weather minimums based on the parameters of the flight and determining when existing conditions exceed these minimums.
Skills	*The applicant demonstrates the ability to:*
PB.I.B.S1	Use available aviation weather and other weather resources to obtain adequate weather briefing.
PB.I.B.S2	Correlate available weather information to make a competent go/no-go decision.
PB.I.B.S3	Make a competent go/no-go decision based on available weather information.

I. Preflight Preparation

Task C. Flight Planning

References	*AIM; BFM; Chart Supplements; FAA-H-8083-11, FAA-H-8083-25; NOTAMs; Sectional Charts*
Objective	*To determine that the applicant exhibits satisfactory knowledge, risk management, and skills associated with flight planning.*
Knowledge	*The applicant demonstrates understanding of:*
PB.I.C.K1	Elements related to flight planning by presenting and explaining a preplanned flight of maximum duration, appropriate to the balloon used for the flight test, as previously assigned by the evaluator. The final flight plan includes real-time weather.
PB.I.C.K2	Using appropriate, local topographical maps, current paper aeronautical charts, or electronic flight bag.
PB.I.C.K3	Plotting a course for the intended route of flight based on the winds aloft forecast and surface winds.
PB.I.C.K4	Selecting the appropriate VHF communication frequencies, if radio equipped.
PB.I.C.K5	Identifying airspace, obstructions, and terrain features.
PB.I.C.K6	Selecting suitable landing areas.
PB.I.C.K7	Extracting and applying pertinent information from NOTAMS, Chart Supplements, and AIM, as necessary.
Risk Management	*The applicant demonstrates the ability to identify, assess, and mitigate risks, encompassing:*
PB.I.C.R1	Failure to plot a course properly considering change in wind direction.
PB.I.C.R2	Failure to use current aeronautical charts.
PB.I.C.R3	Flight in areas unsuitable for landing or below personal minimums.
Skills	*The applicant demonstrates the ability to:*
PB.I.C.S1	Prepare, present, and explain a flight plan, including a risk analysis based on real-time weather.
PB.I.C.S2	Use proper fuel management.

I. Preflight Preparation

Task D. National Airspace System

References	*14 CFR part 91; Aeronautical Charts; AIM; BFM; FAA-H-8083-11*
Objective	*To determine that the applicant exhibits satisfactory knowledge, risk management, and skills associated with the National Airspace System.*
Knowledge	*The applicant demonstrates understanding of:*
PB.I.D.K1	Basic VFR weather minimums for all classes of airspace.
PB.I.D.K2	Airspace classes, their boundaries and equipment requirements, including:
PB.I.D.K2a	a. Class A
PB.I.D.K2b	b. Class B
PB.I.D.K2c	c. Class C
PB.I.D.K2d	d. Class D
PB.I.D.K2e	e. Class E
PB.I.D.K2f	f. Class G
PB.I.D.K3	Special use airspace.
PB.I.D.K4	Temporary flight restrictions.
Risk Management	*The applicant demonstrates the ability to identify, assess, and mitigate risks, encompassing:*
PB.I.D.R1	Failure to recognize various classes of airspace and their boundaries.
PB.I.D.R2	Compliance with or avoidance of controlled airspace and special use airspace.
Skills	*The applicant demonstrates the ability to:*
PB.I.D.S1	Determine the requirements for basic VFR weather minimums and flying in particular classes of airspace.
PB.I.D.S2	Identify airspace properly and operate accordingly as it relates to communication and equipment requirements.

I. Preflight Preparation

Task E. Performance Limitations

References	*BFM; FAA-H-8083-11, FAA-H-8083-25*
Objective	*To determine that the applicant exhibits satisfactory knowledge, risk management, and skills associated with operating an aircraft safely within the parameters of its performance limitations per the flight manual.*
Knowledge	*The applicant demonstrates understanding of:*
PB.I.E.K1	Computing operating weight, maximum load and ambient temperature as related to maximum envelope temperature per flight manual.
PB.I.E.K2	Determining balloon performance, considering density altitude, wind, other weather-related conditions, and terrain.
PB.I.E.K3	Determining whether the computed performance is within the balloon's capabilities and operating limitations.
Risk Management	*The applicant demonstrates the ability to identify, assess, and mitigate risks, encompassing:*
PB.I.E.R1	Exceeding performance limitations (e.g., envelope temperature, accents and descents, and exceeding maximum weight) per flight manual.
Skills	*The applicant demonstrates the ability to:*
PB.I.E.S1	Calculate maximum allowable gross weight per flight manual by a scenario given by the evaluator.
PB.I.E.S2	Use aircraft manufacturer’s approved performance charts, tables, and data.

I. Preflight Preparation

Task F. Operation of Systems

References	*BFM; FAA-H-8083-11*
Objective	*To determine that the applicant exhibits satisfactory knowledge, risk management, and skills associated with safe operations of systems for the aircraft provided for flight test.*
Knowledge	*The applicant demonstrates understanding of:*
PB.I.F.K1	Fuel system and associated gauges.
PB.I.F.K2	Venting and/or deflation systems.
PB.I.F.K3	Flight instrument and gauges.
Risk Management	*The applicant demonstrates the ability to identify, assess, and mitigate risks, encompassing:*
PB.I.F.R1	Failure to identify a system malfunction or failure.
PB.I.F.R2	Failure to take appropriate action during emergencies.
PB.I.F.R3	Failure to recognize outside environmental factors and their effect on the system, including inadequate fuel pressure.
Skills	*The applicant demonstrates the ability to:*
PB.I.F.S1	Explain and operate aircraft systems.
PB.I.F.S2	Use checklist procedures.
PB.I.F.S3	Use immediate action for emergency procedures by a scenario given by the evaluator.

I. Preflight Preparation

Task G. Human Factors

References	*AIM; BFM; FAA-H-8083-11*
Objective	*To determine that the applicant exhibits satisfactory knowledge, risk management, and skills associated with personal health, aeromedical, and human factors, as they relate to safety of flight.*
Note	*The evaluator assesses at least K2 and three sub-elements from K1.*
Knowledge	*The applicant demonstrates understanding of:*
PB.I.G.K1	Symptoms, recognition, causes, effects, and corrective actions associated with aeromedical issues, including:
PB.I.G.K1a	a. Hypoxia
PB.I.G.K1b	b. Hyperventilation
PB.I.G.K1c	c. Middle ear and sinus problems
PB.I.G.K1d	d. Spatial disorientation
PB.I.G.K1e	e. Stress
PB.I.G.K1f	f. Fatigue
PB.I.G.K1g	g. Dehydration
PB.I.G.K2	Effects of alcohol, drugs, and over-the-counter medications, and associated regulations.
PB.I.G.K3	Effects of nitrogen excesses during scuba dives upon a pilot and/or passenger inflight.
Risk Management	*The applicant demonstrates the ability to identify, assess, and mitigate risks, encompassing:*
PB.I.G.R1	Effects of hazardous attitudes on aeronautical decision-making.
PB.I.G.R2	Failure to detect and manage threats and errors associated with human factors.
PB.I.G.R3	Distractions.
Skills	*The applicant demonstrates the ability to:*
PB.I.G.S1	Perform a self-assessment, including fitness for flight and personal minimums for actual flight by a scenario given by the evaluator.
PB.I.G.S2	Establish personal minimums.

II. Preflight Procedures

Task A. Launch Site Selection

References	*BFM; FAA-H-8083-11*
Objective	*To determine that the applicant exhibits satisfactory knowledge, risk management, and skills associated with launch site selection.*
Knowledge	*The applicant demonstrates understanding of:*
PB.II.A.K1	Elements related to launch site selection considering obstacles, wind, weather conditions, airspace considerations and potential landing sites.
Risk Management	*The applicant demonstrates the ability to identify, assess, and mitigate risks, encompassing:*
PB.II.A.R1	Failure to identify hazards, including obstacles, power lines, and change in wind conditions.
Skills	*The applicant demonstrates the ability to:*
PB.II.A.S1	Select a launch site with an emphasis on:
PB.II.A.S1a	a. Suitable landing areas
PB.II.A.S1b	b. Airspace considerations
PB.II.A.S1c	c. Surface wind and winds aloft assessment
PB.II.A.S1d	d. Accessibility
PB.II.A.S1e	e. Surface condition
PB.II.A.S1f	f. Size
PB.II.A.S1g	g. Hazards and obstacles in the vicinity of the site
PB.II.A.S2	Make a competent go/no-go decision considering all of the factors involved in the selection of a safe launch site.

II. Preflight Procedures

Task B. Crew Briefing and Preparation

References	*BFM; FAA-H-8083-11*
Objective	*To determine that the applicant exhibits satisfactory knowledge, risk management, and skills associated with the elements related to crew briefing and preparation.*
Knowledge	*The applicant demonstrates understanding of:*
PB.II.B.K1	Designating a crew chief, as appropriate, and assigning each crewmember specific duties and responsibilities, considering the experience.
Risk Management	*The applicant demonstrates the ability to identify, assess, and mitigate risks, encompassing:*
PB.II.B.R1	Failure to brief crew properly prior to flight (e.g., runway incursion avoidance, layout and assembly, inflation, tie off, inflation fan, proposed direction of flight, estimated time aloft and landing and recovery and emergency procedures).
PB.II.B.R2	Failure to supervise and coordinate all crew activities properly.
PB.II.B.R3	Failure to brief chase driver on hazards specific to balloon chase operations.
Skills	*The applicant demonstrates the ability to:*
PB.II.B.S1	Brief crewmembers prior to flight (e.g., runway incursion avoidance, layout and assembly, inflation, tie off, inflation fan, proposed direction of flight, estimated time aloft, landing and emergency procedures).
PB.II.B.S2	Establish a common means of communication, including hand signals and two-way radio.
PB.II.B.S3	Ensure that all necessary equipment is onboard.
PB.II.B.S4	Supervise and coordinate all activities.
PB.II.B.S5	Complete an appropriate checklist.

II. Preflight Procedures

Task C. Layout and Assembly

References	*BFM; FAA-H-8083-11*
Objective	*To determine that the applicant exhibits satisfactory knowledge, risk management, and skills associated with layout and assembly on the chosen launch site.*
Knowledge	*The applicant demonstrates understanding of:*
PB.II.C.K1	Positioning balloon properly considering wind conditions and obstacles.
Risk Management	*The applicant demonstrates the ability to identify, assess, and mitigate risks, encompassing:*
PB.II.C.R1	Failure to position balloon properly considering wind conditions and obstacles.
PB.II.C.R2	Failure to check fuel systems for security, leaks, and correct fuel pressure.
Skills	*The applicant demonstrates the ability to:*
PB.II.C.S1	Position balloon properly considering wind conditions and obstacles.
PB.II.C.S2	Check fuel system for security, leaks, and correct fuel pressure.
PB.II.C.S3	Use tie-off to a proper anchor.
PB.II.C.S4	Assemble balloon, as appropriate.
PB.II.C.S5	Complete an appropriate checklist.

II. Preflight Procedures

Task D. Preflight Inspection

References	*BFM; FAA-H-8083-11*
Objective	*To determine that the applicant exhibits satisfactory knowledge, risk management, and skills associated with element of preflight inspection.*
Knowledge	*The applicant demonstrates understanding of:*
PB.II.D.K1	Elements related to visual inspection, including items to inspect, the reasons for checking each item, and how to detect possible malfunction.
PB.II.D.K2	Elements related to preventative maintenance.
Risk Management	*The applicant demonstrates the ability to identify, assess, and mitigate risks, encompassing:*
PB.II.D.R1	Failure to identify system malfunction or failure during visual inspection with appropriate checklist.
PB.II.D.R2	Failure to determine airworthiness of inoperative equipment by a scenario given by the evaluator.
PB.II.D.R3	Distractions during pre-flight inspection.
Skills	*The applicant demonstrates the ability to:*
PB.II.D.S1	Inspect the balloon with reference to the checklist, emphasizing the:
PB.II.D.S1a	a. Basket
PB.II.D.S1b	b. Burner
PB.II.D.S1c	c. Fuel system
PB.II.D.S1d	d. Flight instruments
PB.II.D.S1e	e. Envelope
PB.II.D.S1f	f. Venting and/or deflation systems
PB.II.D.S2	Verify the balloon is in condition for safe flight.
PB.II.D.S2	Complete the appropriate checklist.

II. Preflight Procedures

Task E. Inflation

References	*BFM; FAA-H-8083-11*
Objective	*To determine that the applicant exhibits satisfactory knowledge, risk management, and skills associated with inflation.*
Knowledge	*The applicant demonstrates understanding of:*
PB.II.E.K1	Importance of briefing passengers prior to inflation.
PB.II.E.K2	Elements related to a smooth and controlled inflation.
Risk Management	*The applicant demonstrates the ability to identify, assess, and mitigate risks, encompassing:*
PB.II.E.R1	Danger of possible damage to the envelope or harm to the crew.
Skills	*The applicant demonstrates the ability to:*
PB.II.E.S1	Accomplish the proper tie-off procedures.
PB.II.E.S2	Inflate the balloon to equilibrium.
PB.II.E.S3	Position and secure the vent/deflation line.
PB.II.E.S4	Complete the checklist, as appropriate.

II. Preflight Procedures

Task F. Pre-Launch

References	*BFM; FAA-H-8083-11*
Objective	*To determine that the applicant exhibits satisfactory knowledge, risk management, and skills associated with elements of pre-launch check.*
Knowledge	*The applicant demonstrates understanding of:*
PB.II.F.K1	Elements related to the pre-launch, including reasons for checking each item and how to detect malfunctions.
Risk Management	*The applicant demonstrates the ability to identify, assess, and mitigate risks, encompassing:*
PB.II.F.R1	Failure to recognize and detect malfunctions or assembly procedures on launch.
PB.II.F.R2	Improper task management before launch.
Skills	*The applicant demonstrates the ability to:*
PB.II.F.S1	Review wind conditions, temperatures, and obstructions.
PB.II.F.S2	Divide attention inside and outside the basket/gondola.
PB.II.F.S3	Perform final instrument check.
PB.II.F.S4	Ensure that the vent/deflation lines are positioned and secured properly.
PB.II.F.S5	Establish equilibrium.
PB.II.F.S6	Accomplish the pre-launch check and confirm that the balloon is in safe operating condition and ensure all loose items have been secured.
PB.II.F.S7	Accomplish final coordination with the ground crew, including signals and emergency procedures.
PB.II.F.S8	Brief passengers on the proper boarding, inflight, and landing behavior and procedures.
PB.II.F.S9	Assure no conflicts with air traffic prior to launch.
PB.II.F.S10	Complete the checklist, as appropriate.

III. Airport Operations

Task A. Communications and Light Signals

References	*AIM; BFM; FAA-H-8083-11, FAA-H-8083-25*
Objective	*To determine that the applicant exhibits satisfactory knowledge, risk management, and skills associated communication and light signals.*
Knowledge	*The applicant demonstrates understanding of:*
PB.III.A.K1	Elements of radio communications and ATC light signals.
PB.III.A.K2	Runway/taxiway incursion avoidance.
PB.III.A.K3	National Transportation Safety Board (NTSB) accident/incident reporting.
Risk Management	*The applicant demonstrates the ability to identify, assess, and mitigate risks, encompassing:*
PB.III.A.R1	Failure to communicate with ATC and risk associated with interfering with other air traffic.
PB.III.A.R2	Runway/taxiway incursion, including crew and chase vehicle.
Skills	*The applicant demonstrates the ability to:*
PB.III.A.S1	Select appropriate frequencies.
PB.III.A.S2	Transmit using recommended phraseology.
PB.III.A.S3	Acknowledge radio communication and comply with instructions.
PB.III.A.S4	Interpret and comply with instructions and ATC light signals, as appropriate.

IV. Launches and Landings

Task A. Normal Launch

References	*BFM; FAA-H-8083-11*
Objective	*To determine that the applicant exhibits satisfactory knowledge, risk management, and skills associated with normal launch.*
Knowledge	*The applicant demonstrates understanding of:*
PB.IV.A.K1	Effects of wind conditions on launch.
PB.IV.A.K2	Importance of maintaining situational awareness of power lines and other obstacles upon launch.
Risk Management	*The applicant demonstrates the ability to identify, assess, and mitigate risks, encompassing:*
PB.IV.A.R1	Failure to brief crew to clear the aircraft on launch.
PB.IV.A.R2	Failure to recognize obstructions, power lines, and changes in weather conditions.
PB.IV.A.R3	Excessive rate of ascent.
Skills	*The applicant demonstrates the ability to:*
PB.IV.A.S1	Direct ground crew to clear the area.
PB.IV.A.S2	Checks that ground crew complied with instructions and is clear of the aircraft.
PB.IV.A.S3	Recognize equilibrium and demonstrate awareness of obstructions and power lines prior to launch.
PB.IV.A.S4	Correctly use tie-off.
PB.IV.A.S5	Recognize presence of false lift and wind conditions.
PB.IV.A.S6	Coordinate liftoff and initial ascent.
PB.IV.A.S7	Complete the checklist, as appropriate.

IV. Launches and Landings

Task B. Launch over an Obstacle

References	*BFM; FAA-H-8083-11*
Objective	*To determine that the applicant exhibits satisfactory knowledge, risk management, and skills associated with launch over an obstacle.*
Knowledge	*The applicant demonstrates understanding of:*
PB.IV.B.K1	Power line and obstruction avoidance.
Risk Management	*The applicant demonstrates the ability to identify, assess, and mitigate risks, encompassing:*
PB.IV.B.R1	Failure to maintain situational awareness and not recognizing the distance to the obstacle relative to the wind speed.
Skills	*The applicant demonstrates the ability to:*
PB.IV.B.S1	Determine height of the obstacle.
PB.IV.B.S2	Consider the distance to the obstacle relative to the wind conditions.
PB.IV.B.S3	Recognize the presence of false lift.
PB.IV.B.S4	Act decisively as to clear the obstacle safely.
PB.IV.B.S5	Complete the checklist, as appropriate.

IV. Launches and Landings

Task C. Approach to Landing

References	*BFM; FAA-H-8083-11*
Objective	*To determine that the applicant exhibits satisfactory knowledge, risk management, and skills associated with approach to landing.*
Knowledge	*The applicant demonstrates understanding of:*
PB.IV.C.K1	Factors to ensure a safe landing (safe landing area, obstacles, wind conditions, and the safety of passengers).
Risk Management	*The applicant demonstrates the ability to identify, assess, and mitigate risks, encompassing:*
PB.IV.C.R1	Failure to select the appropriate landing area based on obstructions, power lines, and wind conditions.
PB.IV.C.R2	Failure to brief passengers prior to landing.
Skills	*The applicant demonstrates the ability to:*
PB.IV.C.S1	Consider the wind conditions, landing area, obstructions, and select the most suitable touchdown point.
PB.IV.C.S2	Establish the appropriate approach profile and rate(s) of descent.
PB.IV.C.S3	Ensure that each passenger is thoroughly briefed and positioned properly in accordance with landing conditions.
PB.IV.C.S4	Stow loose articles and secure equipment, as appropriate.
PB.IV.C.S5	Make a timely decision to abort the approach, if necessary.
PB.IV.C.S6	Complete the checklist, as appropriate.

IV. Launches and Landings

Task D. Normal Landing

References	*BFM; FAA-H-8083-11*
Objective	*To determine that the applicant exhibits satisfactory knowledge, risk management, and skills associated with normal landing.*
Knowledge	*The applicant demonstrates understanding of:*
PB.IV.D.K1	Burner controls and vent/deflation system and limitations.
Risk Management	*The applicant demonstrates the ability to identify, assess, and mitigate risks, encompassing:*
PB.IV.D.R1	Failure to maintain situational awareness regarding avoiding obstacles, power lines, and changing wind conditions prior to landing.
Skills	*The applicant demonstrates the ability to:*
PB.IV.D.S1	Brief passengers prior to landing.
PB.IV.D.S2	Prepare vent/deflation line system for use.
PB.IV.D.S3	Touch down within the designated area or abort the landing and ascend as specified by the evaluator.
PB.IV.D.S4	Use burner controls and vent/deflation system properly to stabilize balloon on touchdown.
PB.IV.D.S5	Stabilize balloon prior to passengers exiting.
PB.IV.D.S6	Complete the checklist, as appropriate.

IV. Launches and Landings

Task E. High-Wind Landing

References	*BFM; FAA-H-8083-11*
Objective	*To determine that the applicant exhibits satisfactory knowledge, risk management, and skills associated with high-wind landing.*
Note	*If high-wind landing conditions do not exist, the applicant's knowledge of the Task is evaluated through oral testing.*
Knowledge	*The applicant demonstrates understanding of:*
PB.IV.E.K1	Proper procedures for a high-wind landing, including burner use, vent/deflation line, and pilot light.
Risk Management	*The applicant demonstrates the ability to identify, assess, and mitigate risks, encompassing:*
PB.IV.E.R1	Failure to recognize obstructions or power lines prior to landing.
PB.IV.E.R2	Failure to brief passengers for a high-wind landing properly.
PB.IV.E.R3	Dangers of not shutting down burner system properly prior to high-wind landing.
Skills	*The applicant demonstrates the ability to:*
PB.IV.E.S1	Brief passengers properly for a high-wind landing.
PB.IV.E.S2	Identify hazards associated with a high-wind landing.
PB.IV.E.S3	Prepare vent/deflation system for use.
PB.IV.E.S4	Use burner controls and vent/deflation to land balloon in a controlled manner.
PB.IV.E.S5	Touch down within the designated area or abort the landing as specified by the evaluator.
PB.IV.E.S6	Extinguish pilot light at the appropriate time.
PB.IV.E.S7	Complete the checklist, as appropriate.

V. Performance Maneuvers

Task A. Ascents

References	*BFM; FAA-H-8083-11*
Objective	*To determine that the applicant exhibits satisfactory knowledge, risk management, and skills associated with ascents.*
Knowledge	*The applicant demonstrates understanding of:*
PB.V.A.K1	Relationship of envelope temperature to rate of ascent.
Risk Management	*The applicant demonstrates the ability to identify, assess, and mitigate risks, encompassing:*
PB.V.A.R1	Excessive rate of ascent.
Skills	*The applicant demonstrates the ability to:*
PB.V.A.S1	Transition from level flight to ascent when directed by the evaluator.
PB.V.A.S2	Determine an appropriate ascent rate and maintain at ±100 feet (30 meters) per minute.
PB.V.A.S3	Transition from ascent to level flight at an altitude declared by the applicant ±100 feet (30 meters).
PB.V.A.S4	Complete the checklist, as appropriate.

V. Performance Maneuvers

Task B. Altitude Control (Level Flight)

References	*BFM; FAA-H-8083-11*
Objective	*To determine that the applicant exhibits satisfactory knowledge, risk management, and skills associated with altitude control in level flight.*
Knowledge	*The applicant demonstrates understanding of:*
PB.V.B.K1	Use of burner controls to maintain level flight.
Risk Management	*The applicant demonstrates the ability to identify, assess, and mitigate risks, encompassing:*
PB.V.B.R1	Failure to recognize vertical movement not maintain level flight.
Skills	*The applicant demonstrates the ability to:*
PB.V.B.S1	Recognize vertical movement.
PB.V.B.S2	Smoothly maintain equilibrium by pacing of burner controls.
PB.V.B.S3	Use instruments appropriately to assist in altitude control.
PB.V.B.S4	Maintain declared altitude ±100 feet (30 meters).
PB.V.B.S5	Complete the checklist, as appropriate.

V. Performance Maneuvers

Task C. Descents

References	*BFM; FAA-H-8083-11*
Objective	*To determine that the applicant exhibits satisfactory knowledge, risk management, and skills associated with descents.*
Knowledge	*The applicant demonstrates understanding of:*
PB.V.C.K1	Use of burner controls to descend.
Risk Management	*The applicant demonstrates the ability to identify, assess, and mitigate risks, encompassing:*
PB.V.C.R1	Excessive rate of descent.
PB.V.C.R2	Failure to consider altitude, wind, terrain, obstacles, and power lines.
Skills	*The applicant demonstrates the ability to:*
PB.V.C.S1	Transition from level flight to descent when directed by the evaluator.
PB.V.C.S2	Determine an appropriate decent rate and maintain at ±100 feet (30 meters) per minute.
PB.V.C.S3	Transition from descent to level flight at an altitude declared by the applicant, ±100 feet (30 meters).
PB.V.C.S4	Complete the checklist, as appropriate.

V. Performance Maneuvers

Task D. Contour Flying

References	*BFM; FAA-H-8083-11*
Objective	*To determine that the applicant exhibits satisfactory knowledge, risk management, and skills associated with contour flying.*
Knowledge	*The applicant demonstrates understanding of:*
PB.V.D.K1	Contour flying techniques.
PB.V.D.K2	Minimum safe altitudes.
Risk Management	*The applicant demonstrates the ability to identify, assess, and mitigate risks, encompassing:*
Note	*The evaluator assesses risk management elements 1, 2, and 3.*
PB.V.D.R1	Failure to use scanning techniques to recognize obstructions and power lines.
PB.V.D.R2	Operating at lower than minimum safe altitudes.
PB.V.D.R3	Failure to maintain adequate clearance for livestock and other animals.
Skills	*The applicant demonstrates the ability to:*
PB.V.D.S1	Use all controls properly to maintain the desired altitude, based on the appropriate clearance over terrain and obstacles.
PB.V.D.S2	Consider the effects of wind gust, wind shear, and thermal activity on orographic conditions.
PB.V.D.S3	Allow adequate clearance for livestock and other animals.
PB.V.D.S4	Divide attention between balloon control, ground track and forward surveillance for obstructions and power lines.

V. Performance Maneuvers

Task E. Obstruction Clearance

References	*BFM; FAA-H-8083-11*
Objective	*To determine that the applicant exhibits satisfactory knowledge, risk management, and skills associated with obstruction clearance.*
Knowledge	*The applicant demonstrates understanding of:*
PB.V.E.K1	Proper scanning techniques.
PB.V.E.K2	Proper collision avoidance procedures.
Risk Management	*The applicant demonstrates the ability to identify, assess, and mitigate risks, encompassing:*
PB.V.E.R1	Failure to maintain situational awareness to see and avoid obstructions and power lines.
PB.V.E.R2	Failure to use proper procedures when a collision is imminent.
Skills	*The applicant demonstrates the ability to:*
PB.V.E.S1	Recognize obstructions, including power lines, and allow time to take appropriate action.
PB.V.E.S2	Avoid obstructions, including power lines.
PB.V.E.S3	Avoid an imminent collision.

V. Performance Maneuvers

Task F. Tethering

References	*BFM; FAA-H-8083-11*
Objective	*To determine that the applicant exhibits satisfactory knowledge and risk management associated with tethering.*
Note	*The applicant's knowledge of this Task is evaluated through oral testing.*
Knowledge	*The applicant demonstrates understanding of:*
PB.V.F.K1	Proper recognition of wind conditions and obstructions.
PB.V.F.K2	Recognition of the effects of false lift and wind gusts.
PB.V.F.K3	Recommended tethering procedure, with emphasis on utilizing an adequate number of appropriate tether lines of adequate strength in the proper location.
PB.V.F.K4	Briefing for ground crewmembers, communication, weight off procedures, including crowd control.
PB.V.F.K5	Importance of passenger briefing.
Risk Management	*The applicant demonstrates the ability to identify, assess, and mitigate risks, encompassing:*
PB.V.F.R1	Failure to use proper tethering procedures per flight manual, as applicable.
PB.V.F.R2	Failure to brief crew and passengers properly.
PB.V.F.R3	Failure to ensure crew, passengers, and crowd properly follow instructions.
Skills	*Intentionally left blank.*

V. Performance Maneuvers

Task G. Winter Flying

References	*BFM; FAA-H-8083-11*
Objective	*To determine that the applicant exhibits satisfactory knowledge, risk management, and skills associated with winter flying.*
Note	*If winter flying conditions do not exist, the applicant's knowledge of the Task is evaluated through oral testing.*
Knowledge	*The applicant demonstrates understanding of:*
PB.V.G.K1	Proper preparation, equipment, and survival supplies necessary for flight in cold temperatures.
PB.V.G.K2	Proper methods for determining adequate fuel pressure and pressurizing fuel tanks.
PB.V.G.K3	Added concerns for fuel vaporization, leaks, and risk of fire during cold weather.
Risk Management	*The applicant demonstrates the ability to identify, assess, and mitigate risks, encompassing:*
PB.V.G.R1	Failure to pressurize tanks properly.
PB.V.G.R2	Failure to plan for basic needs (e.g., clothing and water for pilot and crew).
Skills	*The applicant demonstrates the ability to:*
PB.V.G.S1	Prepare equipment and supplies for cold weather flight.

V. Performance Maneuvers

Task H. Mountain Flying

References	*BFM; FAA-H-8083-11*
Objective	*To determine that the applicant exhibits satisfactory knowledge, risk management, and skills associated with mountain flying.*
Note	*If mountain flying conditions do not exist, the applicant's knowledge of the Task is evaluated through oral testing.*
Knowledge	*The applicant demonstrates understanding of:*
PB.V.H.K1	Proper preparation, equipment, and survival supplies necessary for flight over mountainous terrain.
PB.V.H.K2	Accessibility to landing areas.
PB.V.H.K3	Recognition of cloud formations and implications for turbulence in mountainous terrain.
PB.V.H.K4	Caution required as it relates to windshear encounters and possible rapid weather changes.
Risk Management	*The applicant demonstrates the ability to identify, assess, and mitigate risks, encompassing:*
PB.V.H.R1	Failure to prepare properly for flying mountainous terrain for pilot and crew.
PB.V.H.R2	Failure to recognize dangers of mountain weather.
Skills	*The applicant demonstrates the ability to:*
PB.V.H.S1	Prepare equipment and supplies for mountain flying.
PB.V.H.S2	Recognize rapid changes in weather conditions for mountain flying.

VI. Navigation

Task A. Navigation

References	*BFM; FAA-H-8083-11*
Objective	*To determine that the applicant exhibits satisfactory knowledge, risk management, and skills associated with navigation.*
Knowledge	*The applicant demonstrates understanding of:*
PB.VI.A.K1	Airspace and altitude restrictions.
Risk Management	*The applicant demonstrates the ability to identify, assess, and mitigate risks, encompassing:*
PB.VI.A.R1	Failure to determine the balloon's current position in the National Airspace System (NAS).
PB.VI.A.R2	Failure to determine the balloon's projected course in the NAS.
PB.VI.A.R3	Failure to identify the differences in planned course and actual track.
Skills	*The applicant demonstrates the ability to:*
PB.VI.A.S1	Identify airspace and altitude restrictions.
PB.VI.A.S2	Recognize the preplanned course by reference to landmarks.
PB.VI.A.S3	Identify landmarks by relating surface features to chart symbols.
PB.VI.A.S4	Verify the balloon's position at all times.
PB.VI.A.S5	Manage fuel properly.
PB.VI.A.S6	Determine the duration of the flight, considering:
PB.VI.A.S6a	a. Availability of suitable landing areas
PB.VI.A.S6b	b. Fuel consumption
PB.VI.A.S6c	c. Wind and other atmospheric conditions
PB.VI.A.S6d	d. Obstructions
PB.VI.A.S6e	e. Payload
PB.VI.A.S7	Note the differences, if any, between pre-flight planning and the actual flight.
PB.VI.A.S8	Complete the checklist, as appropriate.

VII. Emergency Operations

Task A. Systems and Equipment Malfunctions

References	*BFM; FAA-H-8083-11*
Objective	*To determine that the applicant exhibits satisfactory knowledge, risk management, and skills associated with equipment malfunction.*
Knowledge	*The applicant demonstrates understanding of:*
PB.VII.A.K1	Appropriate action related to the systems and equipment malfunction appropriate to the balloon used for the practical test.
Risk Management	*The applicant demonstrates the ability to identify, assess, and mitigate risks, encompassing:*
PB.VII.A.R1	Failure to identify malfunction or failure.
PB.VII.A.R2	Failure to use proper procedures for system malfunction or failure per the flight manual.
PB.VII.A.R3	Failure to control the aircraft while handling the emergency.
Skills	*The applicant demonstrates the ability to:*
PB.VII.A.S1	Analyze the situation and take the appropriate action for simulated emergencies, including:
PB.VII.A.S1a	a. Pilot light flameout or failure
PB.VII.A.S1b	b. Blast valve failure
PB.VII.A.S1c	c. Fuel exhaustion
PB.VII.A.S1d	d. Propane leak
PB.VII.A.S1e	e. Envelope failure
PB.VII.A.S1f	f. Any other system and equipment malfunction appropriate to the balloon provided for the flight test
PB.VII.A.S2	Follow the appropriate emergency procedures.

VII. Emergency Operations

Task B. Emergency Equipment and Survival Gear

References	*BFM; FAA-H-8083-11*
Objective	*To determine that the applicant exhibits satisfactory knowledge, risk management, and skills associated with emergency equipment and survival gear.*
Knowledge	*The applicant demonstrates understanding of:*
PB.VII.B.K1	Use and purpose of emergency equipment and survival gear appropriate to the balloon provided for the practical test.
Risk Management	*The applicant demonstrates the ability to identify, assess, and mitigate risks, encompassing:*
PB.VII.B.R1	Failure to plan for basic physiological needs (e.g., water, clothing, shelter).
PB.VII.B.R2	Failure to plan for basic emergencies.
Skills	*The applicant demonstrates the ability to:*
PB.VII.B.S1	Identify the following for each required item of emergency equipment or survival gear:
PB.VII.B.S1a	a. Location and purpose
PB.VII.B.S1b	b. Method of operation or use
PB.VII.B.S1c	c. Service requirements
PB.VII.B.S1d	d. Method of safe storage
PB.VII.B.S1e	e. Equipment and survival gear appropriate for operation in various climates and topographical environments
PB.VII.B.S2	Follow the appropriate emergency procedures.

VII. Emergency Operations

Task C. Water Landing

References	*BFM; FAA-H-8083-11*
Objective	*To determine that the applicant exhibits satisfactory knowledge and risk management associated with water landing.*
Note	*The applicant's knowledge of this Task is evaluated through oral testing.*
Knowledge	*The applicant demonstrates understanding of:*
PB.VII.C.K1	Emergency conditions under which water landings are necessary.
PB.VII.C.K2	Effect of wind direction and speed and water current.
PB.VII.C.K3	Preparation required for contact with water, including briefing passengers.
PB.VII.C.K4	Procedure to be used for actual water landing.
PB.VII.C.K5	Buoyancy as it relates to water landing in a balloon.
Risk Management	*The applicant demonstrates the ability to identify, assess, and mitigate risks, encompassing:*
PB.VII.C.R1	Failure to prepare passengers and aircraft properly for a water landing.
Skills	*Intentionally left blank.*

VII. Emergency Operations

Task D. Thermal Flight

References	*BFM; FAA-H-8083-11*
Objective	*To determine that the applicant exhibits satisfactory knowledge, risk management, and skills associated with thermal flight.*
Note	*If thermal flight conditions do not exist, the applicant's knowledge of the Task is evaluated through oral testing.*
Knowledge	*The applicant demonstrates understanding of:*
PB.VII.D.K1	Causes of thermal activity.
PB.VII.D.K2	Effects of thermal activity on balloon flight.
PB.VII.D.K3	Procedures to be used upon encountering thermal activity.
Risk Management	*The applicant demonstrates the ability to identify, assess, and mitigate risks, encompassing:*
PB.VII.D.R1	Failure to take recognize thermal activity.
PB.VII.D.R2	Failure to take appropriate action when in thermal activity.
Skills	*The applicant demonstrates the ability to:*
PB.VII.D.S1	Recognize convective conditions and associated hazards and take appropriate corrective action.

VIII. Postflight Procedures

Task A. Recovery and Landowner Relations

References	*BFM; FAA-H-8083-11*
Objective	*To determine that the applicant exhibits satisfactory knowledge, risk management, and skills associated with recovery and landowner relations.*
Knowledge	*The applicant demonstrates understanding of:*
PB.VIII.A.K1	Landowner relations during recovery.
Risk Management	*The applicant demonstrates the ability to identify, assess, and mitigate risks, encompassing:*
PB.VIII.A.R1	Failure to supervise crew and get landowner permission.
PB.VIII.A.R2	Failure to direct crew on proper procedures on walking the balloon to an alternate deflation site.
Skills	*The applicant demonstrates the ability to:*
PB.VIII.A.S1	Coordinate landing and recovery with landowner, as appropriate.
PB.VIII.A.S2	Minimize property damage during recovery.
PB.VIII.A.S3	Supervise ground crew during recovery, including vehicle and spectator control.
PB.VIII.A.S4	Complete the appropriate checklist.

VIII. Postflight Procedures

Task B. Deflation and Packing

References	*BFM; FAA-H-8083-11*
Objective	*To determine that the applicant exhibits satisfactory knowledge, risk management, and skills associated with deflation and packing.*
Knowledge	*The applicant demonstrates understanding of:*
PB.VIII.B.K1	Proper procedures for deflation and packing.
Risk Management	*The applicant demonstrates the ability to identify, assess, and mitigate risks, encompassing:*
PB.VIII.B.R1	Failure to safely deflate the balloon and disassemble and securely pack envelope, burner, and components.
Skills	*The applicant demonstrates the ability to:*
PB.VIII.B.S1	Ensure the fuel system is secure.
PB.VIII.B.S2	Deflate envelope properly, considering wind conditions and obstacles.
PB.VIII.B.S3	Disassemble envelope and basket components, as appropriate.
PB.VIII.B.S4	Pack and store envelope, basket and components, and fuel system, as appropriate.
PB.VIII.B.S5	Perform satisfactory postflight inspection.
PB.VIII.B.S6	Complete the appropriate checklist.

VIII. Postflight Procedures

Task C. Refueling

References	*BFM; FAA-H-8083-11*
Objective	*To determine that the applicant exhibits satisfactory knowledge and risk management associated with refueling.*
Note	*The applicant's knowledge of this Task is evaluated through oral testing.*
Knowledge	*The applicant demonstrates understanding of:*
PB.VIII.C.K1	Proper procedures and safety precautions for refueling.
PB.VIII.C.K2	Crewmember briefing on safety precautions.
PB.VIII.C.K3	Danger of explosion and burns when handling propane.
PB.VIII.C.K4	Need for adequate ventilation.
PB.VIII.C.K5	Proper method of filling the cylinders, as appropriate.
Risk Management	*The applicant demonstrates the ability to identify, assess, and mitigate risks, encompassing:*
PB.VIII.C.R1	Dangers of not following safety procedures while refueling.
Skills	*Intentionally left blank.*

Airline Transport Pilot & Type Rating - Helicopter

Airman Certification Standards

U.S. Department
of Transportation

**Federal Aviation
Administration**

FAA-S-ACS-5

Airline Transport Pilot and Type Rating for Helicopter

Airman Certification Standards

Date TBD

**Flight Standards Service
Washington, DC 20591**

Acknowledgments

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

Availability

This ACS is available for download from www.FAA.gov. Please send comments regarding this document to the Airman Testing Branch mailbox.

Material in FAA-S-ACS-5 will be effective XXXX, 20XX.

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Foreword

The Federal Aviation Administration (FAA) publishes the Airline Transport Pilot—Helicopter Airman Certification Standards (ACS) document to communicate the aeronautical knowledge, risk management, and flight proficiency standards for airline transport pilot certification (ATP) and type rating certification in the category, single-engine land and sea, and multiengine land and sea classes. This ACS incorporates and supersedes the previous Airline Transport Pilot and Aircraft Type Rating Practical Test Standards (PTS) for Helicopter, FAA-S-8081-20.

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

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

The FAA developed this ACS and its associated guidance in collaboration with a diverse group of aviation training experts. The goal is to drive a systematic approach to all components of the airman certification system, including knowledge test question development and conduct of the practical test. The FAA acknowledges and appreciates the many hours that these aviation experts have contributed toward this goal. This level of collaboration, a hallmark of a robust safety culture, strengthens and enhances aviation safety at every level of the airman certification system.

Rick Domingo
Executive Director, Flight Standards Service

Revision History

Document #	Description	Revision Date
FAA-S-ACS-5	Airline Transport Pilot and Type Rating for Helicopter Airman Certification Standards	XXXX, XXXX

Table of Contents

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).

In fulfilling its responsibilities for the airman certification process, the Federal Aviation Administration (FAA) Flight Standard Service (AFS) plans, develops, and maintains materials related to airman certification training and testing. These materials have included several components. The FAA knowledge test measures mastery of the aeronautical knowledge areas listed in Title 14 of the Code of Federal Regulations (14 CFR) part 61. Other materials, such as handbooks in the FAA-H-8083 series, provide guidance to applicants on aeronautical knowledge, risk management, and flight proficiency.

Safe operations in today's National Airspace System (NAS) require 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 Airman Certification Standards (ACS). The ACS integrates the elements of knowledge, risk management, and skill listed in 14 CFR part 61 for each airman certificate or rating. It thus forms a more comprehensive standard for what an applicant must know, consider, and do for the safe conduct and successful completion of each Task to be tested on both the qualifying FAA knowledge test and the oral and flight portions of the practical test.

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.

Note: *As used in the ACS, an evaluator may be any person authorized to conduct airman testing under parts 61, 141, and 142 (e.g., an FAA aviation safety inspector (ASI), designated pilot examiner (DPE), or other individual authorized to conduct a test for a certificate or rating).*

Using the ACS

The ACS consists of ***Areas of Operation*** arranged in a logical sequence, beginning with Preflight Preparation and ending with Postflight Procedures. Each Area of Operation includes ***Tasks*** appropriate to that Area of Operation. Each Task begins with an ***Objective*** stating what the applicant should know, 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 and refers the user to specific appendices concerning the conduct of the practical test. The ACS uses the terms "will" and "must" to convey directive (mandatory) information. The term "may" denotes items that are recommended but not required. The ***References*** for each Task indicate the source material for Task elements. For example, in Tasks such as "Airport markings, signs, and lights." (AH.II.C.K3), the applicant must be prepared for questions on any airport markings, signs, and lights presented in the references for that Task.

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

AH.I.B.K3:

- **AH** = Applicable ACS (Airline Transport Pilot – Helicopter)
- **I** = Area of Operation I (Preflight Preparation)
- **B** = Task B (Performance & Limitations)
- **K3** = Knowledge Task element 3 (Weight and balance data)

Knowledge test questions are mapped to the ACS codes, which will ultimately replace the system of Learning Statement Codes (LSC). After this transition occurs, the Airman Knowledge Test Report (AKTR) will list an ACS code that correlates to a specific Task element for a given Area of Operation and Task. Remedial instruction and

re-testing will be specific, targeted, and based on specified learning criteria. Similarly, a Notice of Disapproval for the practical test will use the ACS codes to identify the deficient Task elements. Applicants and evaluators should interpret the codes using the ACS revision in effect on the date of the knowledge test.

The current knowledge test management system does not have the capability to print ACS codes. Until a new test management system is in place, the LSC (e.g., “PLT058”) code will continue to be displayed on the AKTR. The LSC codes are linked to references leading to broad subject areas. By contrast, each ACS code is tied to a unique Task element in the ACS itself. Because of this fundamental difference, there is no one-to-one correlation between LSC codes and ACS codes.

Because all active knowledge test questions for the Airline Transport Pilot Helicopter Knowledge Tests have been aligned with the corresponding ACS, evaluators can use LSC codes in conjunction with the ACS for the time being. The evaluator should look up the LSC code(s) on the applicant’s AKTR in the Learning Statement Reference Guide available using the following link: Learning Statement Reference Guide. After noting the subject area(s), the evaluator can use the corresponding Area(s) of Operation/Task(s) in the ACS to narrow the scope of material for retesting, and to evaluate the applicant’s understanding of that material in the context of the appropriate ACS Area(s) of Operation and Task(s).

The applicant must pass the knowledge test before taking the practical test, if applicable to the certificate or rating sought. The practical test is conducted in accordance with the ACS and FAA regulations that are current as of the date of the test. Further, the applicant must pass the ground portion of the practical test before beginning the flight portion.

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 oral questioning will continue throughout the entire practical test.

The FAA encourages applicants and instructors to use the ACS when preparing for the knowledge tests and practical tests. The FAA will revise the ACS as circumstances require. Evaluators conduct the practical test in accordance with the current ACS and FAA regulations. However, if an applicant is entitled to credit for Areas of Operation previously passed as indicated on a Notice of Disapproval or Letter of Discontinuance, evaluators should continue using the PTS/ACS effective on the test cycle start date.

I. Preflight Preparation

Task	***A. Operation of Systems***
References	FAA-H-8083-2, FAA-H-8083-21, FAA-H-8083-25; AC-105, AC-107; POH/RFM
Objective	To determine that the applicant exhibits satisfactory knowledge, risk management, and skills associated with the safe operation of systems on the helicopter provided for the flight test. ***Note**: See Appendix 7: Aircraft, Equipment, and Operational Requirements & Limitations for information related to this Task.*
Knowledge	The applicant demonstrates an understanding of:
AH.I.A.K1	**Landing gear** – indicators, tires, nosewheel, brakes, steering, skids, or floats, if applicable.
AH.I.A.K2	**Powerplant** – controls and indications, induction system, carburetor and fuel injection, exhaust and turbocharging, cooling, fire detection/protection, mounting points, turbine wheels, compressors, and other related components.
AH.I.A.K3	**Main rotor and antitorque systems** – transmission, drive shafts, gear boxes, oil/fluid levels, tolerances, rotor brake if installed, and limitations.
AH.I.A.K4	**Fuel system** – capacity; drains; pumps; controls; indicators; crossfeeding; transferring; jettison; fuel grade, color and additives; fueling and defueling procedures; and emergency substitutions, if applicable.
AH.I.A.K5	**Oil system** – capacity, grade, quantities, and indicators.
AH.I.A.K6	**Hydraulic system** – system—capacity, pumps, pressure, reservoirs, grade, and regulators.
AH.I.A.K7	**Electrical system** – alternators, generators, battery, circuit breakers and protection devices, controls, indicators, and external and auxiliary power sources and ratings.
AH.I.A.K8	**Pneumatic and environmental systems** – heating, cooling, ventilation, oxygen and pressurization, controls, indicators, and regulating devices.
AH.I.A.K9	**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, transponder, Automatic Dependent Surveillance – Broadcast (ADS-B) In and Out, ADS – Contract (ADS-C), traffic awareness/warning/avoidance systems, terrain awareness/warning/alert systems, communication systems (e.g., data link, UHF/VHF/HF, satellite), Controller Pilot Data Link Communication (CPDLC), indicating devices, and emergency locator transmitter.
AH.I.A.K10	**Ice protection** – anti-ice, deice, pitot-static system protection, windshield, airfoil surfaces, and rotor protection.
AH.I.A.K11	**Crewmember and passenger equipment** – oxygen system, survival gear, emergency exits, evacuation procedures and crew duties, and quick donning oxygen mask for crewmembers and passengers.
AH.I.A.K12	**Primary flight controls, trim, and if installed, stability control**
AH.I.A.K13	**Pitot-static system** – associated instruments and the power source for the flight instruments. Operation and power sources for other flight instruments, if applicable.
AH.I.A.K14	**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).
AH.I.A.K15	**Vacuum/pressure system and associated flight instruments.**
AH.I.A.K16	How to use a Minimum Equipment List (MEL) and a Configuration Deviation List (CDL).
AH.I.A.K17	The contents of the POH/RFM with regard to the systems and components in the helicopter.
Risk Management	The applicant demonstrates the ability to identify, assess, and mitigate risk, encompassing:
AH.I.A.R1	Detection of system malfunctions or failures.

I. Preflight Preparation

Task	***A. Operation of Systems***
AH.I.A.R2	Management of a system failure.
AH.I.A.R3	Monitoring and management of automated systems, if applicable.
AH.I.A.R4	Follow appropriate checklists or procedures.
Skills	For the helicopter provided for the practical test, the applicant demonstrates the ability to:
AH.I.A.S1	Explain and describe the operation of the helicopter systems and components using correct terminology.
AH.I.A.S2	Recall immediate action items or memory items, if appropriate.
AH.I.A.S3	Identify system or component limitations listed in the POH/RFM.
AH.I.A.S4	Demonstrate or describe, as appropriate, the process for deferring inoperative equipment (e.g., MEL) and using a CDL.
AH.I.A.S5	Comply with operations specifications, management specifications, and letters of authorization, if applicable.
AH.I.A.S6	Through the use of the appropriate checklists and normal and abnormal procedures, demonstrate the proper use of the helicopter systems, subsystems, and devices, as determined by the evaluator.

I. Preflight Preparation

Task	***B. Performance and Limitations***
References	14 CFR parts 1, 27, 29, 61, and 91; AC 91-74, AC 120-27, AC 120-60, AC 135-16, AC 135-17; FAA-H-8083-1, FAA-H-8083-2, FAA-H-8083-21, FAA-H-8083-25; Chart Supplements; RFM; AIM
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 7: Aircraft, Equipment, and Operational Requirements & Limitations for information related to this Task.*
Knowledge	The applicant demonstrates understanding of:
AH.I.B.K1	Elements related to performance calculation and limitations by explaining the use of charts, tables, and data to determine performance.
AH.I.B.K2	How to determine the following:
AH.I.B.K2a	a. Takeoff performance
AH.I.B.K2b	b. Climb performance with all engines, one engine inoperative (OEI), or with other engine malfunctions, as applicable.
AH.I.B.K2c	c. Cruise performance, including Maximum Operating Altitude, to include OEI, if applicable
AH.I.B.K2d	d. Descent performance
AH.I.B.K2e	e. Landing performance
AH.I.B.K3	Weight and balance data
AH.I.B.K4	Factors affecting performance, to include:
AH.I.B.K4a	a. Atmospheric and weather conditions
AH.I.B.K4b	b. Pilot technique and energy management
AH.I.B.K4c	c. Runway/heliport/helipad/landing site conditions
AH.I.B.K4d	d. Basic aerodynamics.
AH.I.B.K5	Helicopter limitations.
AH.I.B.K6	Adverse effects of exceeding a helicopter limitation.
AH.I.B.K7	Deicing and anti-icing procedures to include use of appropriate de-ice fluid and pre-takeoff contamination checks, if applicable.
Risk Management	The applicant demonstrates the ability to identify, assess, and mitigate risk, encompassing:
AH.I.B.R1	Inaccurate use of performance charts, tables, and data.
AH.I.B.R2	Exceeding helicopter limitations.
AH.I.B.R3	Possible differences between calculated performance and actual performance.
AH.I.B.R4	Aircraft icing and its effect on performance.
AH.I.B.R5	Operating with reduced power margins.
Skills	For the helicopter provided for the practical test, the applicant demonstrates the ability to:
AH.I.B.S1	Describe the effects of meteorological conditions on performance for any phase of flight and correctly apply these factors to a specific chart, table, graph, or other performance data.
AH.I.B.S2	If equipped, describe the procedures for de-icing and anti-icing system use and their effects on performance, if applicable. Explain the adverse effects of airframe icing during all phases of flight. Describe any operating limitations for flight in icing conditions, if applicable.
AH.I.B.S3	Compute weight and balance, including practical techniques to resolve out-of-limits calculations for a representative scenario, as specified by the evaluator.
AH.I.B.S4	Determine the computed center of gravity is within limits the acceptable limits and lateral fuel balance is within limits for takeoff and landing, if applicable.
AH.I.B.S5	Demonstrate proficient use of appropriate performance charts, tables, graphs, or other means to determine aircraft performance and limitations for all phases of flight.

I. Preflight Preparation

Task	***C. Weather Information (ATP)***
References	14 CFR parts 61 and 91; AC 00-6, AC 00-45, AC 00-54; FAA-H-8083-25; AIM
Objective	To determine that the applicant exhibits satisfactory knowledge, risk management, and skills associated with obtaining, understanding, and applying weather information for a flight under IFR. ***Note:*** *See Appendix 7: Aircraft, Equipment, and Operational Requirements & Limitations for information related to this Task.*
Knowledge	The applicant demonstrates understanding of:
AH.I.C.K1	Sources of weather data (e.g., National Weather Service, Flight Service) for flight planning purposes.
AH.I.C.K2	Acceptable weather products and resources utilized for preflight planning, current and forecast weather for departure and en route operations and arrival phases of flight.
AH.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: ***Note:*** *If K3 is selected, the evaluator must assess the applicant's knowledge of at least three of the following sub-elements.*
AH.I.C.K3a	a. Atmospheric composition and stability
AH.I.C.K3b	b. Wind
AH.I.C.K3c	c. Temperature
AH.I.C.K3d	d. Moisture/precipitation
AH.I.C.K3e	e. Weather system formation, including air masses and fronts
AH.I.C.K3f	f. Clouds
AH.I.C.K3g	g. Turbulence
AH.I.C.K3h	h. Thunderstorms and microbursts
AH.I.C.K3i	i. Icing and freezing level information
AH.I.C.K3j	j. Fog/mist
AH.I.C.K3k	k. Frost
AH.I.C.K3l	l. Obstructions to visibility (e.g., smoke, haze, volcanic ash, etc.)
AH.I.C.K4	Aircraft displays of digital weather and aeronautical information, their use to navigate around weather, and their limitations.
AH.I.C.K5	Low-visibility operations
AH.I.C.K6	Flight Risk Assessment Tools (FRAT).
Risk Management	The applicant demonstrates the ability to identify, assess, and mitigate risk, encompassing:
AH.I.C.R1	Weather conditions involved in departure and in-flight decision making, to include:
AH.I.C.R1a	a. Circumstances requiring a change in course or destination
AH.I.C.R1b	b. Known or forecast icing, winds or turbulence aloft, volcanic ash, destination weather, etc.
AH.I.C.R1c	c. Personal minimums
AH.I.C.R1d	d. Operator-specific or aircraft operational limitations, if applicable
AH.I.C.R2	Limitations of:
AH.I.C.R2a	a. Onboard weather equipment
AH.I.C.R2b	b. Aviation weather reports and forecasts
AH.I.C.R2c	c. Inflight weather resources
Skills	The applicant demonstrates the ability to:
AH.I.C.S1	Interpret weather information.
AH.I.C.S2	Apply principles of aeronautical decision-making.
AH.I.C.S3	Use a FRAT, if supplied by the applicant.

I. Preflight Preparation

Task	***D. Human Factors (ATP)***
References	14 CFR part 61; AC 120-100; FAA-H-8083-2, FAA-H-8083-25; AIM
Objective	To determine that the applicant exhibits satisfactory knowledge, risk management, and skills associated with personal health, flight physiology, and aeromedical and human factors. ***Note:*** *See Appendix 7: Aircraft, Equipment, and Operational Requirements & Limitations for information related to this Task.*
Knowledge	The applicant demonstrates understanding of:
AH.I.D.K1	Causes, effects, recognition, and corrective actions associated with aeromedical and physiological issues including: ***Note:*** *If K1 is selected, the evaluator must assess the applicant's knowledge of at least three of the following sub-elements.*
AH.I.D.K1a	a. Hypoxia
AH.I.D.K1b	b. Hyperventilation
AH.I.D.K1c	c. Middle ear and sinus problems
AH.I.D.K1d	d. Spatial disorientation
AH.I.D.K1e	e. Motion sickness
AH.I.D.K1f	f. Carbon monoxide poisoning
AH.I.D.K1g	g. Stress
AH.I.D.K1h	h. Fatigue
AH.I.D.K1i	i. Dehydration and nutrition
AH.I.D.K1j	j. Hypothermia
AH.I.D.K1k	k. Optical illusions
AH.I.D.K1l	l. Dissolved nitrogen in the bloodstream after scuba dives
AH.I.D.K2	Effects of alcohol, drugs, and over-the-counter medications.
AH.I.D.K3	Aeronautical Decision-Making (ADM) using Crew Resource Management (CRM) or Single Pilot Resource Management (SRM), as appropriate.
AH.I.D.K4	Components of self-assessment for determining fitness for flight.
Risk Management	The applicant demonstrates the ability to identify, assess, and mitigate risk, encompassing:
AH.I.D.R1	Aeromedical and physiological issues.
AH.I.D.R2	Hazardous attitudes.
AH.I.D.R3	Distractions, loss of situational awareness, or improper task management.
Skills	The applicant demonstrates the ability to:
AH.I.D.S1	Perform a self-assessment and determine fitness for flight.

I. Preflight Preparation

Task	***E. The Code of Federal Regulations (ATP)***
References	14 CFR parts 61, 91, and 97
Objective	To determine that the applicant exhibits satisfactory knowledge of regulations applicable to the privileges and limitations of the ATP certificate and to flight operations that require an ATP certificate. ***Note:*** *See Appendix 7: Aircraft, Equipment, and Operational Requirements & Limitations for information related to this Task.*
Knowledge	The applicant demonstrates understanding of:
AH.I.E.K1	14 CFR part 61, subpart G.
AH.I.E.K2	14 CFR part 91, subparts A, B, or C.
AH.I.E.K3	14 CFR part 97.
Risk Management	The applicant demonstrates the ability to identify, assess, and mitigate risk, encompassing:
AH.I.E.R1	Failure to comply with the applicable CFRs.
Skills	The applicant demonstrates the ability to:
AH.I.E.S1	Apply the CFRs to the flight/operation.

II. Preflight Procedures

Task	***A. Preflight Assessment***
References	14 CFR parts 43, 61, 63, 71, 91, 97, 119, and 135; AC 00-6, AC 90-100, AC 120-27, AC 120-60, AC 135-17; FAA-H-8083-2, FAA-H-8083-21, FAA-H-8083-25; POH/RFM; AIM
Objective	To determine that the applicant exhibits satisfactory knowledge, risk management, and skills associated with preparing for safe flight. ***Note:*** *See Appendix 7: Aircraft, Equipment, and Operational Requirements & Limitations for information related to this Task.*
Knowledge	The applicant demonstrates understanding of:
AH.II.A.K1	Pilot self-assessment.
AH.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:
AH.II.A.K2a	a. Airworthiness and registration certificates
AH.II.A.K2b	b. Operating limitations, handbooks, and manuals
AH.II.A.K2c	c. Minimum Equipment List (MEL) and Configuration Deviation List (CDL)
AH.II.A.K2d	d. Weight and balance data
AH.II.A.K2e	e. Required inspections or tests and appropriate records and documentation as applicable to the proposed flight or operation.
AH.II.A.K3	Preventive maintenance that can be performed by the pilot or other designated crewmember.
AH.II.A.K4	Aircraft preflight inspection including:
AH.II.A.K4a	a. Which items must be inspected
AH.II.A.K4b	b. The reasons for checking each item
AH.II.A.K4c	c. How to detect possible defects
AH.II.A.K4d	d. The associated regulations
AH.II.A.K5	Environmental factors including weather, terrain, route selection, and obstructions.
AH.II.A.K6	Requirements for current and appropriate navigation data.
AH.II.A.K7	Operation specifications, management specifications, or letters of authorization applying to a particular aircraft and operation, if applicable.
AH.II.A.K8	FRAT data, if supplied by the applicant.
Risk Management	The applicant demonstrates the ability to identify, assess, and mitigate risk, encompassing:
AH.II.A.R1	Human performance factors.
AH.II.A.R2	Inoperative equipment discovered prior to flight.
AH.II.A.R3	Environment (e.g., weather, airports, airspace, terrain, obstacles).
AH.II.A.R4	External pressures.
AH.II.A.R5	Aviation security concerns.
AH.II.A.R6	Personal minimums.
Skills	The applicant demonstrates the ability to:
AH.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.
AH.II.A.S2	Ensure adequate clearance prior to moving flight control surfaces, doors, cowlings, etc., and coordinate with ground crew, if applicable.
AH.II.A.S3	Document any discrepancies found; take corrective action and acknowledge limitations imposed by MEL/CDL items, if applicable.
AH.II.A.S4	Determine if the aircraft is airworthy and in condition for safe flight.
AH.II.A.S5	Identify and comply with operations specifications, as required.
AH.II.A.S6	Objectively assess risk factors related to the flight.

II. Preflight Procedures

Task	*A. Preflight Assessment*
AH.II.A.S7	Assess factors related to the environment (weather, airports, heliports, terrain, airspace, obstacles).
AH.II.A.S8	Ensure the aircraft and surfaces are free of ice, snow, and frost. If icing conditions are present, demonstrates satisfactory knowledge of deicing procedures, if applicable.

II. Preflight Procedures

Task	***B. Powerplant Starting and Rotor Engagement***
References	AC 91-42, AC 91-55; FAA-H-8083-2, FAA-H-8083-21; POH/RFM
Objective	To determine that the applicant exhibits satisfactory knowledge, risk management, and skills associated with recommended powerplant starting and rotor engagement procedures. ***Note:*** *See Appendix 7: Aircraft, Equipment, and Operational Requirements & Limitations for information related to this Task.*
Knowledge	The applicant demonstrates understanding of:
AH.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).
AH.II.B.K2	Starting under various atmospheric conditions.
AH.II.B.K3	Powerplant limitations as they relate to starting.
AH.II.B.K4	Rotor engagement procedures and considerations.
Risk Management	The applicant demonstrates the ability to identify, assess and mitigate risks related to:
AH.II.B.R1	Malfunctions during powerplant start or rotor engagement.
AH.II.B.R2	Rotor and anti-torque engagement safety.
AH.II.B.R3	Use of external power unit, as appropriate.
Skills	The applicant demonstrates the ability to:
AH.II.B.S1	Position the helicopter properly considering structures, surface conditions, other aircraft, wind, and the safety of nearby persons and property.
AH.II.B.S2	Use of flight control frictions, if required.
AH.II.B.S3	Start the powerplant in accordance with the appropriate checklist.
AH.II.B.S4	Engage and manage the rotor system properly.

II. Preflight Procedures

Task	***C. Hover Taxi***
References	AC 90-95, AC 91-73; AIM; Chart Supplements; FAA-H-8083-2, FAA-H-8083-21; POH/RFM
Objective	To determine that the applicant exhibits satisfactory knowledge, risk management, and skills associated with safe hover taxi operations, including runway incursion avoidance.
Knowledge	The applicant demonstrates understanding of:
AH.II.C.K1	Airport information resources including Chart Supplement information, airport diagram, and appropriate references.
AH.II.C.K2	Taxi instructions/clearances.
AH.II.C.K3	Airport markings, signs, and lights.
AH.II.C.K4	Visual indicators for wind.
AH.II.C.K5	Aircraft lighting.
AH.II.C.K6	Procedures for:
AH.II.C.K6a	a. Appropriate pilot activities during taxiing
AH.II.C.K6b	b. Safe hover taxi at airports/heliports
AH.II.C.K6c	c. Entering crossing runways
AH.II.C.K7	Elements related to hover taxiing:
AH.II.C.K7a	a. Height/velocity considerations
AH.II.C.K7b	b. Yaw-rate limitations, as appropriate
Risk Management	The applicant demonstrates the ability to identify, assess and mitigate risks related to:
AH.II.C.R1	Inappropriate activities and distractions.
AH.II.C.R2	Tail rotor strike hazards.
AH.II.C.R3	Reduced visibility taxi operations.
AH.II.C.R4	Other aircraft, vehicles, persons, and hazards.
Skills	The applicant demonstrates the ability to:
AH.II.C.S1	Complete the appropriate checklist.
AH.II.C.S2	Maintain a ground track within ±2 feet of a designated reference on straight legs.
AH.II.C.S3	Maintain powerplant and rotor RPM within normal limits.
AH.II.C.S4	Maintain recommended hovering altitude, ±1/2 of that altitude within 10 feet of the surface, if above 10 feet, ±5 feet.
AH.II.C.S5	Comply with airport/heliport taxiway markings, signals, and signs.
AH.II.C.S6	Make smooth, timely, and correct control application during the maneuver.

II. Preflight Procedures

Task	***D. Taxiing with Wheel-Type Landing Gear***
References	14 CFR parts 61, 91, and 135; AC 91-73, AC 120-74; FAA-H-8083-2, FAA-H-8083-21, FAA-H-8083-25; POH/RFM; AIM; Chart Supplements; NOTAMs
Objective	To determine that the applicant exhibits satisfactory knowledge, risk management, and skills associated with safe taxi operations.
Knowledge	The applicant demonstrates understanding of:
AH.II.D.K1	Current airport aeronautical references and information resources, including the Chart Supplement, airport diagram, and NOTAMs.
AH.II.D.K2	Taxi instructions/clearances including published taxi routes.
AH.II.D.K3	Airport/heliport/helipad markings, signs, and lights.
AH.II.D.K4	Aircraft lighting.
AH.II.D.K5	Procedures for:
AH.II.D.K5a	a. Appropriate pilot activities prior to taxi, including route planning, identifying the location of Hot Spots, and coordinating with crew, if applicable.
AH.II.D.K5b	b. Radio communications.
AH.II.D.K5c	c. Entering or crossing runways.
AH.II.D.K5d	d. Night taxi operations.
AH.II.D.K5e	e. Low visibility taxi operations.
Risk Management	The applicant demonstrates the ability to identify, assess, and mitigate risk, encompassing:
AH.II.D.R1	Inappropriate activities and distractions.
AH.II.D.R2	Confirmation or expectation bias regarding taxi instructions.
AH.II.D.R3	A taxi route or departure runway change.
AH.II.D.R4	Low visibility taxi operations.
AH.II.D.R5	Tail rotor strike hazards.
AH.II.D.R6	Other aircraft, vehicles, persons, and hazards.
Skills	The applicant demonstrates the ability to:
AH.II.D.S1	Receive/record taxi instructions, read back/acknowledge taxi clearances, and review taxi routes on the airport/heliport diagram.
AH.II.D.S2	Use an airport/heliport diagram or taxi chart during taxi.
AH.II.D.S3	Comply with ATC clearances and instructions and observe all runway hold lines, localizer and glide slope critical areas, beacons, and other airport/taxiway markings and lighting.
AH.II.D.S4	Coordinate with the crew, if applicable, and complete the checklist(s) prior to and during taxi, as appropriate.
AH.II.D.S5	Maintain a sterile flight deck and situational awareness.
AH.II.D.S6	Maintain correct and positive aircraft control, proper speed, appropriate aircraft configuration.
AH.II.D.S7	Maintain separation between other aircraft, vehicles, and persons to avoid an incursion/incident/accident.
AH.II.D.S8	Demonstrate taxi during day and night operations. If either condition is not available, the applicant must explain the differences between day and night taxi.
AH.II.D.S9	Demonstrate proper use of aircraft exterior lighting for day and night operations. If either condition is not available, the applicant must explain the differences between exterior aircraft lighting used for day and night operations.
AH.II.D.S10	Explain the hazards of low visibility taxi operations.
AH.II.D.S11	Use SRM/CRM.

II. Preflight Procedures

Task	***E. Air Taxi***
References	AC 90-95, AC 91-73; AIM; Chart Supplements; FAA-H-8083-2, FAA-H-8083-21; POH/RFM
Objective	To determine that the applicant exhibits satisfactory knowledge, risk management, and skills associated with safe air taxi operations, including runway incursion avoidance.
Knowledge	The applicant demonstrates understanding of:
AH.II.E.K1	Airport information resources including Chart Supplement information, airport diagram, and appropriate references.
AH.II.E.K2	Taxi instructions/clearances.
AH.II.E.K3	Elements related to air taxiing.
AH.II.E.K4	Airport markings, signs, and lights.
AH.II.E.K5	Visual indicators for wind.
AH.II.E.K6	Aircraft lighting.
AH.II.E.K7	Procedures for:
AH.II.E.K7a	a. Appropriate flight deck activities during taxiing
AH.II.E.K7b	b. Safe hover taxi at towered and non-towered airports
AH.II.E.K7c	c. Entering crossing runways
Risk Management	The applicant demonstrates the ability to identify, assess and mitigate risks related to:
AH.II.E.R1	Inappropriate activities and distractions.
AH.II.E.R2	Low visibility air taxi operations.
AH.II.E.R3	Height/velocity diagram limitations in case of powerplant failure.
AH.II.E.R4	Environmental conditions, other aircraft and relative hazards.
Skills	The applicant demonstrates the ability to:
AH.II.E.S1	Complete the appropriate checklist, if applicable.
AH.II.E.S2	Select a safe airspeed and altitude.
AH.II.E.S3	Maintain desired track and groundspeed in headwind and crosswind conditions, avoiding conditions that might lead to loss of tail rotor/antitorque effectiveness.
AH.II.E.S4	Maintain powerplant and rotor RPM within normal limits.
AH.II.E.S5	Comply with airport taxiway markings, lights, and signs.
AH.II.E.S6	Maintain specified altitude, ±5 feet.

II. Preflight Procedures

Task	***F. Before Takeoff Checks***
References	FAA-H-8083-2, FAA-H-8083-3, FAA-H-8083-25, FAA-H-8083-21; RFM
Objective	To determine that the applicant exhibits satisfactory knowledge, risk management, and skills associated with before takeoff checks. ***Note:*** *See Appendix 7: Aircraft, Equipment, and Operational Requirements & Limitations for information related to this Task.*
Knowledge	The applicant demonstrates understanding of:
AH.II.F.K1	Purpose of pre-takeoff checklist items including:
AH.II.F.K1a	a. Reasons for checking each item
AH.II.F.K1b	b. Detecting malfunctions
AH.II.F.K1c	c. Ensuring the aircraft is in safe operating condition
AH.II.F.K2	Deicing and anti-icing procedures, holdover times, and pre-takeoff contamination check, if appropriate.
AH.II.F.K3	Adverse weather considerations for performance on takeoff.
AH.II.F.K4	Items to be included in a before takeoff briefing.
Risk Management	The applicant demonstrates the ability to identify, assess, and mitigate risk, encompassing:
AH.II.F.R1	Division of attention while conducting before takeoff checks.
AH.II.F.R2	An unexpected change in the runway/departure procedure to be used.
AH.II.F.R3	Performance data for the departure.
AH.II.F.R4	Aircraft configuration for departure.
AH.II.F.R5	Setting navigation and communication equipment for departure.
AH.II.F.R6	Configuring autopilot and flight director controls for departure.
AH.II.F.R7	Accounting for adverse weather conditions prior to takeoff.
Skills	The applicant demonstrates the ability to:
AH.II.F.S1	Determine the aircraft's takeoff performance and configuration for actual conditions and planned departure.
AH.II.F.S2	Coordinate with the crew, if applicable, and complete the checklist(s) prior to takeoff.
AH.II.F.S3	Determine all systems checked are within their normal 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.
AH.II.F.S4	Determine airspeeds and set flight instruments appropriately. Configure flight director, autopilot controls, and navigation and communication equipment for the current flight conditions and takeoff and departure clearances, if appropriate.
AH.II.F.S5	Conduct a briefing that includes procedures for emergency and abnormal situations, which may be encountered during takeoff and state the planned action.
AH.II.F.S6	Obtain and correctly interpret the takeoff and departure clearance.
AH.II.F.S7	Use SRM/CRM.

III. Takeoff and Departure Phase

Task	***A. Takeoff and Climb***
References	RFM; AIM; FAA-H-8083-2, FAA-H-8083-3, FAA-H-8083-21; AC 29-2C
Objective	To determine that the applicant exhibits satisfactory knowledge, risk management, and skills associated with a departure and climb. ***Note:*** *If a crosswind condition does not exist, the applicant's knowledge of crosswind elements must be evaluated through oral testing. See Appendix 7: Aircraft, Equipment, and Operational Requirements & Limitations for information related to this Task.*
Knowledge	The applicant demonstrates understanding of:
AH.III.A.K1	Effects of atmospheric conditions, including wind, temperature and altitude, on departure and climb performance and the H/V diagram.
AH.III.A.K2	Aircraft limitations including the H/V envelope, if applicable.
AH.III.A.K3	Utilize the Category A takeoff profile procedures and performance, if applicable.
AH.III.A.K4	Recommended technique(s) to be used to obtain the published flight manual takeoff performance.
AH.III.A.K5	Appropriate aircraft configuration and power setting for the maneuver.
Risk Management	The applicant demonstrates the ability to identify, assess and mitigate risk, encompassing:
AH.III.A.R1	Selection of helipad/deck, runway or departure point based on pilot capability, aircraft performance and limitations, available distance, and wind.
AH.III.A.R2	Operating at MGW
AH.III.A.R3	Effects of:
AH.III.A.R3a	a. Crosswind
AH.III.A.R3b	b. Windshear
AH.III.A.R3c	c. Tailwind
AH.III.A.R3d	d. Wake turbulence
AH.III.A.R3e	e. Runway/departure point surface/condition
AH.III.A.R3f	f. Aircraft weight
AH.III.A.R4	Abnormal operations, to include planning for:
AH.III.A.R4a	a. Rejected takeoff
AH.III.A.R4b	b. Engine failure in takeoff/climb phase of flight, if applicable
AH.III.A.R4c	c. Powerplant failure in hover/takeoff/climb phase of flight
AH.III.A.R5	Collision hazards, to include aircraft, vehicles, vessels, persons, wildlife, terrain, obstacles, and wires.
AH.III.A.R6	Low altitude maneuvering including Controlled Flight Into Terrain (CFIT).
AH.III.A.R7	Distractions, improper task management, or loss of situational awareness.
Skills	The applicant demonstrates the ability to:
AH.III.A.S1	Complete the appropriate checklist.
AH.III.A.S2	Make radio calls as appropriate.
AH.III.A.S3	Ascertain wind direction with or without visible wind direction indicators.
AH.III.A.S4	Position the flight controls and configure the aircraft for the existing wind conditions.
AH.III.A.S5	Confirm takeoff power and instrument indications prior to departure.
AH.III.A.S6	Establish a pitch attitude and aircraft configuration and accelerate to the manufacturer's recommended speed ±5 knots.
AH.III.A.S7	Configure the aircraft and establish and maintain a positive rate of climb in accordance with aircraft manufacturer's instructions.
AH.III.A.S8	Transition the aircraft using the appropriate technique based on aircraft weight and environmental conditions.

III. Takeoffs and Landings

Task	*A. Takeoff and Climb*
AH.III.A.S9	Maintain a specified route, track, or heading, as specified by the evaluator throughout the operation, ±5°.
AH.III.A.S10	Use SRM/CRM.

III. Takeoffs and Landings

Task	***B. Rapid Deceleration/Quick Stop***
References	FAA-H-8083-2, FAA-H-8083-21B; POH/RFM
Objective	To determine that the applicant exhibits satisfactory knowledge, risk management, and skills associated with rapid deceleration/quick stop. ***Note:*** *See Appendix 6: Safety of Flight and Appendix 7: Aircraft, Equipment, and Operational Requirements & Limitations for information related to this Task.*
Knowledge	The applicant demonstrates understanding of:
AH.III.B.K1	Conditions and situations that could warrant an aborted takeoff.
AH.III.B.K2	Techniques and procedures for accomplishing an aborted takeoff.
AH.III.B.K3	Safety considerations following an aborted takeoff.
AH.III.B.K4	H/V diagram.
AH.III.B.K5	Airspeeds and heights for an aborted takeoff.
Risk Management	The applicant demonstrates the ability to identify, assess, and mitigate risk, encompassing:
AH.III.B.R1	Selection of takeoff path.
AH.III.B.R2	Maintaining aircraft flightpath following an aborted takeoff.
AH.III.B.R3	Distractions, improper task management, or loss of situational awareness.
AH.III.B.R4	Tail strike.
Skills	The applicant demonstrates the ability to:
AH.III.B.S1	Correctly identify any situation requiring an aborted takeoff.
AH.III.B.S2	Stop the aircraft within the available takeoff area or path.
AH.III.B.S3	Safely terminate at a hover or on the ground.
AH.III.B.S4	Maintain positive aircraft control throughout the maneuver.
AH.III.B.S5	Maintain directional control and takeoff path.
AH.III.B.S6	Complete the appropriate checklist.
AH.III.B.S7	Use SRM/CRM.

III. Takeoffs and Landings

Task	***C. Category A (CAT A) Departure***
References	AC 29-2C; FAA-H-8083-2, FAA-H-8083-21; POH/RFM
Objective	To determine that the applicant exhibits satisfactory knowledge, risk management and skills associated with a CAT A departure. ***Note:*** *If a crosswind does not exist, the applicant's knowledge of crosswind elements must be evaluated through oral testing. See Appendix 6: Safety of Flight and Appendix 7: Aircraft, Equipment, and Operational Requirements & Limitations for information related to this Task.*
Knowledge	The applicant demonstrates understanding of:
AH.III.C.K1	Certified CAT A departure profiles, appropriate speeds and heights and applicability.
AH.III.C.K2	Performance data and the POH/RFM.
AH.III.C.K3	Effects of atmospheric conditions.
AH.III.C.K4	Aircraft limitations.
AH.III.C.K5	Appropriate techniques, aircraft configuration and applicability for CAT A departure.
AH.III.C.K6	Techniques following a powerplant failure before or after takeoff decision point (TDP).
AH.III.C.K7	Use of aircraft automation.
Risk Management	The applicant demonstrates the ability to identify, assess, and mitigate risk, encompassing:
AH.III.C.R1	Selection of a runway, or departure point based on aircraft limitations, available distance, surface conditions, wind, performance data and the CAT A procedure.
AH.III.C.R2	Effects of:
AH.III.C.R2a	a. Crosswind
AH.III.C.R2b	b. Windshear
AH.III.C.R2c	c. Tailwind
AH.III.C.R2d	d. Wake turbulence
AH.III.C.R2e	e. Runway/arrival point surface/condition
AH.III.C.R2f	f. Aircraft weight
AH.III.C.R3	Abnormal operations, to include planning for:
AH.III.C.R3a	a. Rejected takeoff following a powerplant failure before TDP
AH.III.C.R3b	b. Continued takeoff following a powerplant failure after TDP
AH.III.C.R4	Collision hazards, to include aircraft, terrain, obstacles, vessels, vehicles, persons, wildlife, and wires.
AH.III.C.R5	Low altitude maneuvering including Controlled Flight Into Terrain (CFIT).
AH.III.C.R6	Distractions, improper task management, loss of situational awareness, or disorientation.
Skills	The applicant demonstrates the ability to:
AH.III.C.S1	Select the appropriate CAT A departure profile or as directed by the evaluator.
AH.III.C.S2	Complete the appropriate checklist(s).
AH.III.C.S3	Notify/coordinate with ATC and evaluator instructions as required.
AH.III.C.S4	Verify assigned/correct runway or takeoff path.
AH.III.C.S5	Clear the area; taxi into takeoff position and align the aircraft on the runway centerline or takeoff path.
AH.III.C.S6	Maintain centerline and coordinated flight control inputs during the takeoff.
AH.III.C.S7	Confirm takeoff power and proper powerplant and flight instrument indications prior to departure.
AH.III.C.S8	Fly the appropriate all powerplants operative CAT A departure profile at the recommended airspeed ±5 knots and heading ±5°.

III. Takeoffs and Landings

Task	*C. Category A (CAT A) Departure*
AH.III.C.S9	At TDP make an appropriate decision to continue or reject the takeoff/departure.
AH.III.C.S10	Continue the takeoff or land the aircraft following a powerplant failure before or after TDP, if applicable.
AH.III.C.S11	Use SRM/CRM.

III. Takeoffs and Landings

Task	***D. Category A (CAT A) Approach***
References	AC 29-2C; FAA-H-8083-2, FAA-H-8083-21; POH/RFM
Objective	To determine that the applicant exhibits satisfactory knowledge, risk management, and skills associated with CAT A approach profile to an IGE hover or to the surface. ***Note:*** *If a crosswind does not exist, the applicant's knowledge of crosswind elements must be evaluated through oral testing. See Appendix 7: Aircraft, Equipment, and Operational Requirements & Limitations for information related to this Task.*
Knowledge	The applicant demonstrates understanding of:
AH.III.D.K1	Certified CAT A approach profiles, appropriate speeds and heights and applicability.
AH.III.D.K2	Performance data and the RFM.
AH.III.D.K3	Effects of atmospheric conditions.
AH.III.D.K4	Wind correction techniques.
AH.III.D.K5	Aircraft configurations.
AH.III.D.K6	Aircraft limitations.
AH.III.D.K7	Techniques following a powerplant failure before or after landing decision point (LDP).
AH.III.D.K8	Use of aircraft automation.
Risk Management	The applicant demonstrates the ability to identify, assess, and mitigate risk, encompassing:
AH.III.D.R1	Approach techniques.
AH.III.D.R2	Effects of:
AH.III.D.R2a	a. Crosswind
AH.III.D.R2b	b. Windshear
AH.III.D.R2c	c. Tailwind
AH.III.D.R2d	d. Wake turbulence
AH.III.D.R2e	e. Vortex Ring State
AH.III.D.R2f	f. Runway/arrival point surface/condition
AH.III.D.R2g	g. Aircraft weight
AH.III.D.R3	Planning for:
AH.III.D.R3a	a. Powerplant failure before LDP
AH.III.D.R3b	b. Powerplant failure after LDP
AH.III.D.R4	Collision hazards, to include aircraft, terrain, obstacles, vessels, vehicles, persons, wildlife, and wires.
AH.III.D.R5	Distractions, improper task management, loss of situational awareness, or disorientation.
Skills	The applicant demonstrates the ability to:
AH.III.D.S1	Select the appropriate CAT A approach profile or as directed by the evaluator.
AH.III.D.S2	Complete the appropriate checklist(s).
AH.III.D.S3	Notify/coordinate with ATC and evaluator instructions as required.
AH.III.D.S4	Use the appropriate techniques and recommended speeds ±5 knots for the all powerplants operative CAT A approach profile.
AH.III.D.S5	Consider the wind conditions, landing surface, and obstructions and select a suitable hover/landing point.
AH.III.D.S6	Maintain appropriate ground track with crosswind correction throughout the approach.
AH.III.D.S7	At LDP make an appropriate decision to land or reject the landing.
AH.III.D.S8	Reject or land the aircraft following a powerplant failure before or after LDP.
AH.III.D.S9	Arrive over the touchdown point on the surface ±5 feet from intended landing point or at a stabilized hover ±5 feet height at the discretion of the evaluator.
AH.III.D.S10	Use SRM/CRM.

IV. Inflight Maneuvers

Task	***A. Steep Turns***
References	FAA-H-8083-2, FAA-H-8083-21, FAA-H-8083-25; POH/RFM
Objective	To determine that the applicant exhibits satisfactory knowledge, risk management, and skills associated with steep turns. ***Note:*** *See Appendix 7: Aircraft, Equipment, and Operational Requirements & Limitations for information related to this Task.*
Knowledge	The applicant demonstrates understanding of:
AH.IV.A.K1	Maximum bank angle, if appropriate.
AH.IV.A.K2	Energy management concepts and the purpose of steep turns.
AH.IV.A.K3	Aerodynamics associated with steep turns, to include:
AH.IV.A.K3a	a. Coordinated and uncoordinated flight
AH.IV.A.K3b	b. Overbanking tendencies
AH.IV.A.K3c	c. Impact of maximum gross weight
AH.IV.A.K3d	d. Load factor
AH.IV.A.K3e	e. Rate and radius of turn
Risk Management	The applicant demonstrates the ability to identify, assess, and mitigate risk, encompassing:
AH.IV.A.R1	Spatial disorientation.
AH.IV.A.R2	Collision hazards, to include aircraft, terrain, obstacles, and wires.
AH.IV.A.R3	Low altitude maneuvering, including CFIT.
AH.IV.A.R4	Distractions, improper task management, loss of situational awareness, or disorientation.
AH.IV.A.R5	Uncoordinated flight.
Skills	The applicant demonstrates the ability to:
AH.IV.A.S1	Complete any required checks and ATC calls.
AH.IV.A.S2	Select an appropriate entry altitude considering any aircraft limitations or obstructions.
AH.IV.A.S3	Establish at least a 30° bank solely by reference to instruments and make a coordinated steep turn of at least 180°, as specified by the evaluator.
AH.IV.A.S4	Make smooth pitch, bank, and power adjustments as needed.
AH.IV.A.S5	Maintain the entry altitude ±100 feet, airspeed ±10 knots, bank ±5°, and roll out on the specified heading, ±10°.
AH.IV.A.S6	Avoid any abnormal flight attitude or exceeding any structural or operating limitation during any part of the Task.
AH.IV.A.S7	Use SRM/CRM.

IV. Inflight Maneuvers

Task	***B. Recovery from Unusual Flight Attitudes***
References	14 CFR part 61; FAA-H-8083-2, FAA-H-8083-15; FAA-H-8083-21; RFM
Objective	To determine that the applicant exhibits satisfactory knowledge, risk management, and skills associated with recovering from unusual flight attitudes. ***Note:*** *See Appendix 6: Safety of Flight for information related to this Task.*
Knowledge	The applicant demonstrates understanding of:
AH.IV.B.K1	Procedures for recovery from unusual flight attitudes.
AH.IV.B.K2	Unusual flight attitude causal factors, including physiological factors, system and equipment failures, and environmental factors.
AH.IV.B.K3	The operating envelope and structural limitations for the aircraft.
AH.IV.B.K4	Effects of specific design characteristics that could affect aircraft control during the recovery.
Risk Management	The applicant demonstrates the ability to identify, assess, and mitigate risk, encompassing:
AH.IV.B.R1	Situations that could lead to loss of control or unusual flight attitudes (e.g., stress, task saturation, and distractions).
AH.IV.B.R2	Abrupt forward cyclic input resulting in low-G conditions as it relates to the rotor system.
AH.IV.B.R3	Remaining within the operating envelope during the recovery.
Skills	The applicant demonstrates the ability to:
AH.IV.B.S1	Use proper instrument cross-check and interpretation to identify an unusual attitude and apply the appropriate bank, pitch, and power corrections, in the correct sequence, to return to a stabilized level flight attitude or climb as specified by the evaluator.

IV. Inflight Maneuvers

Task	***C. Vortex Ring State (Settling-With-Power)***
References	FAA-H-8083-2, FAA-H-8083-21B; POH/RFM
Objective	To determine that the applicant exhibits satisfactory knowledge, risk management, and skills associated with main rotor Vortex Ring State.
Knowledge	The applicant demonstrates understanding of:
AH.IV.C.K1	Effects of atmospheric conditions, including wind and density altitude, to include height/velocity diagram information.
AH.IV.C.K2	The aerodynamics and indications of Vortex Ring State.
AH.IV.C.K3	Requirements for the formation of Vortex Ring State.
AH.IV.C.K4	Flight scenarios under which Vortex Ring State can occur.
AH.IV.C.K5	Effective recovery techniques.
Risk Management	The applicant demonstrates the ability to identify, assess and mitigate risks related to:
AH.IV.C.R1	Delayed recognition of Vortex Ring State conditions and improper recovery.
AH.IV.C.R2	Entering the maneuver at a lower attitude than planned.
AH.IV.C.R3	Collision hazard management.
AH.IV.C.R4	Distractions, loss of situational awareness, and/or improper task management.
AH.IV.C.R5	Low-altitude maneuvering.
Skills	The applicant demonstrates the ability to:
AH.IV.C.S1	Complete the appropriate checklist.
AH.IV.C.S2	Clear the area.
AH.IV.C.S3	Select an altitude that will allow recovery to be completed no less than 1,000 feet AGL or, if applicable, the manufacturer's recommended altitude, whichever is higher.
AH.IV.C.S4	Demonstrate Vortex Ring State.
AH.IV.C.S5	Promptly recognize, announce, and recover using an appropriate technique at the first indication of Vortex Ring State.
AH.IV.C.S6	Use SRM/CRM.

V. Instrument Procedures

Task	***A. Instrument Takeoff***
References	14 CFR parts 61 and 91; FAA-H-8083-2, FAA-H-8083-6, FAA-H-8083-15, FAA-H-8083-16, FAA-H-8083-21, FAA-H-8083-25; RFM; AIM; IFP
Objective	To determine that the applicant exhibits satisfactory knowledge, risk management, and skills associated with an instrument takeoff. ***Note:*** *See Appendix 7: Aircraft, Equipment, and Operational Requirements & Limitations for information related to this Task.*
Knowledge	The applicant demonstrates understanding of:
AH.V.A.K1	Operational factors that could affect an instrument takeoff (e.g., runway length, 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 demonstrates the ability to identify, assess, and mitigate risk, encompassing:
AH.V.A.R1	Selection of a runway based on pilot capability, aircraft performance and limitations, available distance, surface conditions, lighting, and wind.
AH.V.A.R2	Wake turbulence.
AH.V.A.R3	Abnormal operations, to include planning for:
AH.V.A.R3a	a. Rejected takeoff.
AH.V.A.R3b	b. Engine failure in takeoff/climb phase of flight with the ceiling or visibility below the minimums for an instrument approach at departure airport.
AH.V.A.R4	Collision hazards, to include aircraft, terrain, obstacles, vessels, vehicles, persons, wildlife, and wires.
AH.V.A.R5	Low altitude maneuvering, including CFIT.
AH.V.A.R6	Distractions, improper task management, or loss of situational awareness.
Skills	The applicant demonstrates the ability to:
AH.V.A.S1	Coordinate with the crew, if applicable, and complete the appropriate checklist(s).
AH.V.A.S2	Properly set the applicable avionics and flight instruments prior to initiating the takeoff.
AH.V.A.S3	Make radio calls as appropriate.
AH.V.A.S4	Verify assigned/correct runway/takeoff area.
AH.V.A.S5	Position the flight controls for the existing wind.
AH.V.A.S6	Clear the area; taxi into takeoff position and align the aircraft on the runway centerline, if applicable.
AH.V.A.S7	Perform an instrument takeoff with instrument meteorological conditions (IMC) simulated at or before reaching an altitude of 100 feet AGL. If accomplished in a full flight simulator, visibility should be no greater than 1/4 mile, or as specified by applicable operations specifications, whichever is lower.
AH.V.A.S8	Maintain centerline and proper flight control inputs during the takeoff phase.
AH.V.A.S9	Confirm correct power setting and powerplant and flight instrument indications prior to departure making callouts, as appropriate, for the aircraft or in accordance with the recommended operating procedures.
AH.V.A.S10	Climb at the pre-determined airspeed and rate of climb, and accelerate to the recommended cruise airspeed.
AH.V.A.S11	At an appropriate airspeed, transition smoothly from visual meteorological conditions (VMC) to actual or simulated instrument meteorological conditions (IMC).
AH.V.A.S12	Maintain desired heading ±5° and desired airspeeds ±5 knots.
AH.V.A.S13	Comply with ATC clearances and instructions issued by ATC or the evaluator, as appropriate.

V. Instrument Procedures

Task	*A. Instrument Takeoff*
AH.V.A.S14	Complete appropriate checklist(s).
AH.V.A.S15	Use SRM/CRM.

V. Instrument Procedures

Task	***B. Departure Procedures***
References	14 CFR parts 61 and 91; FAA-H-8083-2, FAA-H-8083-15, FAA-H-8083-16; RFM; AIM; IFP
Objective	To determine that the applicant exhibits satisfactory knowledge, risk management, and skills associated with instrument departure procedures (DPs). ***Note:*** *See Appendix 7: Aircraft, Equipment, and Operational Requirements & Limitations for information related to this Task.*
Knowledge	The applicant demonstrates understanding of:
AH.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 RNAV departure; required climb gradients; U.S. Terminal Procedures Publications; and En Route Charts.
AH.V.B.K2	Use of a Flight Management System (FMS) or Global Positioning System (GPS) to follow a DP.
AH.V.B.K3	Pilot/controller responsibilities, communication procedures, and ATC services available to pilots.
AH.V.B.K4	Two-way radio communication failure procedures after takeoff.
AH.V.B.K5	Ground-based and satellite-based navigation (orientation, course determination, equipment, tests and regulations, interference, appropriate use of navigation data, signal integrity).
Risk Management	The applicant demonstrates the ability to identify, assess, and mitigate risk, encompassing:
AH.V.B.R1	Failure to communicate with ATC or follow published procedures.
AH.V.B.R2	Failure to recognize limitations of traffic avoidance equipment.
AH.V.B.R3	Failure to use see and avoid techniques when possible.
AH.V.B.R4	Improper automation management.
Skills	The applicant demonstrates the ability to:
AH.V.B.S1	In actual or simulated instrument conditions, select, identify (as necessary) and use the appropriate communication and navigation facilities associated with the proposed flight.
AH.V.B.S2	Program the FMS prior to departure and set avionics to include flight director and autopilot controls, as appropriate, for the departure, if applicable.
AH.V.B.S3	Coordinate with the crew, if applicable, and complete the appropriate checklist(s).
AH.V.B.S4	Use current and appropriate navigation publications or databases for the proposed flight.
AH.V.B.S5	Establish two-way communications with the proper controlling agency, use proper phraseology, and comply with all ATC instructions and airspace restrictions as well as exhibit adequate knowledge of communication failure procedures.
AH.V.B.S6	Intercept all courses, radials, and bearings appropriate to the procedure, route, clearance, or as directed by the evaluator.
AH.V.B.S7	Comply with all applicable charted procedures.
AH.V.B.S8	Maintain the appropriate airspeed ±10 knots, headings ±10°, and altitude ±100 feet, and accurately track a course, radial, or bearing.
AH.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.

V. Instrument Procedures

Task	***C. Arrival Procedures***
References	14 CFR parts 61 and 91; FAA-H-8083-2, FAA-H-8083-15, FAA-H-8083-16; Enroute Low and High Altitude Charts; Profile Descent Charts; STARs/FMSPs; IFP; RFM; AIM
Objective	To determine the applicant exhibits satisfactory knowledge, risk management, and skills associated with IFR arrival procedures and the use of a Flight Management System, where applicable. ***Note:*** *See Appendix 7: Aircraft, Equipment, and Operational Requirements & Limitations for information related to this Task.*
Knowledge	The applicant demonstrates understanding of:
AH.V.C.K1	Standard Terminal Arrival (STAR) charts, U.S. Terminal Procedures Publications, and IFR Enroute High and Low Altitude Charts.
AH.V.C.K2	Use of a Flight Management System (FMS) or GPS to follow a STAR.
AH.V.C.K3	Pilot/controller responsibilities, communication procedures, and ATC services available to pilots.
AH.V.C.K4	Two-way radio communication failure procedures during an arrival.
AH.V.C.K5	Ground-based and satellite-based navigation (orientation, course determination, equipment, tests and regulations, interference, appropriate use of navigation data, signal integrity).
Risk Management	The applicant demonstrates the ability to identify, assess, and mitigate risk, encompassing:
AH.V.C.R1	Failure to communicate with ATC or follow published procedures.
AH.V.C.R2	Failure to recognize limitations of traffic avoidance equipment.
AH.V.C.R3	Failure to use see and avoid techniques when possible.
AH.V.C.R4	Improper automation management.
AH.V.C.R5	ATC instructions that modify an arrival or take you off and back on an arrival.
Skills	The applicant demonstrates the ability to:
AH.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.
AH.V.C.S2	Set FMS and avionics to include flight director and autopilot controls for the arrival, if applicable.
AH.V.C.S3	Coordinate with the crew, if applicable, and complete the appropriate checklist(s).
AH.V.C.S4	Use current and appropriate navigation publications or databases for the proposed flight.
AH.V.C.S5	Establish two-way communications with the proper controlling agency, use proper phraseology and comply with all ATC instructions and airspace restrictions as well as exhibit adequate knowledge of communication failure procedures.
AH.V.C.S6	Intercept all courses, radials, and bearings appropriate to the procedure, route, clearance, or as directed by the evaluator.
AH.V.C.S7	Comply with all applicable charted procedures.
AH.V.C.S8	Adhere to airspeed restrictions required by regulation, procedure, aircraft limitation, ATC, or the evaluator.
AH.V.C.S9	Establish rates of descent consistent with the route segment, aircraft operating characteristics and safety.
AH.V.C.S10	Maintain the appropriate airspeed/V-speed ±10 knots, but not less than V_{Ref} if applicable, heading ±10°, altitude ±100 feet, and accurately track radials, courses, and bearings.

V. Instrument Procedures

Task	***D. Nonprecision Approaches***
References	14 CFR parts 61 and 91; AC 120-108; FAA-H-8083-15, FAA-H-8083-16; IFP, AIM; Chart Supplements
Objective	To determine that the applicant exhibits satisfactory knowledge, risk management, and skills associated with performing nonprecision approach procedures. ***Note**: See Appendix 7: Aircraft, Equipment, and Operational Requirements & Limitations for information related to this Task.*
Knowledge	The applicant demonstrates understanding of:
AH.V.D.K1	Procedures and limitations associated with a nonprecision approach, including the differences between Localizer Performance without Vertical Guidance (LP), Lateral Navigation (LNAV), and Lateral Navigation with advisory vertical guidance (LNAV+V), and Copter approaches.
AH.V.D.K2	Navigation system displays and annunciations, modes of operation and RNP lateral accuracy values associated with an RNAV (GPS) approach.
AH.V.D.K3	Ground-based and satellite-based navigation (orientation, course determination, equipment, tests and regulations, interference, appropriate use of navigation data, signal integrity).
AH.V.D.K4	Continuous descent final approach (CDFA) technique and operator's SOP (if applicable).
Risk Management	The applicant demonstrates the ability to identify, assess, and mitigate risk, encompassing:
AH.V.D.R1	Following the correct approach procedure (e.g., descending too early, etc.).
AH.V.D.R2	Selecting the correct navigation frequency.
AH.V.D.R3	Managing automated navigation and autoflight systems.
AH.V.D.R4	Ensuring proper aircraft configuration during an approach and missed approach.
AH.V.D.R5	An unstable approach, including excessive descent rates.
AH.V.D.R6	Deteriorating weather conditions on approach.
AH.V.D.R7	Operating below the minimum descent altitude (MDA) or derived decision altitude (DDA) without proper visual references.
AH.V.D.R8	Location specific CFIT risk assessment
AH.V.D.R9	Responding immediately to a hard Enhanced Ground Proximity Warning System (EGPWS) warning.
Skills	The applicant demonstrates the ability to:
AH.V.D.S1	Accomplish the nonprecision instrument approaches selected by the evaluator.
AH.V.D.S2	Establish two-way communications with ATC appropriate for the phase of flight or approach segment, and use proper communication phraseology.
AH.V.D.S3	Select, tune, identify, and confirm the operational status of navigation equipment to be used for the approach.
AH.V.D.S4	Comply with all clearances issued by ATC or the evaluator.
AH.V.D.S5	Recognize if any flight instrumentation is inaccurate or inoperative, and take appropriate action.
AH.V.D.S6	Advise ATC or the evaluator if unable to comply with a clearance.
AH.V.D.S7	Conduct the approach briefing, coordinate with the crew, if applicable, and complete the appropriate checklist(s).
AH.V.D.S8	Establish the appropriate aircraft configuration and airspeed considering meteorological and operating conditions.
AH.V.D.S9	Maintain altitude ±100 feet, heading ±5°, airspeed ±10 knots, and accurately track radials, courses, and bearings, prior to beginning the final approach segment.
AH.V.D.S10	Apply adjustments to the published MDA/DDA and visibility criteria for the aircraft approach category, as appropriate, for factors that include NOTAMs, inoperative aircraft or navigation equipment, or inoperative visual aids associated with the landing environment, etc.

V. Instrument Procedures

Task	*D. Nonprecision Approaches*
AH.V.D.S11	Establish a stabilized descent to the appropriate altitude.
AH.V.D.S12	For the final approach segment, maintain no more than ¼ scale CDI deflection, airspeed ±5 knots of selected value, and altitude above MDA +50/-0 feet (to the VDP or MAP).
AH.V.D.S13	Transition to visual conditions; or execute the missed approach procedure at the MAP if the required flight visibility is below that required for the approach and the visual references for the intended runway or landing point are not distinctly visible and identifiable.
AH.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.
AH.V.D.S15	Use SRM/CRM.

V. Instrument Procedures

Task	***E. Approaches with Vertical Guidance***
References	14 CFR parts 61 and 91; AC 90-105, 90-107; FAA-H-8083-15, FAA-H-8083-16; IFP, AIM; Chart Supplements and RFM, MEL (if applicable)
Objective	To determine that the applicant exhibits satisfactory knowledge, risk management, and skills associated with performing Approach with Vertical Guidance (APV) procedures. ***Note**: See Appendix 7: Aircraft, Equipment, and Operational Requirements & Limitations for information related to this Task.*
Knowledge	The applicant demonstrates understanding of:
AH.V.D.K1	Procedures and limitations associated with approach with vertical guidance, including the differences between LNAV/VNAV flown with barometric vertical navigation (Baro−VNAV) and Localizer Performance with Vertical guidance (LPV) using WAAS electronic glide path.
AH.V.D.K2	The minimum system capabilities needed for RNP Instrument Approach Operations associated with an RNAV (GPS) approach.
AH.V.D.K3	Instructions or procedures identified by the manufacturer to comply with the approach navigation performance requirements.
Risk Management	The applicant demonstrates the ability to identify, assess, and mitigate risk, encompassing:
AH.V.D.R1	When unable to comply with the RNP requirements during a RNAV (GPS) approach
Skills	The applicant demonstrates the ability to:
AH.V.D.S1	Accomplish the non-precision instrument approaches selected by the evaluator.
AH.V.D.S2	Use SRM/CRM.

V. Instrument Procedures

Task	***F. Precision Approaches***
References	14 CFR parts 61 and 91; AC 90-107; FAA-H-8083-15, FAA-H-8083-16; IFP; AIM; Chart Supplements
Objective	To determine that the applicant exhibits satisfactory knowledge, risk management, and skills associated with performing precision approach procedures. ***Note**: See Appendix 7: Aircraft, Equipment, and Operational Requirements & Limitations for information related to this Task.*
Knowledge	The applicant demonstrates understanding of:
AH.V.F.K1	Procedures and limitations associated with a precision approach, including determining required descent rates and adjusting minimums in the case of inoperative equipment.
AH.V.F.K2	Ground-based and satellite-based navigation (orientation, course determination, equipment, tests and regulations, interference, appropriate use of navigation data, signal integrity).
Risk Management	The applicant demonstrates the ability to identify, assess, and mitigate risk, encompassing:
AH.V.F.R1	The approach procedure.
AH.V.F.R2	The navigation frequency.
AH.V.F.R3	Monitoring and managing automated navigation and autoflight systems.
AH.V.F.R4	Aircraft configuration during an approach and missed approach.
AH.V.F.R5	An unstable approach, including excessive descent rates.
AH.V.F.R6	Deteriorating weather conditions on approach.
AH.V.F.R7	Continuing to descend below the Decision Altitude (DA)/Decision Height (DH) when the required visual references are not visible.
Skills	The applicant demonstrates the ability to:
AH.V.F.S1	Accomplish the precision instrument approaches selected by the evaluator.
AH.V.F.S2	Establish two-way communications with ATC appropriate for the phase of flight or approach segment, and use proper communication phraseology.
AH.V.F.S3	Select, tune, identify, and confirm the operational status of navigation equipment to be used for the approach.
AH.V.F.S4	Comply in a timely manner with all clearances, instructions, and procedures.
AH.V.F.S5	Recognize if any flight instrumentation is inaccurate or inoperative, and take appropriate action.
AH.V.F.S6	Advise ATC or the evaluator if unable to comply with a clearance.
AH.V.F.S7	Complete the appropriate checklist(s).
AH.V.F.S8	Establish the appropriate aircraft configuration and airspeed considering meteorological and operating conditions.
AH.V.F.S9	Maintain altitude ±100 feet, heading ±5°, airspeed ±10 knots, and accurately track radials, courses, and bearings, prior to beginning the final approach segment.
AH.V.F.S10	Apply adjustments to the published DA/DH and visibility criteria for the aircraft approach category, as appropriate, for factors that include NOTAMs, inoperative aircraft or navigation equipment, or inoperative visual aids associated with the landing environment, etc.
AH.V.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.
AH.V.F.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.
AH.V.F.S13	Upon reaching the DA/DH, immediately initiate the missed approach procedures if the required visual references for the runway are not distinctly visible and identifiable or transition to a normal landing approach only when the aircraft is in a position from which a descent to a landing on the runway or other designated landing point can be made at a normal rate of descent using normal maneuvering.

V. Instrument Procedures

Task	*F. Precision Approaches*
AH.V.F.S14	Use an MFD and other graphical navigation displays, if installed, to monitor position, track wind drift and other parameters to maintain desired flightpath.
AH.V.F.S15	Use SRM/CRM.

V. Instrument Procedures

Task	***G. Missed Approaches***
References	14 CFR parts 61 and 91; FAA-H-8083-15, FAA-H-8083-16; IFP; AIM
Objective	To determine that the applicant exhibits satisfactory knowledge, risk management, and skills associated with performing a missed approach procedure. ***Note***: *See Appendix 7: Aircraft, Equipment, and Operational Requirements & Limitations for information related to this Task.*
Knowledge	The applicant demonstrates understanding of:
AH.V.G.K1	Elements related to missed approach procedures to include reference to standby or backup instruments.
AH.V.G.K2	Limitations associated with standard instrument approaches, including while using a FMS and/or autopilot, if equipped.
Risk Management	The applicant demonstrates the ability to identify, assess, and mitigate risk, encompassing:
AH.V.G.R1	Following prescribed procedures.
AH.V.G.R2	Holding, diverting, or electing to fly the approach again.
AH.V.G.R3	Aircraft configuration during approach and missed approach.
AH.V.G.R4	Factors that might lead to executing a missed approach procedure before the MAP or to a go-around below DA/MDA.
AH.V.G.R5	Management of automated navigation and autoflight systems.
Skills	The applicant demonstrates the ability to:
AH.V.G.S1	Promptly initiate the missed approach procedure and report it to ATC.
AH.V.G.S2	Apply the appropriate power setting and aircraft configuration for the flight conditions to obtain the desired performance.
AH.V.G.S3	Reconfigure the aircraft, if appropriate, and at a safe altitude, and establish a positive rate of climb and the appropriate airspeed, ±5 knots.
AH.V.G.S4	Coordinate with the crew, if applicable, and complete the appropriate procedures and checklist(s).
AH.V.G.S5	Comply with the published or alternate missed approach procedure.
AH.V.G.S6	Advise ATC or the evaluator if unable to comply with a clearance, restriction, or climb gradient.
AH.V.G.S7	Request, if appropriate, ATC clearance to the alternate airport, clearance limit, or as directed by the evaluator.
AH.V.G.S8	Maintain the heading, course, or bearing ±5°, and altitude(s) ±100 feet during the missed approach procedure.
AH.V.G.S9	Use an MFD and other graphical navigation displays, if installed, to monitor position and track to help navigate the missed approach.
AH.V.G.S10	Demonstrate SRM or CRM, as appropriate.
AH.V.G.S11	Re-engage autopilot (if installed) at appropriate times during the missed approach procedure.

V. Instrument Procedures

Task	***H. Holding Procedures***
References	14 CFR parts 61 and 91; AC 91-74; FAA-H-8083-15, FAA-H-8083-16; RFM; AIM; IFP
Objective	To determine that the applicant exhibits satisfactory knowledge, risk management, and skills associated with holding procedures. ***Note***: *See Appendix 7: Aircraft, Equipment, and Operational Requirements & Limitations for information related to this Task.*
Knowledge	The applicant demonstrates understanding of:
AH.V.H.K1	Elements related to holding procedures, including reporting criteria, appropriate speeds, and recommended entry procedures for standard, nonstandard, published, and non-published holding patterns.
AH.V.H.K2	Determining holding endurance based upon factors to include an expect further clearance (EFC) time, fuel on board, fuel flow while holding, fuel required to destination and alternate, etc., as appropriate.
AH.V.H.K3	When to declare minimum fuel or a fuel-related emergency.
AH.V.H.K4	Use of automation for holding to include autopilot and flight management systems, if equipped.
Risk Management	The applicant demonstrates the ability to identify, assess, and mitigate risk, encompassing:
AH.V.H.R1	Recalculating fuel reserves if assigned an unanticipated EFC time.
AH.V.H.R2	Scenarios and circumstances that could result in minimum fuel or the need to declare an emergency.
AH.V.H.R3	Scenarios that could lead to holding, including deteriorating weather at the planned destination.
AH.V.H.R4	Proper holding entry and proper wind correction while holding.
AH.V.H.R5	Holding while in icing conditions.
AH.V.H.R6	Proper automation management.
Skills	The applicant demonstrates the ability to:
AH.V.H.S1	Correctly identify instrument navigation aids associated with the assigned holding.
AH.V.H.S2	Uses an entry procedure appropriate for a standard, nonstandard, published, or non-published holding pattern.
AH.V.H.S3	Changes to the appropriate holding airspeed for the aircraft and holding altitude to cross the holding fix at or below maximum holding airspeed.
AH.V.H.S4	Comply with the holding pattern leg length and other restrictions, if applicable, associated with the holding pattern.
AH.V.H.S5	Comply with ATC reporting requirements.
AH.V.H.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.
AH.V.H.S7	Maintain the airspeed ±10 knots, altitude ±100 feet, headings ±10°, and accurately track a selected course, radial, or bearing.
AH.V.H.S8	If available, uses automation to include autopilot, flight director controls, and navigation displays associated with the assigned hold.
AH.V.H.S9	Updates fuel reserve calculations based on EFC times.

VI. Landings and Approaches to Landings

Task	***A. Approach to Hover/Landing***
References	14 CFR part 91; FAA-H-8083-2, FAA-H-8083-21; RFM
Objective	To determine that the applicant exhibits satisfactory knowledge, risk management, and skills associated with an approach profile to an IGE hover or to the surface. ***Note:*** *If a crosswind does not exist, the applicant's knowledge of crosswind elements must be evaluated through oral testing. See Appendix 7: Aircraft, Equipment, and Operational Requirements & Limitations for information related to this Task.*
Knowledge	The applicant demonstrates understanding of:
AH.VI.A.K1	Types of approaches and applicability.
AH.VI.A.K2	Performance data and the H/V diagram.
AH.VI.A.K3	Effects of atmospheric conditions.
AH.VI.A.K4	Wind correction techniques.
AH.VI.A.K5	Aircraft configuration.
AH.VI.A.K6	Aircraft limitations.
Risk Management	The applicant demonstrates the ability to identify, assess, and mitigate risk, encompassing:
AH.VI.A.R1	Arrival point selection.
AH.VI.A.R2	Effects of:
AH.VI.A.R2a	a. Crosswind
AH.VI.A.R2b	b. Windshear
AH.VI.A.R2c	c. Tailwind
AH.VI.A.R2d	d. Wake turbulence
AH.VI.A.R2e	e. Vortex Ring State
AH.VI.A.R2f	f. Runway/arrival point surface/condition
AH.VI.A.R3	Planning for:
AH.VI.A.R3a	a. Go-around
AH.VI.A.R3b	b. Powerplant failure during the approach
AH.VI.A.R4	Collision hazards, to include aircraft, terrain, obstacles, vessels, vehicles, persons, wildlife, and wires.
AH.VI.A.R5	Degraded Visual Environment (DVE) and flat light conditions.
AH.VI.A.R6	Distractions, improper task management, or loss of situational awareness.
Skills	The applicant demonstrates the ability to:
AH.VI.A.S1	Complete the appropriate checklist.
AH.VI.A.S2	Complete any ATC calls and follow ATC instructions or as directed by the evaluator.
AH.VI.A.S3	Use the appropriate techniques, approach angles, and aircraft configurations through all stages of the approach and landing or hover.
AH.VI.A.S4	Consider the wind conditions, landing surface, and obstructions and select a suitable hover/landing point.
AH.VI.A.S5	Maintain appropriate ground track with crosswind correction throughout the approach.
AH.VI.A.S6	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.
AH.VI.A.S7	Execute a timely go-around for any condition that may result in an unsafe approach or landing.
AH.VI.A.S8	Demonstrate SRM or CRM, as appropriate.

VI. Landings and Approaches to Landings

Task	***B. Go-Arounds***
References	14 CFR part 61; FAA-H-8083-2, FAA-H-8083-3, FAA-H-8083-23; POH/RFM; AIM
Objective	To determine that the applicant exhibits satisfactory knowledge, risk management, and skills associated with a go-around. ***Note:*** *See Appendix 6: Safety of Flight and Appendix 7: Aircraft, Equipment, and Operational Requirements & Limitations for information related to this Task.*
Knowledge	The applicant demonstrates understanding of:
AH.VI.B.K1	Situations and considerations on approach that could require a go-around.
AH.VI.B.K2	Effects of atmospheric conditions, including wind and density altitude on a go-around.
AH.VI.B.K3	Aircraft configuration changes and techniques for the go around.
AH.VI.B.K4	Go-around procedures, the importance of a timely decision, and appropriate airspeeds for the maneuver.
AH.VI.B.K5	Wind correction techniques.
Risk Management	The applicant demonstrates the ability to identify, assess, and mitigate risk, encompassing:
AH.VI.B.R1	Recognition of the need for a go-around.
AH.VI.B.R2	Aircraft performance
AH.VI.B.R3	Application of power.
AH.VI.B.R4	Aircraft configuration.
AH.VI.B.R5	Collision hazards, including aircraft, terrain, obstacles, vessels, vehicles, persons, wildlife, and wires.
AH.VI.B.R6	Low altitude maneuvering, including CFIT.
AH.VI.B.R7	Distractions, improper task management, or loss of situational awareness.
Skills	The applicant demonstrates the ability to:
AH.VI.B.S1	Make a timely decision to reject the landing and go-around.
AH.VI.B.S2	Apply the appropriate power setting for the flight condition and establish an aircraft configuration necessary to obtain the desired performance.
AH.VI.B.S3	Establish a positive rate of climb and the appropriate airspeed ±5 knots.
AH.VI.B.S4	Reconfigure the aircraft, when appropriate.
AH.VI.B.S5	Make radio calls as appropriate.
AH.VI.B.S6	Maintain the ground track, heading, or course appropriate for the conditions, or as specified by ATC or the evaluator.
AH.VI.B.S7	Complete the appropriate procedures and checklist(s).
AH.VI.B.S8	Demonstrate SRM or CRM, as appropriate.

VII. Normal and Abnormal Procedures

Task	***A. Normal Procedures***
References	FAA-H-8083-21; RFM/POH
Objective	To determine that the applicant exhibits satisfactory knowledge, risk management and skills associated with the normal procedures of the helicopter used for the practical test.
Knowledge	The applicant demonstrates understanding of:
AH.VII.A.K1	Airspeeds for normal operation.
AH.VII.A.K2	Doors off operations.
AH.VII.A.K3	Cold/hot weather procedures.
AH.VII.A.K4	Ground power/battery starting procedures.
AH.VII.A.K5	Ground handling procedures.
AH.VII.A.K6	Power assurance check procedures.
Risk Management	The applicant demonstrates the ability to identify, assess, and mitigate risk, encompassing:
AH.VII.A.R1	Failure to properly use the appropriate checklist(s).
AH.VII.A.R2	Compliance with all placards.
AH.VII.A.R3	Distractions, improper task management, loss of situational awareness, or disorientation.
Skills	The applicant demonstrates the ability to:
AH.VII.A.S1	Complete before starting procedures.
AH.VII.A.S2	Perform engine starting and run-up procedures.
AH.VII.A.S3	Complete shutdown procedures.
AH.VII.A.S4	Complete postflight procedures.
AH.VII.A.S5	Perform additional procedures appropriate to the aircraft as selected by the evaluator.
AH.VII.A.S6	Use SRM/CRM.

VII. Normal and Abnormal Procedures

Task	***B. Abnormal Procedures***
References	FAA-H-8083-21; RFM/POH
Objective	To determine that the applicant exhibits satisfactory knowledge, risk management and skills associated with the abnormal procedures of the helicopter used for the practical test.
Knowledge	The applicant demonstrates understanding of:
AH.VII.B.K1	Engine starting abnormalities, such as:
AH.VII.B.K1a	a. Hot/hung start (turbine)
AH.VII.B.K1b	b. Low voltage start
AH.VII.B.K1c	c. FADEC failure
AH.VII.B.K1d	d. Engine overspeed (piston)
AH.VII.B.K2	Procedure to abort a start.
AH.VII.B.K3	Emergency gear extension procedure, if appropriate.
Risk Management	The applicant demonstrates the ability to identify, assess, and mitigate risk, encompassing:
AH.VII.B.R1	Failure to properly use appropriate checklist(s).
AH.VII.B.R2	Importance of immediate action items.
AH.VII.B.R3	Distractions, improper task management, loss of situational awareness, or disorientation.
Skills	The applicant demonstrates the ability to:
AH.VII.B.S1	Recognize and respond to any actual or simulated engine starting abnormalities, such as:
AH.VII.B.S1a	a. Hot/hung start (turbine)
AH.VII.B.S1b	b. Low voltage start
AH.VII.B.S1c	c. FADEC failure
AH.VII.B.S1d	d. Engine overspeed (piston)
AH.VII.B.S2	Perform PFD/MFD failure procedures, if appropriate.
AH.VII.B.S3	Abnormal powerplant/rotor start or shutdown sequence (multiengine only).
AH.VII.B.S4	Perform additional abnormal procedures, as selected by the evaluator.
AH.VII.B.S5	Use SRM/CRM.

VIII. Emergency Procedures

Task	***A. Emergency Procedures***
References	14 CFR part 91; AC 91-74; FAA-H-8083-2, FAA-H-8083-3, FAA-H-8083-21, FAA-H-8083-25; POH/RFM; AIM
Objective	To determine that the applicant exhibits satisfactory knowledge, risk management, and skills associated with emergency procedures.
Knowledge	The applicant demonstrates understanding of:
AH.VIII.A.K1	Declaring an emergency or making a distress call.
AH.VIII.A.K2	System/equipment malfunction scenarios provided by the evaluator.
AH.VIII.A.K3	Emergency procedures outlined in the appropriate POH/RFM.
AH.VIII.A.K4	When an emergency evacuation may be necessary.
AH.VIII.A.K5	Actions required if icing conditions exceed the capabilities of the helicopter.
Risk Management	The applicant demonstrates the ability to identify, assess, and mitigate risks, encompassing:
AH.VIII.A.R1	Improper procedures or use of checklists in an emergency.
AH.VIII.A.R2	Multiple failures or system abnormalities.
AH.VIII.A.R3	Distractions, improper task management, loss of situational awareness, or disorientation.
AH.VIII.A.R4	Consideration of altitude, wind, terrain, and obstructions in an emergency.
Skills	For the aircraft provided for the practical test, the applicant demonstrates the ability to:
AH.VIII.A.S1	Use proper procedures as specified in the POH/RFM for the emergency situation(s) presented by the evaluator.
AH.VIII.A.S2	Communicate with ATC and the evaluator, as appropriate.
AH.VIII.A.S3	Fly by reference to standby flight instruments, backup instrumentation, or partial panel, if applicable and appropriate to the situation.
AH.VIII.A.S4	Coordinate with crew, if applicable, and complete the appropriate checklist(s) in a timely manner.
AH.VIII.A.S5	Use SRM/CRM.

VIII. Emergency Procedures

Task	***B. Power Failure at Altitude – Single Engine Helicopter***
References	AC 61-140; AIM; FAA-H-8083-2, FAA-H-8083-21A; POH/RFM
Objective	To determine that the applicant exhibits satisfactory knowledge, risk management, and skills associated with a power failure at altitude. ***Note:*** *See Appendix 6: Safety of Flight for information related to this Task.*
Knowledge	The applicant demonstrates understanding of:
AH.VIII.B.K1	Effects of atmospheric conditions, including wind and density altitude, to include height/velocity diagram information.
AH.VIII.B.K2	Undershooting or overshooting the selected landing area.
AH.VIII.B.K3	Scenario-based emergency operating procedures for a simulated failure.
Risk Management	The applicant demonstrates the ability to identify, assess, and mitigate risks, encompassing:
AH.VIII.B.R1	Flight control input.
AH.VIII.B.R2	Main rotor RPM limits.
AH.VIII.B.R3	Helicopter trim.
AH.VIII.B.R4	Selection of landing area.
AH.VIII.B.R5	Energy management.
AH.VIII.B.R6	Collision hazard management.
AH.VIII.B.R7	Distractions, improper task management, loss of situational awareness, or disorientation.
AH.VIII.B.R8	Passenger and/or crew brief.
AH.VIII.B.R9	Correct recovery technique and avoidance of Vortex Ring State at low speeds.
Skills	The applicant demonstrates the ability to:
AH.VIII.B.S1	Establish an autorotation.
AH.VIII.B.S2	Maneuver to a suitable landing area into the wind as much as practical.
AH.VIII.B.S3	Make the appropriate simulated distress call.
AH.VIII.B.S4	Adjust the autorotative profile, as appropriate.
AH.VIII.B.S5	Carry out simulated crash actions, time and altitude permitting.
AH.VIII.B.S6	Execute the recovery as briefed.

VIII. Emergency Procedures

Task	***C. Instrument Approach and Landing with an Inoperative Powerplant – Multiengine Helicopter***
References	14 CFR parts 61, 91; FAA-H-8083-3, FAA-H-8083-15, FAA-H-8083-21A; IFP
Objective	To determine that the applicant exhibits satisfactory knowledge, risk management, and skills associated with executing a published instrument approach solely by reference to instruments with one engine inoperative. ***Note:*** *See Appendix 7: Aircraft, Equipment, and Operational Requirements & Limitations for information related to this Task.*
Knowledge	The applicant demonstrates understanding of:
AH.VIII.C.K1	Instrument approach procedures with one engine inoperative.
Risk Management	The applicant demonstrates the ability to identify, assess, and mitigate risks, encompassing:
AH.VIII.C.R1	Plan for engine failure during approach.
AH.VIII.C.R2	Distractions, improper task management, loss of situational awareness, or disorientation.
AH.VIII.C.R3	Single-engine performance.
Skills	The applicant demonstrates the ability to:
AH.VIII.C.S1	Promptly recognize an engine failure and maintain positive aircraft control.
AH.VIII.C.S2	Confirm the correct aircraft configuration.
AH.VIII.C.S3	Use flight control inputs in the proper combination as recommended by the manufacturer, or as required to maintain best performance.
AH.VIII.C.S4	Follow the manufacturer's recommended emergency procedures.
AH.VIII.C.S5	Monitor the operating engine and aircraft systems and make adjustments.
AH.VIII.C.S6	Request and follow an actual or a simulated air traffic control (ATC) clearance for an instrument approach.
AH.VIII.C.S7	Maintain approach airspeed ±10 knots.
AH.VIII.C.S8	Establish a stabilized descent to the appropriate altitude.
AH.VIII.C.S9	On final approach segment, maintain vertical (as applicable) and lateral guidance within ¾-scale deflection.
AH.VIII.C.S10	Maintain aircraft control and fly the aircraft within the OEI operating limitations.
AH.VIII.C.S11	Terminate the approach as directed by the evaluator or ATC.
AH.VIII.C.S12	Complete the appropriate checklist.
AH.VIII.C.S13	Use SRM/CRM.

VIII. Emergency Procedures

Task	***D. Powerplant Failure during Takeoff – Multiengine Helicopters***
References	FAA-H-8083-2, FAA-H-8083-3; AFMRFM/POH
Objective	To determine that the applicant exhibits satisfactory knowledge, risk management, and skills associated with a powerplant failure during takeoff. ***Note***: *See Appendix 6: Safety of Flight and Appendix 7: Aircraft, Equipment, and Operational Requirements & Limitations for information related to this Task.*
Knowledge	The applicant demonstrates understanding of:
AH.VIII.D.K1	The techniques and procedures used during a powerplant failure on takeoff, the appropriate reference airspeeds, and the specific pilot actions required.
AH.VIII.D.K2	The aircraft configurations required during a powerplant failure on takeoff.
AH.VIII.D.K3	Operational considerations to include: aircraft performance, available landing distance, surface conditions, density altitude, environmental conditions, and obstructions.
AH.VIII.D.K4	Performance and obstacle factors contributing to the Takeoff Decision Point (TDP).
Risk Management	The applicant demonstrates the ability to identify, assess, and mitigate risk, encompassing:
AH.VIII.D.R1	Planning for a powerplant failure during takeoff.
AH.VIII.D.R2	Insufficient brief of a powerplant failure during takeoff, in a crew environment.
AH.VIII.D.R3	Improper procedures or use of checklists in an emergency.
AH.VIII.D.R4	Misidentifying the inoperative engine.
AH.VIII.D.R5	Making the correct decision at Takeoff Decision Point (TDP).
AH.VIII.D.R6	Inability to climb or maintain altitude with an inoperative powerplant.
AH.VIII.D.R7	Altitude, wind, terrain, and obstructions in an emergency.
AH.VIII.D.R8	Low altitude maneuvering including CFIT.
AH.VIII.D.R9	Distractions, improper task management, loss of situational awareness, or disorientation.
Skills	The applicant demonstrates the ability to:
AH.VIII.D.S1	Following a powerplant failure, adjust the power and aircraft configuration as recommended by the manufacturer for the existing conditions.
AH.VIII.D.S2	If the powerplant failure occurs before TDP, establish a controlled descent to a safe landing.
AH.VIII.D.S3	If the powerplant failure occurs after TDP, continue the climb to a specified airspeed and altitude.
AH.VIII.D.S4	Maintain the appropriate heading within ±5°.
AH.VIII.D.S5	Maintain the appropriate airspeed within ±5 knots.
AH.VIII.D.S6	Complete the appropriate checklist(s).
AH.VIII.D.S7	Communicate with ATC and the evaluator, as appropriate.
AH.VIII.D.S8	Use SRM/CRM.

IX. Postflight Procedures

Task	***A. Parking, Shutdown, and Securing***
References	FAA-H-8083-2, FAA-H-8083-3; RFM; AIM
Objective	To determine that the applicant exhibits satisfactory knowledge, risk management, and skills associated with parking, shutdown, and securing the aircraft.
Knowledge	The applicant demonstrates understanding of:
AH.IX.A.K1	Parking, shutdown, securing, and postflight inspection.
AH.IX.A.K2	Documenting inflight/postflight discrepancies.
Risk Management	The applicant demonstrates the ability to identify, assess, and mitigate risk, encompassing:
AH.IX.A.R1	Inappropriate activities and distractions.
AH.IX.A.R2	Main rotor, tail rotor (if applicable), and engine exhaust safety.
AH.IX.A.R3	Disembarking passengers.
Skills	The applicant demonstrates the ability to:
AH.IX.A.S1	Park in an appropriate area, considering the safety of nearby aircraft, persons, and property.
AH.IX.A.S2	Coordinate with the crew, if applicable, and complete the appropriate checklist(s) after parking.
AH.IX.A.S3	Conduct a postflight inspection and document discrepancies and servicing requirements, if any.
AH.IX.A.S4	Secure the aircraft.

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VIII. Emergency Procedures

Appendix 1: The Knowledge Test Eligibility, Prerequisites and Testing Centers

Knowledge Test Description

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

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

Knowledge Test Table

Test Code	Test Name	Number of Questions	Age	Allotted Time	Passing Score
ATH	Airline Transport Pilot Helicopter	80	21	3.0	70
ARH	Airline Transport Pilot Helicopter (Added Rating)	50	21	2.5	70
ACH	Airline Transport Pilot Helicopter Canadian Conversion	40	23	2.0	70

Knowledge Test Blueprint

Airline Transport Pilot Single-Engine Airplane

ATS Knowledge Areas Required by 14 CFR part 61, section 61.155 to be on the Knowledge Test	Percentage of Test Questions
Aerodynamics	5 – 10%
Aeronautical Decision-Making	5 – 10%
Air Traffic Control Procedures	5 – 10%
Aircraft Performance	5 – 10%
Crew Resource Management (CRM)	5 – 10%
Human Factors	5 – 10%
Meteorology	10 – 15%
National Weather Service	3 – 8%
Navigation	10 – 15%
Regulations	5 – 10%
Weather / Weather Charts	10 – 15%
Weight and Balance	5 – 10%
Windshear / Turbulence	5 – 10%
Total Number of Questions	**90**

Airline Transport Pilot Multiengine Airplane

ATM Knowledge Areas Required by 14 CFR part 61, section 61.155 to be on the Knowledge Test	Percentage of Test Questions
Aeronautical Decision Making	3 – 8%
Regulations	10 – 15%
Windshear / Turbulence	3 – 8%
Aerodynamics	8 – 15%
Air Traffic Control Procedures	3 – 8%
Aircraft Performance	10 – 15%
Crew Resource Management (CRM)	3 – 8%
Meteorology	3 – 8%
Weather / Weather Charts	3 – 8%
National Weather Service	3 – 5%
Navigation	10 – 15%
Human Factors	3 – 8%
Weight and Balance	5 – 10%
Air Carrier Operations	5 – 10%
Leadership / Professional Development / Safety Culture	3 – 8%
Total Number of Questions	**125**

Aviation English Language Standard

In accordance with the requirements of 14 CFR section 61.153(b), the applicant must demonstrate the ability to read, write, speak, and understand the English language throughout the application and testing process. English language proficiency is required to communicate effectively with Air Traffic Control (ATC), to comply with ATC instructions, and to ensure clear and effective crew communication and coordination. Normal restatement of questions as would be done for a native English speaker is permitted, and does not constitute grounds for disqualification. The FAA English Language Standard (AELS) is the FAA evaluator's benchmark. It requires the applicant to demonstrate at least the ICAO level 4 standard.

Knowledge Test Requirements – Airplane Category, Single and Multiengine Class

To be eligible to take an ATP Knowledge Test, you must provide proper identification and meet the minimum age requirements in accordance with 14 CFR part 61, section 61.35. To verify your eligibility to take the test, you must provide identification that includes the applicant's:

- Photograph;
- Signature;
- Date of birth;
- If the permanent mailing address is a post office box number, then the applicant must provide a government-issued residential address

Reference the Knowledge Testing Authorization Requirements Matrix for acceptable forms of identification.

If applying for the ATP - Airplane Multiengine (ATM) test or ATP - Airplane Multiengine Canadian Conversion (ACM) test, the applicant must provide a graduation certificate from an approved provider of the ATP Certification Training Program (ATP CTP) in accordance with part 61, section 61.35.

An applicant retesting **after failure** of any ATP knowledge test is required to submit the applicable test report indicating failure, along with an endorsement from an authorized instructor who gave the applicant the required additional training in accordance with 14 CFR part 61, section 61.49. For the ATP - Airplane Multiengine (ATM) test or ATP - Airplane Multiengine Canadian Conversion (ACM) test, the authorized instructor must meet the ATP CTP instructor requirements. The endorsement must certify that the applicant is competent to pass the test. The

test proctor must retain the original failed test report presented as authorization and attach it to the applicable sign-in/out log.

Note: *For a replacement knowledge test report, see Appendix 3: Airman Knowledge Test Report.*

If an applicant seeks to add an additional category or class to an existing ATP certificate, reference part 61, section 61.165 for any additional knowledge test requirements.

An applicant seeking only to add an airplane type rating to an existing airman certificate in the same category and class (i.e., not adding a new category, class, or upgrading the certificate) is not required to pass a knowledge test in accordance with part 61, sections 61.63(d) and 61.165(e) prior to taking the practical test.

Acceptable forms of authorization for ATP Airplane Canadian Conversion (ACM and ASC) only:

- Confirmation of Verification Letter issued by FAA Airmen Certification Branch (Knowledge Testing Authorization Requirements Matrix).
- Requires **no** instructor endorsement or other form of written authorization, **except** those applicants seeking a multiengine airplane ATP certificate. Those applicants are required to provide a graduation certificate from an approved provider of the ATP CTP.

Knowledge Test Centers

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

Knowledge Test Registration

When you contact a knowledge testing center to register for a test, please be prepared to select a test date, choose a testing center, and make financial arrangements for test payment when you call. You may register for test(s) several weeks in advance, and you may cancel in accordance with the testing center's cancellation policy.

Appendix 2: Knowledge Test Procedures and Tips

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

Acceptable Materials

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

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

Test Tips

When taking a knowledge test, please keep the following points in mind:

- Carefully read the instructions provided with the test.
- Answer each question in accordance with the latest regulations and guidance publications.
- Read each question carefully before looking at the answer options. You should clearly understand the problem before trying to solve it.
- After formulating a response, determine which answer option corresponds with your answer. The answer you choose should completely solve the problem.

- Remember that only one answer is complete and correct. The other possible answers are either incomplete or erroneous.
- If a certain question is difficult for you, mark it for review and return to it after you have answered the less difficult questions. This procedure will enable you to use the available time to maximum advantage.
- When solving a calculation problem, be sure to read all the associated notes.
- For questions involving use of a graph, you may request a printed copy that you can mark in computing your answer. This copy and all other notes and paperwork must be given to the testing center upon completion of the test.

Cheating or Other Unauthorized Conduct

To avoid test compromise, computer testing centers must follow strict security procedures established by the FAA and described in FAA Order 8080.6 (as amended), Conduct of Airman Knowledge Tests. The FAA has directed testing centers to terminate a test at any time a test unit member suspects that a cheating incident has occurred.

The FAA will investigate and, if the agency determines that cheating or unauthorized conduct has occurred, any airman certificate or rating you hold may be revoked. You will also be prohibited from applying for or taking any test for a certificate or rating under 14 CFR part 61 for a period of one year.

Testing Procedures for Applicants Requesting Special Accommodations

An applicant with learning or reading disability may request approval from the FAA Airman Testing Branch through the responsible Flight Standards Office or International Field Office/International Field Unit (IFO/IFU) to take an airman knowledge test using one of the three options listed below, in preferential order. Before approving any option, the Flight Standards Office or IFO/IFU inspector must advise the applicant of the regulatory certification requirement to be able to read, write, speak, and understand the English language.

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

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

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

Option 3: Request the proctor's assistance in reading specific words or terms from the test questions and/or supplement book. To prevent compromising the testing process, the proctor must be an individual with no aviation background or expertise. The proctor may provide reading assistance only (i.e., no explanation of words or terms). When an applicant requests this option, the Flight Standards Office or IFO/IFU inspector must contact the FAA Airman Testing Branch for assistance in selecting the test site and assisting the proctor.

Appendix 3: Airman Knowledge Test Report

Immediately upon completion of the knowledge test, the applicant receives a printed Airman Knowledge Test Report (AKTR) documenting the score with the testing center's raised, embossed seal. The applicant must retain the original AKTR. When taking the practical test, the applicant must present the original AKTR to the evaluator, who is required to assess the noted areas of deficiency during the oral portion of the practical test.

An AKTR expires 24 calendar months from the month the applicant completes the knowledge test unless it is a multiengine airplane ATP AKTR. That AKTR is valid for 60 calendar months from the month the applicant completes the knowledge test. If the AKTR expires before completion of the practical test, the applicant must retake the knowledge test unless otherwise permitted to use an expired AKTR in accordance with part 61, section 61.39.

To obtain a duplicate AKTR due to loss or destruction of the original, the applicant must mail a signed request accompanied by a check or money order made payable to the FAA in the amount of $12.00 to the following address:

Federal Aviation Administration
Airmen Certification Branch
P.O. Box 25082
Oklahoma City, OK 73125-0082

To obtain a copy of the application form or a list of the information required, please see the Airmen Certification Branch webpage.

FAA Knowledge Test Question Coding

Each Task in the ACS includes an ACS code. This ACS code will soon be displayed on the AKTR to indicate what Task element was proven deficient on the knowledge test. An authorized instructor can then provide remedial training in the deficient areas and evaluators can re-test this element during the practical exam.

The ACS coding consists of four elements. For example, this code is interpreted as follows:

AH.I.B.K6:

AH = Applicable ACS (Airline Transport Pilot – Helicopter)
I = Area of Operation (Preflight Preparation)
B = Task (Performance and Limitations)
K6 = Knowledge Task element 6 (Adverse effects of exceeding a helicopter limitation.)

Knowledge test questions are linked to the ACS codes, which will soon replace the system of Learning Statement Codes (LSC) codes. After this transition occurs, the AKTR will list an ACS code that correlates to a specific Task element for a given Area of Operation and Task. Remedial instruction, if applicable, and re-testing will be specific, targeted, and based on specified learning criteria. Similarly, a Notice of Disapproval for the practical test will use the ACS codes to identify the deficient Task elements.

The current knowledge test management system does not have the capability to print ACS codes. Until a new test management system is in place, the LSC (e.g., “PLT058”) code will continue to be displayed on the AKTR. The LSC codes are linked to references leading to broad subject areas. By contrast, each ACS code is tied to a unique Task element in the ACS itself. Because of this fundamental difference, there is no one-to-one correlation between LSC codes and ACS codes.

Because all active knowledge test questions for the ATP certificate have been aligned with this ACS, evaluators can continue to use LSC codes in conjunction with this ACS. The evaluator should look up the LSC code(s) on the applicant’s AKTR in the Learning Statement Reference Guide. After noting the subject area(s), the evaluator can use the corresponding Area(s) of Operation/Task(s) in the ACS to narrow the scope of material for retesting, and to evaluate the applicant’s understanding of that material in the context of the appropriate ACS Area(s) of Operation and Task(s).

The applicant uses his or her full legal name on the Airman Certificate and/or Rating Application, FAA Form 8710-1, using up to 50 characters (including spaces). The applicant may exclude some middle names as necessary to meet the 50-character limit. The AKTR may not reflect the applicant's full legal name and may differ slightly from the name presented for the practical test.

If the 8710-1 shows a middle name, the AKTR may show that middle name, the correct middle initial, or no entry. The application will process correctly using the Integrated Airman Certificate and Rating Application (IACRA) system, and the Airmen Certification Branch will accept it. If an incorrect middle initial, spelling variant or different middle name is on the AKTR, or if the AKTR has a first name variation of any kind, the evaluator must attach an explanation and a scan or copy of the applicant's photo identification and attach it to the IACRA or paper application. If the last name on the AKTR has a different spelling or suffix, an IACRA application is not possible. The applicant must use a paper application, and the evaluator must include an explanation and copy of the applicant's photo identification to avoid a correction notice.

Appendix 4: The Practical Test – Eligibility and Prerequisites

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

There are a number of additional regulations in 14 CFR part 61 that outline requirements for an ATP certificate or the addition of an airplane type rating. Some of the key sections are highlighted below. Careful review of these sections is necessary to ensure that all of the requirements are met.

- Section 61.63 provides the endorsement and training record requirements for an applicant seeking an airplane type rating to be added to an airman certificate (other than an ATP certificate).
- Section 61.155 describes the knowledge areas for ATP applicants.
- Section 61.156 describes the training required for applicants seeking a multiengine ATP certificate.
- Section 61.157 provides the endorsement and training record requirements for an applicant seeking an airplane type rating to be added to an ATP certificate or for an airplane type rating to be concurrently completed with the original issuance of an ATP certificate.
- Section 61.159 details the aeronautical experience needed to be eligible for an ATP certificate in the airplane category.
- Section 61.160 outlines the eligibility requirements for a multiengine ATP certificate with restricted privileges with reduced aeronautical experience. It also specifies the limitations that must be placed on the ATP certificate if the applicant uses this section to qualify for the certificate.
- Section 61.165 defines the requirements for the addition of an aircraft category or class rating to an ATP certificate.

Appendix 5: Practical Test Roles, Responsibilities, and Outcomes

Applicant Responsibilities

The applicant is responsible for mastering the established standards for knowledge, risk management, and skill elements in all Tasks appropriate to the certificate and rating sought. The applicant should use this ACS, its references, and the Applicant's Checklist in this Appendix in preparation to take the practical test.

Instructor Responsibilities

The instructor, if used, is responsible for training 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 as part of preparing the applicant to take the practical test and, if necessary, in retraining the applicant to proficiency in all subject(s) areas which were shown to be deficient by the FAA Airman Knowledge Test Report.

Evaluator Responsibilities

An evaluator[1] is:

- Aviation Safety Inspector (ASI)
- Pilot examiner (other than administrative pilot examiners);
- Training center evaluator (TCE); or
- Chief instructor, assistant chief instructor or check instructor of a pilot school holding examining authority.

The evaluator who conducts the practical test is responsible for determining that the applicant meets the established standards of aeronautical knowledge, risk management, and skills (flight proficiency), and for each Task in the appropriate ACS. This responsibility also includes verifying the experience requirements specified for a certificate or rating and training requirements for an aircraft type rating.

Prior to beginning the practical test, the evaluator must also determine that the applicant meets FAA Aviation English Language Proficiency Standards by verifying that he or she can understand ATC instructions and communicate in English at a level that is understandable to ATC and other pilots. The evaluator should use procedures outlined in the AC 60-28, FAA English Language Standard for an FAA Certificate Issued Under 14 CFR Parts 61, 63, 65, and 107, as amended, when evaluating the applicant's ability to meet the standard.

The evaluator must develop a scenario-based Plan of Action (POA), written in English, to conduct the practical test. The POA must include all of the required Areas of Operation and Tasks and should be scenario-based as much as practical. As a scenario unfolds during the test, the evaluator will introduce problems and emergencies that the applicant must manage. The evaluator has the discretion to modify the POA in order to accommodate unexpected situations as they arise.

In the integrated ACS framework, the Areas of Operation contain Tasks that include "knowledge" elements (such as K1), "risk management" elements (such as R1), and "skill" elements (such as S1). Knowledge and risk management elements are primarily evaluated during the knowledge testing phase of the airman certification process. The evaluator must assess the applicant on all skill elements for each Task included in each Area of Operation of the ACS, unless otherwise noted. The evaluator administering the practical test has the discretion to combine Tasks/elements as appropriate to testing scenarios.

The required minimum elements to include in the POA from each applicable Task, unless otherwise noted within a specific Task, are as follows:

- At least one knowledge element;

[1] An evaluator that conducts ATP certificate evaluations in accordance with an approved part 121 or part 135 training and checking program is not required to use this document.

- At least one risk management element;
- All skill elements unless otherwise noted; and
- Any Task elements in which the applicant was shown to be deficient on the knowledge test, if a knowledge test is required.

Note: *Task elements added to the POA on the basis of being listed on the AKTR may satisfy the other minimum Task element requirements. The missed items on the AKTR are not required to be added in addition to the minimum Task element requirements.*

There is no expectation for testing every knowledge and risk management element in a Task, but the evaluator has discretion to sample as needed to ensure the applicant's mastery of that Task.

Unless otherwise noted in the Task, the evaluator must test each item in the skills section by asking the applicant to perform each one. As safety of flight conditions permit, the evaluator may use questions during flight to test knowledge and risk management elements not evident in the demonstrated skills. To the greatest extent practicable, evaluators shall 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 sub-elements, the evaluator may select an appropriate sub-element (e.g., AH.I.B.K3f – Weight and balance). Tasks requiring evaluation of more than one sub-element are annotated accordingly. If the broader primary element is selected, the evaluator must develop questions only from material covered in the references listed for the Task.

Possible Outcomes of the Test

There are three possible outcomes of the practical test: (1) Temporary Airman Certificate (satisfactory), (2) Notice of Disapproval (unsatisfactory), or (3) Letter of Discontinuance.

If the evaluator determines that a Task is incomplete, or the outcome is uncertain, the evaluator may require the applicant to repeat that Task, or portions of that Task. This provision does not mean that instruction, practice, or the repetition of an unsatisfactory Task is permitted during the practical test.

If the evaluator determines the applicant's skill and abilities are in doubt, the outcome is unsatisfactory and the evaluator must issue a Notice of Disapproval.

Satisfactory Performance

Satisfactory performance requires that the applicant:

- Demonstrate the Tasks specified in the Areas of Operation for the certificate or rating sought within the established standards;
- Demonstrate mastery of the aircraft by performing each Task successfully;
- Demonstrate proficiency and competency in accordance with the approved standards;
- Demonstrate sound judgment and exercise aeronautical decision-making/risk management; and
- Demonstrate competence in crew resource management in an operation or airplane certificated for more than one required pilot crewmember, or single-pilot competence in an operation or airplane that is certificated for single-pilot operations.

Satisfactory performance will result in the issuance of a temporary certificate or the continuation or reinstatement of an operating privilege, as appropriate to the checking event being completed.

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 section 61.157 for the issuance of an ATP certificate and an appropriate rating.

Unsatisfactory Performance

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.

If, in the judgment of the evaluator, the applicant does not meet the standards for any Task, the applicant fails the Task and associated Area of Operation. The test is unsatisfactory, and the evaluator issues a Notice of Disapproval. 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. The evaluator should also list the Tasks failed or Tasks not tested within any unsatisfactory or partially completed Area(s) of Operation. If the applicant's inability to meet English language requirements contributed to the failure of a Task, the evaluator must note "English Proficiency" on the Notice of Disapproval.

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 is entitled to credit only for those Areas of Operation and the associated Tasks performed satisfactorily.

Discontinuance

When it is necessary to discontinue 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. 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.

Testing Date Limits

If all increments of the practical test are not completed on the same date, then all of the remaining increments of the test must be completed within two calendar months after the month the applicant began the test. Following a discontinuance or an unsatisfactory performance, an applicant may receive credit for items passed, but only within the 60 days after the date of a first failure or Letter of Discontinuance. While an applicant may receive credit for any Task(s) successfully completed within a failed or partially tested Area of Operation, the evaluator has discretion to reevaluate any Task(s). When an applicant is entitled to credit for Areas of Operation previously passed as indicated on a Notice of Disapproval or Letter of Discontinuance, evaluators should continue using the PTS/ACS effective on the test cycle start date.

Practical Test Checklist (Applicant)
Appointment with Evaluator

Evaluator's Name: _____

Location: _____

Date/Time: _____

Note: Applicability of each item is contingent on the aircraft or Flight Simulation Training Device used.

Acceptable Aircraft

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

Personal Equipment

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

Personal Records

- ☐ Identification—Photo/Signature ID
- ☐ Pilot Certificate
- ☐ Current Medical Certificate or BasicMed qualification (when applicable)
- ☐ Completed FAA Form 8710-1, Airman Certificate and/or Rating Application with Instructor's Signature or completed IACRA form
- ☐ Applicant FAA Tracking Number (FTN) if 8710-1 completed via IACRA
- ☐ Original Knowledge Test Report
- ☐ Pilot Logbook with appropriate Instructor Endorsements
- ☐ FAA Form 8060-5, Notice of Disapproval (if applicable)
- ☐ Letter of Discontinuance (if applicable)
- ☐ Approved School Graduation Certificate (if applicable)
- ☐ Original ATP CTP Graduation Certificate (if applicable)
- ☐ Evaluator's Fee (if applicable)

Initial ATP Certificate Task Table

For an applicant seeking the initial issuance of an ATP certificate, the evaluator must evaluate the applicant in the Areas of Operation and Tasks listed in the Task Rating Table.

Areas of Operation	ASEL Tasks	ASES Tasks	AMEL Tasks	AMES Tasks
I	A,B,C,F,G	A,B,C,F,G,H	A,B,C,D,E,F,G	All
II	A,B,C,E	A,B,D,E	A,B,C,E	A,B,D,E
III	A,B,I,J	All	A,B,I,J	All
IV	All	All	All	All
V	All	All	All	All
VI	All	All	All	All
VII	A,B,C,G	A,B,C,G	A,B,D,E,F,G	A,B,D,E,F,G
VIII	A	B	A	B

Additional Rating Task Table

For an applicant who holds an ATP certificate and seeks an additional airplane category and/or class rating at the ATP level, the evaluator must evaluate that applicant in the Areas of Operation and Tasks listed in the Additional Rating Task Table.

If the applicant holds an ATP certificate with two or more category or class ratings, and the ratings table indicates differing required Tasks, the “least restrictive” entry applies. For example, if “All” and “None” are indicated for one Area of Operation, the “None” entry applies. If “B” and “B, C” are indicated, the “B entry applies.

An applicant seeking an ATP certificate in the airplane category with a single-engine class rating must demonstrate additional Tasks if the applicant meets any of the following criteria:

- An applicant holding a private pilot certificate with an airplane single-engine class rating who is seeking an ATP certificate with an airplane single-engine class rating must perform the Power-Off 180° Accuracy Approach and Landing Task in accordance with the Commercial Pilot – Airplane ACS (FAA-S-ACS-7 as amended), Area of Operation IV, Task M. (Ref. section 61.165(b) and (e))

- An applicant that does not hold an airman certificate with an airplane single-engine class rating, who is seeking an ATP certificate with an airplane single-engine class rating, must perform both the Forward Slip to the Landing Task in accordance with the Private Pilot – Airplane ACS (FAA-S-ACS-6 as amended), Area of Operation IV, Task M and a Power-Off 180° Accuracy Approach and Landing Task, Commercial Pilot – Airplane ACS (FAA-S-ACS-7 as amended), Area of Operation IV, Task M. (Ref. sections 61.153 and 61.165(b) and (e))

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

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

ATP Pilot Ratings Held

Areas of Operation	ASES Tasks	AMEL Tasks	AMES Tasks	RH Tasks
I	A,B	A,B	A,B	A,B
II	A,C,E	A,E	A,C,E	A,B,C,E
III	A,B,I	A,B	A,B,I	A,B,I,J
IV	C	C	C	All
V	None	None	None	All
VI	None	None	None	All
VII	A,B,C,G,	A,B,C,G	A,B,C,G	A,B,C,G
VIII	A	None	A	A

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

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

ATP Pilot Ratings Held

Areas of Operation	ASEL Tasks	AMEL Tasks	AMES Tasks	RH Tasks
I	A,B,H	A,B,H	A,B	A,B,H
II	A,B,D,E	A,B,D,E	A,E	A,B,D,E
III	A,B,C,D,E,F,G,H,I	A,B,C,D,E,F,G,H,I	A,B,I	All
IV	C	C	C	All
V	None	None	None	All
VI	None	None	None	All
VII	A,B,C,G	A,B,C,G	A,B,C,G	A,B,C,G
VIII	B	B	None	B

Addition of an Airplane Multiengine Land Rating to an existing ATP Certificate

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

ATP Pilot Ratings Held

Areas of Operation	ASEL Tasks	ASES Tasks	AMES Tasks	RH Tasks
I	A,B,D,E	A,B,D,E	A,B	A,B,C,D,E,F,G
II	A,B,E	A,B,C,E	A,B,C,E	A,B,C,E
III	A,B,I	A,B,I	A,B,I	A,B,I,J
IV	All	All	C	All
V	All	All	None	All
VI	None	None	None	All
VII	A,B,D,E,F,G	A,B,D,E,F,G	A,B,E,G	A,B,D,E,F,G
VIII	A	A	A	A

Addition of an Airplane Multiengine Sea Rating to an existing ATP Certificate

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

ATP Pilot Ratings Held

Areas of Operation	AMEL Tasks*	ASEL Tasks	ASES Tasks	RH Tasks
I	A,B,H	A,B,D,E,H	A,B,D,E,H	All
II	A,B,D,E	A,B,D,E	A,B,D,E	A,B,D,E
III	A,B,C,D,E,F,G,H,I	A,B,C,D,E,F,G,H,I	A,B,I	All
IV	C	All	C	All
V	None	All	All	All
VI	None	A,G,H	None	All
VII	A,B,E,G	A,B,D,E,F,G	A,B,D,E,F,G	A,B,D,E,F,G
VIII	B	B	B	B

*When adding the Airplane Multiengine Sea Rating (AMES) to an existing ATP Airplane Multiengine Land (AMEL) Certificate, any Task requiring the feathering of propellers may be simulated. The applicant is not required to supply a seaplane with propeller feathering capability.

Addition of a Type Rating to an Existing Pilot Certificate

In accordance with 14 CFR part 61, sections 61.63 and 61.157, an applicant may add a type rating to an existing pilot certificate. The following table identifies the Tasks required for the category and class of type rating sought. There is no Task credit available for applicants that hold a pilot type rating issued in accordance with section 61.55.

Areas of Operation	ASEL Tasks	AMEL Tasks	ASES Tasks	AMES Tasks
I	A,B	A,B	A,B,H	A,B,H
II	A,B,C,E	A,B,C,E	A,B,D,E	A,B,D,E
III	A,B,I,J	A,B,I,J	All	All
IV	All	All	All	All
V	All	All	All	All
VI	All	All	All	All
VII	A,B,C,G	A,B,D,E,F,G	A,B,C,G	A,B,D,E,F,G
VIII	A	A	B	B

Note: *Available type ratings can be located at: http://registry.FAA.gov/TypeRatings/Type_Rating_Table.pdf*

Addition of a VFR Only Type Rating to an Existing Pilot Certificate

In accordance with section 61.63(e) or section 61.157(g), as applicable, an applicant may add a type rating to a pilot certificate with an airplane that is not capable of instrument flight and therefore completion of the applicable Tasks by reference to instruments is not possible. This results in a "VFR only" limitation to be added to the type rating on the pilot certificate. The following table identifies the Tasks required for the category and class of type rating sought.

Category and Class of Type Rating

Areas of Operation	AMEL Tasks	ASEL Tasks	AMES Tasks	ASES Tasks
I	A,B	A,B	A,B,H	A,B,H
II	A,B,C,E	A,B,C,E	A,B,D,E	A,B,D,E
III	A,B,I,J	A,B,I,J	All	All
IV	All	All	All	All
V	All	All	All	All
VI	None	None	None	None
VII	A,B,D,E,G	A,B,C,G	A,B,D,E,G	A,B,C,G
VIII	A	A	B	B

Note: *Any Task that is normally required to be performed by reference to instruments would be conducted using visual references for the purposes of a VFR type rating.*

Removal of the "Second-In-Command Required" Limitation from a Type Rating

A pilot, who holds an airplane type rating with a "Second-In-Command Required" Limitation, may be tested to remove the limitation and be issued an unrestricted type rating. The practical test to remove the restriction does not require evaluation of all Areas of Operation and Tasks as a single-pilot. The practical test is conducted in accordance with the Airline Transport Pilot and Type Rating for Airplane ACS (FAA-S-ACS-11 as amended), and the pilot must demonstrate single-pilot competency in the following Areas of Operation and Tasks listed below.

Areas of Operation	AMEL Tasks	AMES Tasks
I	None	None
II	A,B,C,E	A,B,D,E
III	A,B,I,J	All
IV	B,C	B,C
V	None	None
VI	All	All
VII	A,B,D,E,F,G	A,B,D,E,F,G
VIII	A	B

Airplane Multiengine Land Limited to Center Thrust

A center thrust limitation for the AMEL rating is issued to applicants who complete the practical test for the AMEL rating in an aircraft that does not have a manufacturer's published V_{MC}.

When conducting a practical test for a pilot that has not previously demonstrated competence in a multiengine airplane with a published V_{MC}, or when removing the center thrust limitation from the AMEL rating, the applicant must be tested on the following Areas of Operation and Tasks from the Airline Transport Pilot and Type Rating for Airplane ACS (FAA-S-ACS-11 as amended) and Commercial Pilot – Airplane ACS (FAA-S-ACS-7 as amended) in a multiengine airplane that has a manufacturer's published V_{MC} speed. This speed can be found on the type certificate data sheet (TCDS) or in the RFM. If the limitation will be removed under part 121, 135, or 142, it must be done in accordance with an approved curriculum or training program.

Airline Transport Pilot/Type Rating for Airplane ACS (FAA-S-ACS-11 as amended)

Areas of Operation	Tasks
III	I
VII	B,D,E

Commercial Pilot – Airplane ACS (FAA-S-ACS-7 as amended)

Areas of Operation	Tasks
X	A,B

Appendix 6: Safety of Flight

General

Safety of flight must be the prime consideration at all times. The evaluator, applicant, and crew must be constantly alert for other traffic. If performing aspects of a given maneuver, such as emergency procedures, would jeopardize safety, the evaluator will ask the applicant to simulate that portion of the maneuver. The evaluator will assess the applicant's use of visual scanning and collision avoidance procedures throughout the entire test.

Stall and Spin Awareness

During flight training and testing, the applicant and the instructor or evaluator must always recognize and avoid operations that could lead to an inadvertent stall or spin and inadvertent loss of control.

Use of Checklists

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

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

In a single-pilot airplane, the applicant should demonstrate Single Pilot Resource Management (SRM). Proper use is dependent on the specific Task being evaluated. The situation may be such that the use of the checklist while accomplishing elements of an Objective would be either unsafe or impractical in a single-pilot operation. In this case, a review of the checklist after the elements have been accomplished is appropriate.

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 cockpit.

Positive Exchange of Flight Controls

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

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

- When one pilot seeks to have the other pilot take control of the aircraft, he or she will say, "You have the flight controls."
- The second pilot acknowledges immediately by saying, "I have the flight controls."
- The first pilot again says, "You have the flight controls," 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. There must never be any doubt as to who is flying the aircraft.

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 in all Tasks in this practical test standard, the evaluator should take note of the applicant's use of CRM or SRM, as applicable. 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 (SOPs). SRM specifically refers to the management of all resources onboard the aircraft as well as outside resources available to the single pilot. Resources a pilot may involve in decisions as part of CRM/SRM include dispatchers, flight attendants, maintenance personnel, flight operations managers, and air traffic control.

Deficiencies in CRM/SRM often contribute to the unsatisfactory performance of a Task. While evaluation of CRM/SRM may appear to be somewhat subjective, the evaluator should use the risk management elements of the given Task(s) to determine whether the applicant's performance of the Task(s) demonstrates both understanding and application of the associated risk management elements.

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 the evaluator, other than an FAA Inspector, is qualified and current in the specific make and model aircraft that is certified for two or more crewmembers, he or she may occupy a duty position.

If the evaluator occupies 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 and approach to stalls. During these two Tasks the applicant must demonstrate their ability to control the aircraft without the intervention from the pilot monitoring.

Multiengine Airplane Considerations

For safety reasons, when the practical test is conducted in an airplane, the applicant must perform Tasks that require powerplant shutdown or propeller feathering only under conditions and at a position and altitude where it is possible to make a safe landing on an established airport if there is difficulty in restarting the powerplant or unfeathering the propeller. The evaluator must select an entry altitude that will allow the Powerplant Failure Tasks to be completed no lower than 3,000 feet AGL or the manufacturer's recommended altitude, whichever is higher. If it is not possible to restart the powerplant or unfeather the propeller while airborne, the applicant and the evaluator should treat the situation as an emergency.

At altitudes lower than 3,000 feet AGL, powerplant failure should be simulated as recommended by the manufacturer. For propeller-driven airplanes, powerplant failure should be simulated by reducing throttle to idle and then establishing zero thrust. For additional Task considerations, see Appendix 7: Aircraft, Equipment, and Operational Requirements & Limitations, Area of Operation III, Takeoffs and Landings, Task I. Rejected Takeoff, and the powerplant failure Tasks in Area of Operation VII. Emergency Operations.

For an airplane equipped with propellers (including turboprop), unless the practical test is for a type rating, the applicant must demonstrate feathering one propeller and engine shutdown unless the manufacturer prohibits it.[2] If the practical test is conducted in an airplane that requires the pilot to hold a type rating, the applicant may perform a simulated powerplant failure. In all other cases, the applicant must demonstrate the ability to safely feather and unfeather the propeller while airborne.

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.

Single-Engine Airplane Considerations

For safety reasons, the evaluator will not simulate a powerplant failure in a single-engine airplane unless it is possible to safely complete a landing.

[2] If an applicant has not previously demonstrated multiengine airplane tasks for the commercial pilot certificate, the applicant cannot use a propeller-equipped airplane where the manufacturer prohibits feathering for the initial ATP multiengine airplane certificate.

High Performance Aircraft Considerations

In some high performance airplanes, the power setting may have to be reduced below the ACS guidelines power setting to prevent excessively high pitch attitudes greater than 30° nose up.

Appendix 7: Aircraft, Equipment, and Operational Requirements & Limitations

Aircraft Requirements & Limitations

14 CFR part 61, section 61.45 prescribes the required aircraft and equipment for a practical test. The regulation states the minimum aircraft registration and airworthiness requirements as well as the minimum equipment requirements, to include the minimum required controls.

If the aircraft presented for the practical test has inoperative instruments or equipment, it must be addressed in accordance with 14 CFR part 91, section 91.213. If the aircraft can be operated in accordance with 14 CFR part 91, section 91.213, then it must be determined if the inoperative instruments or equipment are required to complete the practical test.

For a type rating or experimental aircraft authorization in an aircraft covered under the FAA's Specialty Aircraft Examiner (SAE) program, the evaluator has discretion to omit any skill element(s) deemed unsuitable or unsafe for the operational or performance characteristics of the aircraft, provided that such determinations are coordinated with the Specialty Aircraft Examiner Branch.

Equipment Requirements & Limitations

The equipment examination should be administered before the flight portion of the practical test, but it should be closely coordinated and related to the flight portion. In a training core curriculum that has been approved under 14 CFR part 142, the evaluator may accept written evidence of the equipment exam, provided that the Administrator has approved the exam and authorized the individual who administers it.

The aircraft must meet the requirements as outlined in 14 CFR part 61, section 61.45, and 14 CFR part 91, as applicable.

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 installed and operative during both the oral and flight portions of the practical test. If the applicant has trained using a class 1 or class 2 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.

If the practical test is conducted in an aircraft, the applicant is required by 14 CFR part 61, section 61.45(d)(2) to provide an appropriate view limiting device acceptable to the evaluator. The applicant and the evaluator should establish a procedure as to when and how this device should be used, and brief this procedure before the flight. The device must be used during all testing that requires flight "solely by reference to instruments." 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. For safety considerations, the evaluator may request at any time that the applicant remove or modify the view-limiting device to assist with the detection of traffic and other hazards. The use of a view-limiting device does not apply to specific elements within a Task when there is a requirement for visual references.

Operational Requirements, Limitations, & Task Information

Except for water operations, the applicant must perform the tasks in actual or simulated instrument conditions unless the aircraft's type certificate makes the aircraft incapable of operating under instrument flight rules (IFR). See Appendix 5 for required Tasks to be completed for a VFR Only type rating.

I. Preflight Preparation

Task C. Weather Information (ATP)

This task is only required for applicants seeking an initial ATP certificate in accordance with section 61.155. Additional ratings added to an ATP certificate or type ratings added to a pilot certificate do not require completion of this task. Any risk assessment tool is acceptable provided the applicant is able to assess and mitigate risks.

Task D. High Altitude Aerodynamics (ATP) (AMEL, AMES)

This task is only required for applicants seeking an initial ATP certificate in the multiengine class in accordance with section 61.155. The specific content in this task is included in the training required for multiengine applicants in accordance with section 61.156 regardless of the multiengine airplane brought for the practical test. This task is not required for applicants seeking an ATP certificate with a single-engine class rating (initial or add-on) or applicants adding a single-engine airplane type rating to a pilot certificate.

Task E. Air Carrier Operations (ATP) (AMEL, AMES)

This task is only required for applicants seeking an initial ATP certificate in the multiengine class in accordance with section 61.155. The specific content in this task is included in the training required for multiengine applicants in accordance with section 61.156 regardless of the multiengine airplane brought for the practical test. This task is not required for applicants seeking an ATP certificate with a single-engine class rating (initial or add-on) or applicants adding a single-engine airplane type rating to a pilot certificate.

Task F. Human Factors (ATP)

This task is only required for applicants seeking an initial ATP certificate in accordance with section 61.155. Additional ratings added to an ATP certificate or type ratings added to a pilot certificate do not require completion of this task. The ability to perform a self-assessment and determine fitness for flight is also applicable to practical tests given in an FSTD.

Task G. The Code of Federal Regulations (ATP)

This task is only required for applicants seeking an initial ATP certificate in accordance with section 61.155. Additional ratings added to an ATP certificate or type ratings added to a pilot certificate do not require completion of this task. Evaluator has the discretion to choose a representative sampling of one or more rule parts.

II. Preflight Procedures

Task A. Preflight Assessment

If a flight engineer is a required crewmember for a particular type airplane, the actual visual inspection may be waived. The actual visual inspection may be replaced by using an approved pictorial means that realistically portrays the location and detail of inspection items. On airplanes requiring a flight engineer, an applicant must demonstrate satisfactory knowledge of the flight engineer functions for the safe completion of the flight if the flight engineer becomes ill or incapacitated during a flight.

Task B. Powerplant Start

For practical tests in an airplane, an applicant's ability to respond to a powerplant start failure or malfunction can be assessed through scenario-based oral questioning.

Task E. 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 (i.e., V_1 or V_{MC}), emergency return intentions, and what is expected of the other crewmembers during the takeoff/departure. If the first takeoff briefing is satisfactory, the evaluator may allow the applicant to brief only the changes, during the remainder of the flight.

III. Takeoffs and Landings

The applicant must make at least three actual landings with at least one to a full stop. Landing Tasks may be combined where appropriate. This includes the Landing Tasks found in the Instrument Procedures Area of Operation and the Emergency Procedures Area of Operation.

Briefings

Each applicant must give a briefing before each takeoff and 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: departure runway, departure procedure, power settings, speeds, abnormal or emergency procedures prior to or after reaching decision speed (i.e., V_1 or V_{MC}), emergency return intentions, go-around procedures, initial rate

of descent, and what is expected of the other crewmembers during the takeoff and landing. For single-pilot operations, the evaluator should request that the applicant verbalize the briefings. If the first takeoff and landing briefings are satisfactory, the evaluator may allow the applicant to brief only the changes, during the remainder of the evaluation.

Task A. Normal Takeoff and Climb

A normal takeoff begins from a standing or rolling start (not from a touch-and-go) with all engines operating normally during the takeoff and initial climb phase. When the flight test is conducted in an airplane, evaluators may have very little control over existing meteorological, airport, and traffic conditions. Evaluators are expected to make a reasonable attempt to evaluate a takeoff 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 takeoffs evaluated in a FFS, the crosswind component entered in the instructor operating station (IOS) should be between 10 and 15 knots. Occasionally, however, the crosswind components should be in excess of 15 knots, but must not exceed the crosswind component allowed by the operator's aircraft operating manual, or the maximum demonstrated value given in the approved Rotorcraft Flight Manual (RFM).

Task B. Normal Approach and Landing

At least one of the required landings should be manually controlled with a crosswind. When the flight test is conducted in an airplane, 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 takeoffs evaluated in a FFS, the crosswind component entered in the instructor operating station (IOS) should be between 10 and 15 knots. Occasionally, however, the crosswind components should be in excess of 15 knots, but must not exceed the crosswind component allowed by the operator's aircraft operating manual, or the maximum demonstrated value given in the approved Rotorcraft Flight Manual (RFM).

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

This Task simulates a takeoff from an area that would require a takeoff and spiral climb; or a straight-ahead takeoff and climb from a narrow waterway with obstructions at either end. The evaluator must assess both takeoff situations for this Task.

In multiengine seaplanes with V_X values within 5 knots of V_{MC}, the use of V_Y or the manufacturer's recommendation may be more appropriate for this demonstration.

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

This Task simulates an approach and landing to a small pond, which would require a spiral approach, wings level landing, and step turn upon landing; and a straight ahead approach and landing to a narrow waterway with obstructions at either end. The evaluator must evaluate both landing situations for this Task.

Task I. Rejected Takeoff

If completed in a multiengine airplane, the powerplant failure must be simulated before reaching 50 percent of V_{MC}.

Task J. Go-Around

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 should not be initiated at speeds or altitudes below that recommended in the RFM.

Completion of this Task may count for one of the three required actual landings. Wheel contact with the runway is not required.

IV. Inflight Maneuvers

Task A. Steep Turns

The applicant must demonstrate his or her ability to control the airplane manually without any intervention from the pilot monitoring, if applicable, or the evaluator. Use of available aircraft instrumentation is acceptable.

This task is to be conducted by reference to instruments. If IFR, the pilots should be situationally aware of location and any potential traffic.

For a VFR-only type rating, however, this Task will still be performed in visual conditions and the pilot should clear the area of traffic prior to beginning the maneuver; AH.IV.A.S3 would not be required to be by reference to instruments.

Task C. Specific Flight Characteristics

If the airplane does not have any specific flight characteristics identified in the FSB Report, this Task is not required.

V. Stall Prevention

The applicant must demonstrate his or her ability to control the aircraft without the intervention from the pilot monitoring, if applicable.

For Tasks A, B, and C, one must be with the autopilot engaged, if installed; and one must be accomplished while in a turn with a bank angle of 15-30 degrees. In addition, these Tasks should be accomplished by reference to flight instruments. For a VFR only type rating, however, the tasks should be accomplished in visual conditions.

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

Evaluation criteria for a recovery from an approach to 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 (i.e., airplane mass, drag configuration and powerplant response time) which affect the recovery altitude.

VI. 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, DA/DH/MDA, time to missed approach, and what is expected of the other crewmembers during the approach/landing. For single-pilot operations, the evaluator should request that the applicant verbalize the briefings. If the first takeoff/departure and approach/landing briefings are satisfactory, the evaluator may allow the applicant to brief only the changes, during the remainder of the flight.

Stabilized approach criteria

A stabilized approach is one in which the pilot establishes and maintains a constant angle glide path towards a predetermined point on the landing surface. It is based on the pilot's judgment of certain visual clues and depends on the maintenance of a constant final descent airspeed and configuration.

Use of RNAV (Area Navigation) system using GPS

If the practical test is conducted in an airplane equipped with an approach-approved RNAV system or FSTD that is equipped to replicate an approved RNAV system, the applicant must demonstrate approach proficiency using that system. If the applicant has contracted for training in an approved course that includes RNAV training, and the airplane/FSTD has a properly installed and operable RNAV system, the applicant must demonstrate RNAV approach proficiency.

RNAV (GPS) approaches with Localizer performance with vertical guidance (LPV) minimums

LPV minimums with a decision altitude (DA) greater than 300 feet height above touchdown (HAT) may be used to satisfy a nonprecision approach task. Due to the stability and quality of its glidepath and localizer-like lateral navigation characteristics, an RNAV (GPS) approach with LPV minimums can be used to demonstrate precision approach proficiency, and therefore be used for a precision approach task, if the DA is equal to or less than 300 feet HAT.

Vertical or lateral deviation standard

The standard is to allow 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

Instrument conditions must be encountered or simulated at or before reaching an altitude of 100 feet above airport elevation. In a full flight simulator (FFS), the visibility value should be set to no greater than ¼ mile or the minimum authorized by the operator's operations specifications (OpSpecs), whichever is lower. An applicant must be evaluated on the ability to control the airplane, including making the transition to instruments as visual cues deteriorate and on the planning of the transition to an instrument navigation environment.

Task D. Nonprecision Approaches

The evaluator will select nonprecision approaches representative of the type the applicant is likely to use. The choices must use at least two different types of navigational aids.

Examples of acceptable nonprecision approaches include: VOR, VOR/DME, LOC procedures on an ILS, LDA, RNAV (GPS) to LNAV, LNAV/VNAV or LPV line of minima as long as the LPV DA is greater than 300 feet HAT. The equipment must be installed and the database must be current and qualified to fly GPS-based approaches.

The applicant must accomplish at least two nonprecision approaches in simulated or actual instrument meteorological conditions.

- One must include a course reversal maneuver (e.g., procedure turn or Hold-in-Lieu) or, in the case of a GPS-based approach, the applicant must fly the course reversal maneuver on a published Terminal Arrival Area (TAA) procedure.
- At least one must be flown without the use of an autopilot and without the assistance of radar vectors from the procedure's Initial Approach Fix. The yaw damper and flight director are not considered parts of the autopilot for purposes of this Task.
- One is expected to be flown with reference to backup or partial panel instrumentation or navigation display, depending on the aircraft's instrument avionics configuration, representing the failure mode(s) most realistic for the equipment used.

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

Acceptable instrument approaches for this part of the practical test are the ILS and GLS. In addition, if the installed equipment and database is current and qualified for RNAV (GPS) approaches to LPV minima, such an approach may be flown to demonstrate precision approach proficiency if the LPV DA is equal to or less than 300 feet HAT. RNAV (RNP) Instrument Approach procedures with RNP lines of minima less than RNP 0.30 require specialized advanced training and equipment, and prior FAA authorization. Approved training programs that incorporate RNAV (RNP) procedures may utilize these special procedures in lieu of one of the precision approach procedures required.

- At least one must be flown without the use of an autopilot. Manually flown precision approaches may use raw data displays or may be flight director or heads-up-display (HUD) assisted, at the discretion of the evaluator.
- One is expected to be flown with reference to backup or partial panel instrumentation or navigation display, depending on the aircraft's instrument avionics configuration, representing the failure mode(s) most realistic for the equipment used.
- At least one approach may be flown via the autopilot, if equipped, and if the DA/DH does not violate the authorized minimum altitude for autopilot operation.

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 an airplane, if the applicant has flown the approach to a point where a safe landing and a full stop could have been made but circumstances beyond the control of the applicant prevented an actual landing, the evaluator may give credit for this Task. Credit may also be given for either Task I. Missed Approach or Area of Operation III, Task J. Go-Around, provided the applicable Task criteria is met.

Task G. Circling Approach

The applicant may circle to land on a runway that is less than 90-degrees offset from the final approach course. However, 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.

If an applicant is employed by a certificate holder whose manual prohibits a circling approach when the weather is below 1,000 feet and 3 miles' visibility, the applicant is not required to be checked on the circling maneuver (Tasks G and H). That applicant's pilot certificate must include a limitation restricting a circling approach to visual meteorological conditions (VMC) only. For example, the certificate notation would be: "CL-65 CIRC APCH VMC ONLY." This restriction may be removed when the applicant receives training in the circling maneuver (Tasks G and H) in the same airplane for which he or she has the limitation and satisfactorily demonstrates a circling approach and landing in that same airplane as part of an approved curriculum or training program with an appropriately qualified evaluator.

If the initial ATP certificate is issued concurrently with an airplane type rating and the circling maneuver (Tasks G and H) is not performed, the ATP certificate would also have a circling limitation. For example, the certificate notation would state:

"ATP CIRC APCH VMC ONLY, CL-65 CIRC APCH VMC ONLY." This restriction may be removed from the ATP certificate upon completion of an approved curriculum or training program to remove the limitation as previously stated.

Task H. Landing from a Circling Approach

See previous task information for applicants that are not required to be checked on the circling maneuver (Tasks G and H).

For evaluations conducted in an airplane, if the applicant has flown the approach to a point where a safe landing and a full stop could have been made but circumstances beyond the control of the applicant prevented an actual landing, the evaluator may give credit for this Task. Credit may also be given for either Task I. Missed Approach or Area of Operation III, Task J. Go-Around, provided the applicable Task criteria is met.

Task I. Missed Approaches

The applicant must perform two missed approaches with one being from a precision approach.

One complete published missed approach must be accomplished. Additionally, in multiengine airplanes, a missed approach must be accomplished with one engine inoperative (or simulated inoperative). The engine failure may be experienced any time prior to the initiation of the approach, during the approach, or during the transition to the missed approach attitude and configuration.

Descending below the MDA or continuing a precision approach below DH/DA as appropriate, unless the runway environment is in sight is considered unsatisfactory performance. However, even if the missed approach is properly initiated at DA/DH, most airplanes descend below DA/DH because of the momentum of the airplane transitioning from a stabilized approach to a missed approach. This descent below DA/DH is not considered unsatisfactory, as long as the precision approach was not continued below DA/DH.

VII. Emergency Operations

Task B. Powerplant Failure During Takeoff

In a multiengine airplane certificated with V_1, V_R, or V_2 speeds, the failure of the most critical powerplant should be simulated at a point:

- after V_1 and prior to V_2, if in the opinion of the evaluator, it is appropriate under the prevailing conditions; or
- as close as possible after V_1 when V_1 and V_2 or V_1 and V_R are identical.

In a multiengine airplane certificated without V_1, V_R, or V_2 speeds, the failure of the most critical powerplant should be simulated at a point after reaching a minimum of $V_{SSE.}$ If accomplished in the aircraft, the simulated powerplant failure should not be introduced at an altitude lower than 400 feet AGL. The evaluator should consider local atmospheric conditions, terrain, and aircraft performance available when determining when to introduce the simulated powerplant failure. In an FSTD there is no minimum altitude for introducing the powerplant failure.

If a powerplant failure (simulated if in the airplane) occurs after becoming airborne and before reaching an altitude where a safe turn can be made (ASEL, ASES) or the performance capabilities and operating limitations of the airplane will not allow the climb to continue (AMEL, AMES) the applicant should establish a power-off descent approximately straight-ahead.

For a 14 CFR part 25 or 14 CFR part 23, section 23.3(d) commuter multiengine airplane, if the (simulated) powerplant failure occurs at a point where the airplane can continue to a specified airspeed and altitude at the end of the runway commensurate with the airplane's performance capabilities and operating limitations, the takeoff should be continued. (AMEL, AMES)

Task C. Powerplant Failure (Simulated)

No simulated powerplant failure will be given by the evaluator in an airplane when an actual touchdown cannot be safely completed, should it become necessary.

Task D. Powerplant Failure and Restart Procedures

The feathering of one propeller and engine shutdown must be demonstrated in any multiengine airplane (or FSTD) equipped with propellers (includes turboprop), unless the airplane is an exception by the type rating and airplane certification. The propeller must be feathered and unfeathered while airborne. In a multiengine turbojet airplane or FSTD representing a multiengine airplane, one engine must be shut down and a restart must be considered while airborne and performed, if applicable.

When conducted in an FSTD, feathering 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 a Powerplant Failure (Simulated) (AMEL, AMES)

For tests conducted in a propeller-driven airplane (other than those that require a type rating), the evaluator will set zero thrust after the applicant has simulated feathering the propeller following a simulated powerplant failure. The applicant must then demonstrate at least one landing with a simulated feathered propeller with the powerplant set to zero thrust. For all other airplanes, follow the manufacturer's recommended procedures.

In airplanes with three powerplants, the applicant must follow a procedure (if approved by the manufacturer and the training program) that approximates the loss of two powerplants, the center and one outboard powerplant. In other multiengine airplanes, the applicant must follow a procedure, which simulates the loss of 50 percent of available powerplants, the loss being simulated on one side of the airplane.

Task F. Precision Approach (Manually Flown) with a Powerplant Failure (Simulated) (AMEL, AMES)

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 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. Landing from a No Flap or a Nonstandard Flap Approach

This task is required unless an airplane FSB report has indicated otherwise; or an FAA Aircraft Evaluation Division has determined it is not required. The evaluator must determine whether checking on slats only and partial-flap approaches are necessary for the practical test. However, probability of asymmetrical flap failures should be considered in this making this determination.

Appendix 8: Use of Flight Simulation Training Devices (FSTD) and Aviation Training Devices (ATD): Airplane Single-Engine, Multiengine Land and Sea

Use of FSTDs

Title 14 of the Code of Federal Regulations (14 CFR) part 61, section 61.4, *Qualification and approval of flight simulators and flight training devices*, states in paragraph (a) that each full flight simulator (FFS) and flight training device (FTD) used for training, and for which an airman is to receive credit to satisfy any training, testing, or checking requirement under this chapter, must be qualified and approved by the Administrator for—

> *(1) The training, testing, and checking for which it is used;*
>
> *(2) Each particular maneuver, procedure, or crewmember function performed; and*
>
> *(3) The representation of the specific category and class of aircraft, type of aircraft, particular variation within the type of aircraft, or set of aircraft for certain flight training devices.*

14 CFR part 60 prescribes the rules governing the initial and continuing qualification and use of all FSTDs used for meeting training, evaluation, or flight experience requirements for flight crewmember certification or qualification.

An FSTD is defined in 14 CFR part 60 as an FFS or FTD:

> ***Full Flight Simulator (FFS)****—a replica of a specific type, make, model, or series aircraft. It includes the equipment and computer programs necessary to represent aircraft operations in ground and flight conditions, a visual system providing an out-of-the-flight deck view, a system that provides cues at least equivalent to those of a three-degree-of-freedom motion system, and has the full range of capabilities of the systems installed in the device as described in part 60 of this chapter and the QPS for a specific FFS qualification level. (part 1)*
>
> ***Flight Training Device (FTD)****—a replica of aircraft instruments, equipment, panels, and controls in an open flight deck area or an enclosed aircraft flight deck replica. It includes the equipment and computer programs necessary to represent aircraft (or set of aircraft) operations in ground and flight conditions having the full range of capabilities of the systems installed in the device as described in part 60 of this chapter and the qualification performance standard (QPS) for a specific FTD qualification level. (part 1)*

The FAA National Simulator Program (NSP) qualifies Level A-D FFSs and Level 4 – 7[3] FTDs. In addition, each operational rule part identifies additional requirements for the approval and use of FSTDs in a training program[4]. Use of an FSTD for the completion of the ATP – airplane practical test is permitted only when accomplished in accordance with an FAA approved curriculum or training program.

Use of ATDs

14 CFR part 61, section 61.4(c) states the Administrator may approve a device other than an FFS or FTD for specific purposes. Under this authority, the FAA's General Aviation and Commercial Division provide approval for aviation training devices (ATD).

Advisory Circular (AC) 61-136 (as amended), FAA Approval of Aviation Training Devices and Their Use for Training and Experience, provides information and guidance for the required function, performance, and effective

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[3] The FSTD qualification standards in effect prior to part 60 defined a Level 7 FTD for airplanes (see Advisory Circular 120-45A, Airplane Flight Training Device Qualification, 1992). This device required high fidelity, airplane specific aerodynamic and flight control models similar to a Level D FFS, but did not require a motion cueing system or visual display system. In accordance with the "grandfather rights" of part 60, section 60.17, these previously qualified devices will retain their qualification basis as long as they continue to meet the standards under which they were originally qualified. There is only one Level 7 FTD with grandfather rights that remains in the U.S. As a result of changes to part 60 that were published in the Federal Register in March 2016, the airplane Level 7 FTD was reinstated with updated evaluation standards. The new Level 7 FTD will require a visual display system for qualification. The minimum qualified Tasks for the Level 7 FTD are described in Table B1B of Appendix B of part 60.

[4] 14 CFR part 121, section 121.407; part 135, section 135.335; part 141, section 141.41; and part 142, section 142.59.

use of ATDs for pilot training and aeronautical experience (including currency). FAA issues a letter of authorization (LOA) to an ATD manufacturer approving an ATD as a basic aviation training device (BATD) or an advanced aviation training device (AATD). The LOA will be valid for a 5-year period with a specific expiration date and include the amount of credit a pilot may take for training and experience.

> ***Aviation Training Device (ATD)****—a training device, other than an FFS or FTD, that has been evaluated, qualified, and approved by the Administrator. In general, this includes a replica of aircraft instruments, equipment, panels, and controls in an open flight deck area or an enclosed aircraft cockpit. It includes the hardware and software necessary to represent a category and class of aircraft (or set of aircraft) operations in ground and flight conditions having the appropriate range of capabilities and systems installed in the device as described within the AC for the specific basic or advanced qualification level.*
>
> ***Basic Aviation Training Device (BATD)****—provides an adequate training platform for both procedural and operational performance tasks specific to instrument experience and the ground and flight training requirements for the private pilot certificate and instrument rating per 14 CFR parts 61 and 141.*
>
> ***Advanced Aviation Training Device (AATD)****—provides an adequate training platform for both procedural and operational performance tasks specific to the ground and flight training requirements for the private pilot certificate, instrument rating, commercial pilot certificate, airline transport pilot (ATP) certificate, and flight instructor certificate per 14 CFR parts 61 and 141. It also provides an adequate platform for tasks required for instrument experience and the instrument proficiency check.*

Note: *ATDs cannot be used for practical tests, aircraft type specific training, or for an aircraft type rating; therefore the use of an ATD for the ATP – Airplane practical test is not permitted.*

Credit for Time in an FSTD

14 CFR part 61, section 61.159 and 61.160 specify the minimum aeronautical experience requirements for a person applying for an ATP certificate. Paragraph (a)(6) of this section specifies the amount of credit a pilot can take towards the total time in an FFS or FTD as part of an approved training course in parts 121, 135, 141[5], or 142. Section 61.159 also provides allowances for crediting time in an FSTD towards time in class and instrument time. Credit may only be taken for time in a FFS towards time in class for multiengine airplanes; time in a FTD may not be used.

Credit for Time in an ATD

14 CFR part 61, section 61.159 and 61.160 specify the minimum aeronautical experience requirements for a person applying for an ATP certificate. In order to credit the time, the ATD must be FAA-approved and the time must be provided by an authorized instructor. AC 61-136 (as amended), states the LOA for each approved ATD will indicate the credit allowances for pilot training and experience, as provided under parts 61 and 141. Time with an instructor in an AATD may be credited towards the aeronautical experience requirements for the ATP certificate as specified in the LOA for the device used. Time in a BATD cannot be used for the ATP certificate. Time in an ATD cannot be used for credit towards the required time in class either. It is recommended that applicants who intend to take credit for time in an AATD towards the aeronautical experience requirements for the ATP certificate obtain a copy of the LOA for each device used so they have a record for how much credit may be taken. For additional information on the logging of ATD time reference AC 61-136 (as amended).

Use of an FSTD on a Practical Test

14 CFR part 61, section 61.45 specifies the required aircraft and equipment that must be provided for a practical test unless permitted to use an FFS or FTD for the flight portion. 14 CFR part 61, section 61.64 provides the criteria for using an FSTD for a practical test. Specifically, paragraph (a) states:

> *If an applicant for a certificate or rating uses a flight simulator or flight training device for training or any portion of the practical test, the flight simulator and flight training device—*
>
> *(1) Must represent the category, class, and type (if a type rating is applicable) for the rating sought; and*

[5] As part of program approval, part 141 training providers must also adhere to the requirements for permitted time in an FFS or FTD per Appendices E or K to Part 141, as appropriate to the course of training.

> *(2) Must be qualified and approved by the Administrator and used in accordance with an approved course of training under part 141 or part 142 of this chapter; or under part 121 or part 135 of this chapter, provided the applicant is a pilot employee of that air carrier operator.*

Therefore, practical tests or portions thereof, when accomplished in an FSTD, may only be conducted by FAA aviation safety inspectors (ASI), aircrew program designees (APD) authorized to conduct such tests in FSTDs in 14 CFR parts 121 or 135, qualified personnel or designees authorized to conduct such tests in FSTDs for 14 CFR part 141 pilot school graduates, or appropriately authorized 14 CFR part 142 Training Center Evaluators (TCE).

In addition, 14 CFR, section 61.64(b) states if an airplane is not used during the practical test for a type rating for a turbojet airplane (except for preflight inspection), an applicant must accomplish the entire practical test in a Level C or higher FFS and the applicant must meet the specific experience criteria listed. If the experience criteria cannot be met, the applicant can either—

> *(f)(1) […] complete the following tasks on the practical test in an aircraft appropriate to category, class, and type for the rating sought: Preflight inspection, normal takeoff, normal instrument landing system approach, missed approach, and normal landing; or*
>
> *(f)(2) The applicant's pilot certificate will be issued with a limitation that states: "The [name of the additional type rating] is subject to pilot in command limitations," and the applicant is restricted from serving as pilot in command in an aircraft of that type.*

When flight Tasks are accomplished in an airplane, certain Task elements may be accomplished through "simulated" actions in the interest of safety and practicality. However, when accomplished in an FFS or FTD, these same actions would not be "simulated." For example, when in an airplane, a simulated engine fire may be addressed by retarding the throttle to idle, simulating the shutdown of the engine, simulating the discharge of the fire suppression agent, if applicable, and simulating the disconnection of associated electrical, hydraulic, and pneumatics systems. However, when the same emergency condition is addressed in a FSTD, all Task elements must be accomplished as would be expected under actual circumstances.

Similarly, safety of flight precautions taken in the airplane for the accomplishment of a specific maneuver or procedure (such as limiting altitude in an approach to stall or setting maximum airspeed for an engine failure expected to result in a rejected takeoff) need not be taken when a FSTD is used. It is important to understand that, whether accomplished in an airplane or FSTD, all Tasks and elements for each maneuver or procedure shall have the same performance standards applied equally for determination of overall satisfactory performance.

Appendix 9: References

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

Reference	Title
14 CFR part 1	Definitions and Abbreviations
14 CFR part 43	Maintenance, Preventive Maintenance, Rebuilding, and Alteration
14 CFR part 61	Certification: Pilots, Flight Instructors, and Ground Instructors
14 CFR part 63	Certification: Flight Crewmembers other than Pilots
14 CFR part 71	Designation of Class A, B, C, D, and E Airspace Areas; Air Traffic Service Routes; and Reporting Points
14 CFR part 91	General Operating and Flight Rules
14 CFR part 97	Standard Instrument Procedures
14 CFR part 117	Flight and Duty Limitations and Rest Requirements: Flightcrew Members
14 CFR part 119	Certification: Air Carriers and Commercial Operators
14 CFR part 121	Domestic, Flag, and Supplemental Operations
14 CFR part 135	Requirements for Commuter and On Demand Operations
14 CFR part 142	Training Centers
49 CFR part 830	Notification and Reporting of Aircraft Accidents, or Incidents and Overdue Aircraft
AC 00-6	Aviation Weather
AC 00-45	Aviation Weather Services
AC 00-54	Pilot Windshear Guide
AC 60-28	FAA English Language Standard for an FAA Certificate Issued Under 14 CFR Parts 61, 63, 65, and 107
AC 61-67	Stall and Spin Awareness Training
AC 61-136	FAA Approval of Aviation Training Devices and Their Use for Training and Experience
AC 91-74	Pilot Guide: Flight in Icing Conditions
AC 120-27	Aircraft Weight and Balance Control
AC 120-60	Ground Deicing and Anti-icing Program
AC 120-74	Parts 91, 121, 125, and 135 Flightcrew Procedures During Taxi Operations
AC 120-100	Basics of Aviation Fatigue
AC 120-108	Continuous Descent Final Approach
AC 135-17	Pilot Guide – Small Aircraft Ground Deicing
AIM	Aeronautical Information Manual
FAA-H-8083-1	Aircraft Weight and Balance Handbook
FAA-H-8083-2	Risk Management Handbook
FAA-H-8083-3	Airplane Flying Handbook
FAA-H-8083-6	Advanced Avionics Handbook
FAA-H-8083-15	Instrument Flying Handbook
FAA-H-8083-16	Instrument Procedures Handbook
FAA-H-8083-25	Pilot's Handbook of Aeronautical Knowledge
FMSPs	Flight Management System Procedures
FSB Report	Flight Standardization Board Report (if available)
IFP	Instrument Flight Procedures
RFM	FAA-Approved Rotorcraft Flight Manual
NOTAMs	Notices to Airmen
SAFO 17010	Incorrect Airport Surface Approaches and Landings
STARs	Standard Terminal Arrival Routes

Reference	Title
Other	Chart Supplements
	Enroute Low and High Altitude Charts
	Profile Descent Charts
	USCG Navigation Rules, International-Inland

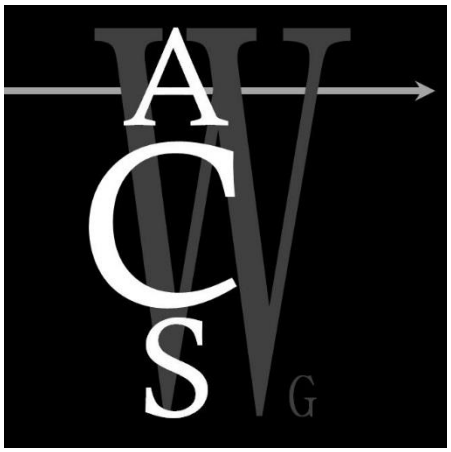
Note: *Users should reference the current edition of the reference documents listed above. The current edition of all FAA publications can be found at www.faa.gov.*

Appendix 10: Abbreviations and Acronyms

The following abbreviations and acronyms are used in the ACS.

Abb./Acronym	Definition
14 CFR	Title 14 of the Code of Federal Regulations
AATD	Advanced Aviation Training Device
AC	Advisory Circular
ACS	Airman Certification Standards
ADM	Aeronautical Decision-Making
AELS	Aviation English Language Standard
AGL	Above Ground Level
AIM	Aeronautical Information Manual
AMEL	Airplane Multiengine Land
AMES	Airplane Multiengine Sea
APU	Auxiliary Power Unit
ASEL	Airplane Single-engine Land
ASES	Airplane Single-engine Sea
ASI	Aviation Safety Inspector
ATC	Air Traffic Control
ATD	Aviation Training Device
ATP	Airline Transport Pilot
BATD	Basic Aviation Training Device
CDI	Course Deviation Indicator
CRM	Crew Resource Management
CTP	Certification Training Program
DA	Decision Altitude
DH	Decision Height
DP	Departure Procedures
DPE	Designated Pilot Examiner
DVE	Degraded Visual Environment
ELT	Emergency Locator Transmitter
FAA	Federal Aviation Administration
FFS	Full Flight Simulator
FMS	Flight Management System
FRAT	Flight Risk Assessment Tool
FS	Flight Standards Service
FSB	Flight Standardization Board
FSTD	Flight Simulation Training Device
FTD	Flight Training Device
GBAS	Ground Based Augmentation System
GNSS	Global Navigation Satellite System
GPS	Global Positioning System
HAT	Height Above Threshold (Touchdown)
H/V	Height/Velocity
IFP	Instrument Flight Procedures
IFR	Instrument Flight Rules

Abb./Acronym	Definition
ILS	Instrument Landing System
IMC	Instrument Meteorological Conditions
LAHSO	Land and Hold Short Operations
LDA	Localizer-Type Directional Aid
LOA	Letter of Authorization
LOC	ILS Localizer
LPV	Localizer Performance with Vertical Guidance
MAP	Missed Approach Point
MFD	Multi-Function Display
NAS	National Airspace System
NOTAMs	Notices to Airmen
NSP	National Simulator Program
ODP	Obstacle Departure Procedure
PIC	Pilot-in-Command
POA	Plan of Action
PTS	Practical Test Standards
QPS	Qualification Performance Standard
RCAM	Runway Condition Assessment Matrix
RFM	Rotorcraft Flight Manual
RNAV	Area Navigation
RNP	Required Navigation Performance
SAE	Specialty Aircraft Examiner
SID	Standard Instrument Departure
SMS	Safety Management System
SOP	Standard Operating Procedures
SRM	Single Pilot Resource Management
TDP	Takeoff Decision Point
USCG	United States Coast Guard
VCOA	Visual Climb over the Airport
VFR	Visual Flight Rules
VMC	Visual Meteorological Conditions
VOR	Very High Frequency Omnidirectional Range
V_1	The maximum speed in the takeoff at which the pilot must take the first action (e.g., apply brakes, reduce thrust, deploy speed brakes) to stop the airplane within the accelerate-stop distance. V_1 also means the minimum speed in the takeoff, following a failure of the critical engine at V_{EF}, at which the pilot can continue the takeoff and achieve the required height above the takeoff surface within the takeoff distance.
V_2	Takeoff safety speed
V_{MC}	Minimum control speed with critical engine inoperative
V_{MCG}	Minimum control speed on the ground with the critical engine inoperative
V_R	Rotation speed
V_{SSE}	Safe, intentional one-engine-inoperative speed. Originally known as safe single-engine speed
V_X	Best angle of climb speed
V_{XSE}	Best angle of climb speed with one engine inoperative
V_Y	Best rate of climb speed



Aviation Rulemaking Advisory Committee

Airman Certification System Working Group

Interim Recommendation Report

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