



U.S. Department  
of Transportation

**Federal Aviation  
Administration**

**FAA-S-8081-7B**  
(with Changes 1 & 2)

**Flight Instructor  
Practical Test Standards  
for  
Rotorcraft (Helicopter & Gyroplane)**

**December 2006**

Flight Standards Service  
Washington, DC 20591

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**Flight Instructor  
Rotorcraft  
Practical Test Standards**

**2006**

Flight Standards Service  
Washington, DC 20591

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## **Note**

FAA-S-8081-7B, Flight Instructor - Rotorcraft (Helicopter and Gyroplane) Practical Test Standards, will be effective December 1, 2006. All previous editions of this book will be obsolete as of this date.

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## **Record of Changes**

### **Change 1 (3/22/2016)**

- Removed Note from the “Aircraft and Equipment Required for the Practical Test” section of the Introduction which stated "A touchdown autorotation is a required Task for the flight instructor - helicopter practical test." (page 8).
- Added “Performance of Autorotations” section to Introduction (pages 10 and 11).
- Added Note to Area of Operation X: Performance Maneuvers in Section 1 (page 1-32).

### **Change 2 (5/23/2016)**

- Revised “Performance of Autorotations” section in Introduction (pages 10 and 11).

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## Foreword

The Flight Instructor - Rotorcraft (Helicopter and Gyroplane) Practical Test Standards (PTS) book has been published by the Federal Aviation Administration (FAA) to establish the standards for flight instructor certification practical tests for the rotorcraft category, helicopter and gyroplane classes. FAA inspectors and designated pilot examiners shall conduct practical tests in compliance with these standards. Flight instructors and applicants should find these standards helpful during training and when preparing for the practical test.

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Joseph K Tintera, Manager  
Regulatory Support Division  
Flight Standards Service

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## Introduction

The Flight Standards Service of the Federal Aviation Administration (FAA) has developed this practical test book as a standard to be used by FAA inspectors and designated pilot examiners when conducting flight instructor—rotorcraft (helicopter) and flight instructor—rotorcraft (gyroplane) practical tests. Flight instructors are expected to use this book when preparing flight instructor applicants for practical tests. Applicants should be familiar with this book and refer to these standards during their training.

The FAA gratefully acknowledges the valuable assistance provided by many industry participants who contributed their time and talent in assisting with the revision of these practical test standards.

This practical test standard (PTS) book may be purchased from the Superintendent of Documents, U.S. Government Printing Office (GPO), Washington, DC 20402-9325, or from GPO's web site.

<http://bookstore.gpo.gov>

This PTS is also available for download, in pdf format, from the Flight Standards Service web site.

[www.faa.gov](http://www.faa.gov)

This PTS is published by the U.S. Department of Transportation, Federal Aviation Administration, Airman Testing Standards Branch, AFS-630, P.O. Box 25082, Oklahoma City, OK 73125. Comments regarding this book should be sent, in email form, to the following address.

[AFS630comments@faa.gov](mailto:AFS630comments@faa.gov)

## ***Practical Test Standard Concept***

Title 14 of the Code of Federal Regulations (14 CFR) specifies the areas in which knowledge and skill shall be demonstrated by an applicant before the issuance of a flight instructor certificate with the associated category and class ratings. The CFRs provide the flexibility that permits the FAA to publish practical test standards containing specific Tasks in which competency shall be demonstrated. The FAA shall revise this book whenever it is determined that changes are needed in the interest of safety. Adherence to provisions of regulations and the practical test standards is mandatory for evaluation of flight instructor applicants.

## ***Flight Instructor Practical Test Book Description***

This test book contains the practical test standards for Flight Instructor - Rotorcraft (Helicopter and Gyroplane). Other flight instructor practical test books include:

- FAA-S-8081-6, Flight Instructor—Airplane (Single-Engine and Multiengine)
- FAA-S-8081-8, Flight Instructor—Glider
- FAA-S-8081-9, Flight Instructor—Instrument (Airplane and Helicopter)
- FAA-S-8081-11, Flight Instructor—Lighter-Than-Air (Balloon and Airship)

The Flight Instructor Practical Test Standards include the Areas of Operation and Tasks for the issuance of an initial flight instructor certificate and for the addition of category and/or class ratings to that certificate.

## ***Initial Flight Instructor Certification***

An applicant who seeks initial flight instructor certification shall be evaluated in all Areas of Operation of the standard appropriate to the rating(s) sought. The evaluation shall include at least one Task in each Area of Operation and shall always include the required Tasks.

## ***Addition of Aircraft Category and/or Class Ratings to a Flight Instructor Certificate***

An applicant who holds a flight instructor certificate and seeks an additional aircraft category and/or class rating shall be evaluated in at least the Areas of Operation and Tasks that are unique and appropriate to the rating(s) sought (see table at the beginning of each standard). At the discretion of the examiner, an applicant's competence in **all** Areas of Operation may be evaluated.

## ***Flight Instructor Practical Test Standard Description***

Areas of Operation are phases of the practical test arranged in a logical sequence within each standard. Tasks are knowledge areas, flight procedures, or maneuvers appropriate to an Area of Operation. In this practical test book, the first Area of Operation is Fundamentals of Instructing; the last is Postflight Procedures. The examiner may conduct the practical test in any sequence that results in a complete and efficient test; however, **the ground portion of the practical test must be completed prior to the flight portion.**

Tasks are titles of knowledge areas, flight procedures, or maneuvers appropriate to an area of operation.

Note is used to emphasize special considerations required in the Area of Operation or Task.

Reference identifies the publication(s) that describes the Task. Descriptions of Tasks and maneuver tolerances are not included in the flight instructor standards because this information can be found in the References listed for each Task. Publications other than those listed may be used as references if their content conveys substantially the same meaning as the referenced publication. References listed in this book include current revisions of the following publications:

<b>CFR part 1</b>	Definitions and Abbreviations
<b>CFR part 43</b>	Maintenance, Preventative Maintenance, Rebuilding, and Alteration
<b>CFR part 61</b>	Certification: Pilots and Flight Instructors
<b>CFR part 67</b>	Medical Standards and Certification
<b>CFR part 91</b>	General Operating and Flight Rules
<b>NTSB part 830</b>	Notification and Reporting of Aircraft Accidents and Incidents
<b>FAA-H-8083-1</b>	Aircraft Weight and Balance Handbook
<b>FAA-H-8083-3</b>	Airplane Flying Handbook
<b>FAA-H-8083-9</b>	Aviation Instructor's Handbook
<b>FAA-H-8083-21</b>	Rotorcraft Flying Handbook
<b>FAA-H-8083-25</b>	Pilot's Handbook of Aeronautical Knowledge
<b>AC 00-2</b>	Advisory Circular Checklist
<b>AC 00-6</b>	Aviation Weather
<b>AC 00-45</b>	Aviation Weather Services
<b>AC 60-22</b>	Aeronautical Decision-Making
<b>AC 60-28</b>	English Language Requirements Required by 14 CFR parts 61, 63, and 65
<b>AC 61-65</b>	Certification: Pilots and Flight Instructors
<b>AC 61-67</b>	Stall and Spin Awareness Training
<b>AC 61-84</b>	Role of Preflight Preparation
<b>AC 61-98</b>	Currency and Additional Qualification Requirements for Certificated Pilots

<b>AC 61-115</b>	Positive Exchange of Flight Controls Program
<b>AC 61-134</b>	General Aviation Controlled Flight Into Terrain
<b>AC 90-42</b>	Traffic Advisory Practices at Airports Without Operating Control Towers
<b>AC 90-48</b>	Pilots' Role in Collision Avoidance
<b>AC 90-87</b>	Helicopter Dynamic Rollover
<b>AC 91-13</b>	Cold Weather Operation of Aircraft
<b>AC 91-32</b>	Safety In and Around Helicopters
<b>AC 91-42</b>	Hazards of Rotating Propeller and Helicopter Rotor Blades
<b>AC 91-55</b>	Reduction of Electrical System Failure Following Aircraft Engine Starting
<b>FAA-S-8081-15</b>	Private Pilot Practical Test Standards for Rotorcraft
<b>FAA-S-8081-16</b>	Commercial Pilot Practical Test Standards for Rotorcraft
<b>FAA/ASY-20 95/001</b>	Airport Markings, Signs, and Selected Surface Lighting
<b>AIM</b>	Aeronautical Information Manual
<b>POH/AFM</b>	Pilot Operating Handbook and FAA Approved Airplane/Rotorcraft Flight Manual

Each Task has an Objective. The examiner determines that the applicant meets the Task Objective through the demonstration of competency in various elements of knowledge and/or skill. The Objectives of Tasks in certain Areas of Operation, such as Fundamentals of Instructing and Technical Subject Areas, include **only** knowledge elements. The Objectives of Tasks in the Areas of Operation that include elements of skill as well as knowledge also include common errors which the applicant shall be able to describe, recognize, analyze, and correct.

The Objective of a Task that involves pilot skill consists of four parts. Those four parts include determination that the applicant exhibits:

1. instructional knowledge of the elements of a Task. This is accomplished through descriptions, explanations, and simulated instruction;
2. instructional knowledge of common errors related to a Task, including their recognition, analysis, and correction;
3. the ability to demonstrate and simultaneously explain the key elements of a Task. The Task demonstration must be to the Commercial Pilot skill level; the teaching techniques and procedures should conform to those set forth in FAA-H-8083-9, Aviation Instructor's Handbook, FAA-H-8083-3, Airplane Flying Handbook, and FAA-H-8083-21, Rotorcraft Flying Handbook; and
4. the ability to analyze and correct common errors related to a Task.

## **Abbreviations**

14 CFR	Title 14 of the Code of Federal Regulations
ADM	Aeronautical Decision-Making
AIM	Airman's Information Manual
AIRMETS	Airman's Meteorological Information
ATC	Air Traffic Control
CFIT	Controlled Flight into Terrain
CRM	Crew Resource Management
FAA	Federal Aviation Administration
FDC	Flight Data Center
FSDO	Flight Standards District Office
GPO	Government Printing Office
GPS	Global Positioning System
LAHSO	Land and Hold Short Operations
MEL	Minimum Equipment List
NOTAM	Notice to Airmen
NWS	National Weather Service
PIREPS	Pilot Weather Reports
PTS	Practical Test Standard
SIGMETS	Significant Meteorological Information
SRM	Single Pilot Resource Management
SUA	Special Use Airspace
TFR(s)	Temporary Flight Restriction(s)
VFR	Visual Flight Rules'

## **Special Emphasis Areas**

Examiners shall place special emphasis upon areas of aircraft operation considered critical to flight safety. Among these are:

1. positive aircraft control;
2. positive exchange of the flight controls procedure (who is flying the aircraft);
3. airport operations/runway incursions;
4. collision avoidance;
5. wake turbulence avoidance;
6. land and hold short operations (LAHSO);
7. controlled flight into terrain (CFIT);
8. aeronautical decision making (ADM) and risk management;
9. wire strike avoidance;
10. checklist usage;
11. temporary flight restrictions (TFR);
12. special use airspace (SUA);
13. aviation security; and
14. other areas deemed appropriate to any phase of the practical test.

Although these areas may not be specifically addressed under each Task, they are essential to flight safety and will be evaluated during the practical test. In all instances, the applicant's actions will relate to the complete situation.

### ***Use of the Practical Test Standards Book***

The FAA requires that all practical tests be conducted in accordance with the appropriate Flight Instructor Practical Test Standard and the policies set forth in the Introduction.

All of the procedures and maneuvers in the Private Pilot and Commercial Pilot Practical Test Standards have been included in the Flight Instructor Practical Test Standards. However, to permit completion of the practical test for initial certification within a reasonable timeframe, the examiner shall select one or more Tasks in each Area of Operation. In certain Areas of Operation, there are **required** Tasks which the examiner must select. These required Tasks are identified by a **Note** immediately following each Area of Operation title.

In preparation for the practical test, the examiner shall develop a written "plan of action." The examiner will vary each "plan of action" to ensure that all Tasks in the appropriate practical test standard are evaluated during a given number of practical tests. Except for required Tasks, the examiner should avoid using the same optional Tasks in order to avoid becoming stereotyped. The "plan of action" for a practical test for initial

certification shall include one or more Tasks in each Area of Operation and shall **always** include the required Tasks. The "plan of action" for a practical test for the addition of an aircraft category and/or class rating to a flight instructor certificate shall include the required Areas of Operation as indicated in the table at the beginning of each standard. The required Tasks appropriate to the additional rating(s) sought shall be included. Any Task selected for evaluation during the practical test shall be evaluated in its entirety.

The flight instructor applicant shall be prepared in **all** knowledge and skill areas and demonstrate the ability to instruct effectively in **all** Tasks included in the Areas of Operation of the appropriate practical test standard. Throughout the flight portion of the practical test, the examiner shall evaluate the applicant's ability to demonstrate and simultaneously explain the selected procedures and maneuvers, and to give flight instruction to students at various stages of flight training and levels of experience.

The term "instructional knowledge" means the "what," "why," and "how" of a subject matter topic, procedure, or maneuver. It also means that the flight instructor applicant's discussions, explanations, and descriptions should follow the recommended teaching procedures and techniques explained in FAA-H-8083-9, Aviation Instructor's Handbook.

The purpose for including common errors in certain Tasks is to assist the examiner in determining that the flight instructor applicant has the ability to

recognize, analyze, and correct such errors. **The examiner shall not simulate any condition that may jeopardize safe flight or result in possible damage to the aircraft.** The common errors listed in the Task Objectives may or may not be found in the Task References. However, the FAA considers their frequency of occurrence justification for their inclusion in the Task Objectives.

The examiner shall place special emphasis on the applicant's demonstrated ability to teach precise aircraft control and sound judgment in decision making. Evaluation of the applicant's ability to teach judgment shall be accomplished by asking the applicant to describe the oral discussions and the presentation of practical problems that would be used in instructing students in the exercise of sound judgment. The examiner shall also emphasize the evaluation of the applicant's demonstrated ability to teach spatial disorientation, wake turbulence, and low level wind shear avoidance, checklist usage, positive exchange of flight controls, and any other directed special emphasis areas.

### ***Flight Instructor Practical Test Prerequisites***

An applicant for a flight instructor **initial** certification practical test is required by the CFRs to:

1. have reached the age of 18 years;
2. read, speak, write, and understand the English language;
3. hold a commercial pilot or airline transport pilot certificate with an aircraft rating appropriate to the flight instructor rating sought;
4. hold an instrument rating in the category and class in which the instrument instructor privileges are being sought;
5. have passed the appropriate flight instructor knowledge test(s) since the beginning of the 24th month before the month in which he or she takes the practical test;
6. have the prescribed aeronautical experience and instruction for a flight instructor certificate with the rating sought; and
7. obtain a written statement from an appropriately certificated and qualified flight instructor certifying that the applicant has been given flight instruction in the Areas of Operation listed in 14 CFR part 61, section 61.187 for the flight instructor rating sought in preparation for the practical test within 60 days preceding the date of application. The statement shall also state that the instructor finds the applicant competent to pass the practical test, and that the applicant has satisfactory knowledge of the subject area(s) in which a deficiency was indicated on the knowledge test report<sup>1</sup>.

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<sup>1</sup> AC 61-65, Certification: Pilots and Flight Instructors, states that the instructor may sign the recommendation on the reverse side of FAA Form 8710-1, Airman Certificate and/or Rating Application, in lieu of this statement, provided all appropriate 14 CFR part 61 requirements are substantiated by reliable records.

## Change 1 (3/22/2016)

An applicant holding a flight instructor certificate who applies for an **additional** rating on that certificate is required by the CFRs to:

1. hold an effective pilot certificate with ratings appropriate to the flight instructor rating sought;
2. have at least 15 hours as pilot in command in the category and class aircraft appropriate to the rating sought;
3. have passed the appropriate knowledge test prescribed for the issuance of a flight instructor certificate with the rating sought since the beginning of the 24th month before the month in which he or she takes the practical test; and
4. obtain a written statement from an appropriately certificated and qualified flight instructor certifying that the applicant has been given flight instruction in the applicable Areas of Operation listed in 14 CFR part 61, section 61.187 for the flight instructor rating sought in preparation for the practical test within 60 days preceding the date of application. The statement shall also state that the instructor finds the applicant competent to pass the practical test, and that the applicant has satisfactory knowledge of the subject area(s) in which a deficiency was indicated on the knowledge test report.<sup>1</sup> Although 14 CFR part 61, section 61.191 refers to additional flight instructor ratings, the basis for the knowledge and practical tests required for any additional flight instructor rating can be found in 14 CFR part 61, section 61.187(a).

### ***Aircraft and Equipment Required for the Practical Test***

The flight instructor applicant is required by 14 CFR part 61, section 61.45 to provide an airworthy, certificated aircraft for use during the practical test. This section further requires that the aircraft:

1. have fully functioning dual controls except as provided in 14 CFR part 61, section 61.45; and
2. be capable of performing **all** appropriate Tasks for the flight instructor rating sought and have no operating limitations that would prohibit the performance of any Task.

### ***Use of Simulators and Flight Training Devices***

All flight instructor practical tests shall be conducted in accordance with 14 CFR part 61, section 61.45 and in an actual aircraft. Use of an approved simulator or flight training device (FTD) is not authorized for any in-flight Task of a flight instructor practical test unless approved in the practical test standards or under conditions and limitations of a regulatory exemption. However, such devices may be used to assist in evaluating the instructional ability of an applicant during any Task not involving a flight maneuver.

## ***Flight Instructor Responsibility***

An appropriately rated flight instructor is responsible for training the flight instructor applicant to acceptable standards in **all** subject matter areas, procedures, and maneuvers included in the Tasks within each Area of Operation in the appropriate flight instructor practical test standard. Flight instructors shall use a written training syllabus containing, as a minimum, every Task in the practical test standard when training applicants. This will not only ensure coverage of all Tasks that may be evaluated during a practical test but also satisfy the requirement for maintaining a copy of the training syllabus used to train each applicant.

Because of the impact of their teaching activities in developing safe, proficient pilots, flight instructors should exhibit a high level of knowledge, skill, and the ability to impart that knowledge and skill to students. The flight instructor shall certify that the applicant is:

1. able to make a practical application of the fundamentals of instructing;
2. competent to teach the subject matter, procedures, and maneuvers included in the standards to students with varying backgrounds and levels of experience and ability;
3. able to perform the procedures and maneuvers included in the standards to at least the Commercial Pilot skill level<sup>2</sup> while giving effective flight instruction; and
4. competent to pass the required practical test for the issuance of the flight instructor certificate with the associated category and class ratings or the addition of a category and/or class rating to a flight instructor certificate.

Throughout the applicant's training, the flight instructor is responsible for emphasizing the performance of, and the ability to teach, effective visual scanning and collision avoidance procedures.

### ***Positive Exchange of Flight Controls***

During flight training, there must always be a clear understanding between students and flight instructors of who has control of the aircraft. Prior to flight, a briefing should be conducted that includes the procedure for the exchange of flight controls. A positive three-step process in the exchange of flight controls between pilots is a proven procedure and one that is strongly recommended.

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<sup>2</sup> Commercial Pilot skill level is defined as performing a procedure or maneuver within the tolerances listed in the FAA Commercial Pilot Practical Test Standards. If the maneuver appears only in the Private Pilot Practical Test Standards, the term means that the applicant's performance is expected to be more precise than indicated by the stated tolerances.

## Changes 1 (3/22/2016) & 2 (5/23/2016)

When the instructor wishes the student to take control of the aircraft, he/she will say "You have the flight controls." The student acknowledges immediately by saying, "I have the flight controls." The flight instructor again says "You have the flight controls." When control is returned to the instructor, follow the same procedure. A visual check is recommended to verify that the exchange has occurred. There should never be any doubt as to who is flying the aircraft.

### ***Examiner<sup>3</sup> Responsibility***

The examiner who conducts the practical test is responsible for determining that the applicant meets acceptable standards of teaching ability, knowledge, and skill in the selected Tasks. The examiner makes this determination by accomplishing an Objective that is appropriate to each selected Task, and includes an evaluation of the applicant's:

1. ability to apply the fundamentals of instructing;
2. knowledge of, and ability to teach, the subject matter, procedures, and maneuvers covered in the Tasks;
3. ability to perform the procedures and maneuvers included in the standards to at least the Commercial Pilot skill level while giving effective flight instruction; and
4. ability to analyze and correct common errors related to the procedures and maneuvers covered in the Tasks.

It is intended that oral questioning be used at any time during the practical test to determine that the applicant can instruct effectively and has a comprehensive knowledge of the Tasks and their related safety factors.

During the flight portion of the practical test, the examiner shall act as a student during selected maneuvers. This will give the examiner an opportunity to evaluate the flight instructor applicant's ability to analyze and correct simulated common errors related to these maneuvers.

### ***Performance of Autorotations***

Instructional knowledge must be demonstrated on the practical test in autorotations, either straight-in or 180°, as per Area of Operation X for a helicopter class rating.

An examiner may accept, at his or her discretion, a logbook endorsement in lieu of demonstrating the touchdown portion of these tasks during the practical test. This logbook endorsement must be given by a current flight instructor who meets the requirements of 14 CFR part 61, section 61.195(h)(2) with a rotorcraft category and helicopter class rating on his or her flight instructor certificate that provided the training and can attest

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<sup>3</sup> The word "examiner" is used throughout the standards to denote either the FAA inspector or FAA designated pilot examiner or other authorized person who conducts an official practical test.

to the applicant's competence in these tasks. The following areas must be

trained, and documented in the endorsement, as evidence of instructional knowledge relating to the elements, common errors, performance, and correction of common errors related to straight-in and 180° autorotations.

This logbook endorsement may be accepted, at the discretion of the examiner, provided the practical test is not a retest as a result of the applicant failing the previous practical test for deficiencies in instructional knowledge pertaining to the elements, common errors, performance, or correction of common errors related to straight-in or 180° autorotations. In this scenario, the examiner is not authorized to accept the endorsement outlined above. The applicant must provide a helicopter appropriate for performing autorotations if demonstration of this task is required during the retest.

### ***Satisfactory Performance***

The practical test is passed if, in the judgment of the examiner, the applicant demonstrates satisfactory performance with regard to:

1. knowledge of the fundamentals of instructing;
2. knowledge of the technical subject areas;
3. knowledge of the flight instructor's responsibilities concerning the pilot certification process;
4. knowledge of the flight instructor's responsibilities concerning logbook entries and pilot certificate endorsements;
5. ability to demonstrate the procedures and maneuvers selected by the examiner to at least the Commercial Pilot skill level while giving effective instruction;
6. competence in teaching the procedures and maneuvers selected by the examiner;
7. competence in describing, recognizing, analyzing, and correcting common errors simulated by the examiner; and
8. knowledge of the development and effective use of a course of training, a syllabus, and a lesson plan.

### ***Unsatisfactory Performance***

If, in the judgment of the examiner, the applicant does not meet the standards of performance of any Task performed, the associated Area of Operation is considered unsatisfactory and, therefore, the practical test is failed. The examiner or applicant may discontinue the test at any time when the failure of an Area of Operation makes the applicant ineligible for the certificate or rating sought. The test may be continued only with the consent of the applicant. If the test is discontinued, the applicant is entitled to credit for only those Areas of Operation satisfactorily performed. However, during the retest and at the discretion of the examiner, any Task may be re-

evaluated including those previously considered satisfactory. Specific reasons for disqualification are:

1. failure to perform a procedure or maneuver to the Commercial Pilot skill level while giving effective flight instruction;
2. failure to provide an effective instructional explanation while demonstrating a procedure or maneuver (explanation during the demonstration must be clear, concise, technically accurate, and complete with no prompting from the examiner);
3. any action or lack of action by the applicant which requires corrective intervention by the examiner to maintain safe flight;
4. failure to use proper and effective visual scanning techniques to clear the area before and while performing maneuvers.

When a notice of disapproval is issued, the examiner will record the applicant's unsatisfactory performance in terms of Areas of Operation and Tasks.

### ***Letter of Discontinuance***

When a practical test is discontinued for reasons other than unsatisfactory performance (i.e., equipment failure, weather, or illness) FAA Form 8700-1, Airman Certificate and/or Rating Application, and, if applicable, the Airman Knowledge Test Report, shall be returned to the applicant. The examiner at that time shall prepare, sign, and issue a Letter of Discontinuance to the applicant. The Letter of Discontinuance should identify the Areas of Operation and their associated Tasks of the practical test that were successfully completed. The applicant shall be advised that the Letter of Discontinuance shall be presented to the examiner when the practical test is resumed, and made part of the certification file.

### ***Aeronautical Decision Making and Risk Management***

The examiner shall evaluate the applicant's ability throughout the practical test to use good aeronautical decision making procedures in order to evaluate risks. The examiner shall accomplish this requirement by developing scenarios that incorporate as many Tasks as possible to evaluate the applicant's risk management in making safe aeronautical decisions. For example, the examiner may develop a scenario that incorporates weather decisions and performance planning.

The applicant's ability to utilize all the assets available in making a risk analysis to determine the safest course of action is essential for satisfactory performance. The scenarios should be realistic and within the capabilities of the aircraft used for the practical test.

### ***Single-Pilot Resource Management***

Single-Pilot Resource Management refers to the effective use of **all** available resources: human resources, hardware, and information. It is similar to Crew Resource Management (CRM) procedures that are being emphasized in multi-crewmember operations except that only one

crewmember (the pilot) is involved. Human resources "...includes all other groups routinely working with the pilot who are involved in decisions that are required to operate a flight safely. These groups include, but are not limited to: dispatchers, weather briefers, maintenance personnel, and air traffic controllers." Single-pilot Resource Management; is a set of skill competencies that must be evident in all Tasks in this practical test standard as applied to single-pilot operation.

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## **Section 1**

### **Flight Instructor Rotorcraft – Helicopter**

#### **Practical Test Standards**

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## Additional Rating Task Table

### Addition of a Helicopter Class Rating (and a Rotorcraft Category Rating, if appropriate) to a Flight Instructor Certificate

#### Flight Instructor Certificate and Rating Held

Required Areas of Operation	ASE	AME	RG	G	IA	IH
I	N	N	N	N	N	N
II	Y	Y	Y	Y	Y	Y
III	Y	Y	Y	Y	Y	Y
IV	N	N	N	N	N	N
V	Y	Y	Y	Y	Y	Y
VI	N	N	N	N	N	N
VII	Y	Y	Y	Y	Y	Y
VIII	Y	Y	Y	Y	Y	Y
IX	Y	Y	Y	Y	Y	Y
X	Y	Y	Y	Y	Y	Y
XI	Y	Y	Y	Y	Y	Y
XII	Y	Y	Y	Y	Y	Y
XIII	Y	Y	Y	Y	Y	Y

**Legend:**

ASE	Airplane Single-Engine
AME	Airplane Multiengine
RG	Rotorcraft Gyroplane
G	Glider Powered
IA	Instrument Airplane/Helicopter
IH	Instrument Helicopter

**Note:** *If an applicant holds more than one rating on a flight instructor certificate and the table indicates both a Y (Yes) and an N (No) for a particular Area of Operation, the N entry applies. This is logical since the applicant has satisfactorily accomplished the Area of Operation on a previous flight instructor practical test. At the discretion of the examiner, the applicant's competence in all Areas of Operation may be evaluated.*

## Renewal or Reinstatement of a Flight Instructor

Required Areas of Operation	Number of Tasks
II	Task L and 1 other Task
III	1
IV	1
V	1
VI	1
VII	1
VIII	2 Takeoffs and 2 Landings
IX	1

The renewal or reinstatement of one rating on a Flight Instructor Certificate renews or reinstates all privileges existing on the certificate. (14 CFR part 61, sections 61.197 and 61.199)

# **Applicant's Practical Test Checklist (Helicopter)**

## **Appointment with Examiner**

Examiner's Name: \_\_\_\_\_

Location: \_\_\_\_\_

Date/Time: \_\_\_\_\_

### **Acceptable Aircraft**

- Aircraft Documents:
  - Airworthiness Certificate
  - Registration Certificate
  - Operating Limitations
- Aircraft Maintenance Records:
  - Logbook Record of Airworthiness Inspections and AD Compliance

### **Personal Equipment**

- Practical Test Standard
- Lesson Plan Library
- Current Aeronautical Charts
- Computer and Plotter
- Flight Plan and Flight Log Forms
- Current AIM, Airport Facility Directory, and Appropriate Publications

### **Personal Records**

- Identification – Photo/Signature ID
- Pilot Certificate
- Current and Appropriate Medical Certificate
- Completed FAA Form 8710-1, Airman Certificate and/or Rating Application
- AC Form 8080-2, Airman Written Test Report or Computer Test Report
- Pilot Logbook with Appropriate Instructor Endorsements
- FAA Form 8060-5, Notice of Disapproval (if applicable)
- Approved School Graduation Certificate (if applicable)
- Examiner's Fee (if applicable)

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**Examiner's Practical Test Checklist  
(Helicopter)  
Flight Instructor – Rotorcraft**

Applicant's Name: \_\_\_\_\_

Location: \_\_\_\_\_

Date/Time: \_\_\_\_\_

**I. Fundamentals of Instructing**

- A. The Learning Process
- B. Human Behavior
- C. The Teaching Process
- D. Teaching Methods
- E. Critique and Evaluation
- F. Flight Instructor Characteristics and Responsibilities
- G. Planning Instructional Activity

**II. Technical Subjects**

- A. Aeromedical Factors
- B. Visual Scanning and Collision Avoidance
- C. Use of Distractions during Flight Training
- D. Principles of Flight
- E. Helicopter Flight Controls
- F. Helicopter Weight and Balance
- G. Navigation and Flight Planning
- H. Night Operations
- I. Regulations and Publications
- J. Airworthiness Requirements
- K. National Airspace System
- L. Logbook Entries and Certificate Endorsements

**III. Preflight Preparation**

- A. Certificates and Documents
- B. Weather Information
- C. Operation of Systems
- D. Performance and Limitations

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

- A. Maneuver Lesson

**V. Preflight Procedures**

- A. Preflight Inspection
- B. Single-Pilot Resource Management

- C. Engine Starting and Rotor Engagement
- D. Before Takeoff Check

## **VI. Airport and Heliport Operations**

- A. Radio Communications and ATC Light Signals
- B. Traffic Patterns
- C. Airport and Heliport Markings and Lighting

## **VII. Hovering Maneuvers**

- A. Vertical Takeoff and Landing
- B. Surface Taxi
- C. Hover Taxi
- D. Air Taxi
- E. Slope Operation

## **VIII. Takeoffs, Landings, and Go-Arounds**

- A. Normal and Crosswind Takeoff and Climb
- B. Maximum Performance Takeoff and Climb
- C. Rolling Takeoff
- D. Normal and Crosswind Approach
- E. Steep Approach
- F. Shallow Approach and Running/Roll-On Landing
- G. Go-Around
- H. Approach and Landing with Simulated Powerplant Failure – Multiengine Helicopter

## **IX. Fundamentals of Flight**

- A. Straight-and-Level Flight
- B. Level Turns
- C. Straight Climbs and Climbing Turns
- D. Straight Descents and Descending Turns

## **X. Performance Maneuvers**

- A. Rapid Deceleration
- B. Straight-In Autorotation
- C. 180° Autorotation

## **XI. Emergency Operations**

- A. Power Failure at a Hover
- B. Power Failure at Altitude
- C. Setting-With-Power
- D. Low Rotor RPM Recovery
- E. Anti-torque System Failure
- F. Dynamic Rollover
- G. Ground Resonance
- H. Low “G” Conditions
- I. Systems and Equipment Malfunctions

- J.** Emergency Equipment and Survival Gear

**XII. Special Operations**

- A.** Confined Area Operation
- B.** Pinnacle/Platform Operation

**XIII. Postflight Procedures**

- A.** After-Landing and Securing



# Areas of Operation:

## I. Fundamentals of Instructing

*Note: The examiner shall select at least tasks E and F.*

### **Task A: The Learning Process**

*Reference: FAA-H-8083-9.*

**Objective:** To determine that the applicant exhibits instructional knowledge of the elements of the learning process by describing:

1. The definition and characteristics of learning.
2. Practical application of the laws of learning.
3. Factors involved in how people learn.
4. Recognition and proper use of the various levels of learning.
5. Principles that are applied in learning a skill.
6. Factors related to forgetting and retention.
7. How the transfer of learning affects the learning process.
8. How the formation of habit patterns affects the learning process.

### **Task B: Human Behavior**

*Reference: FAA-H-8083-9.*

**Objective:** To determine that the applicant exhibits instructional knowledge of the elements related to human behavior by describing:

1. Control of human behavior.
2. Development of student potential.
3. Relationship of human needs to behavior and learning.
4. Relationship of defense mechanisms to student learning and pilot decision making.
5. General rules which a flight instructor should follow during student training to ensure good human relations.

### **Task C: The Teaching Process**

*Reference: FAA-H-8083-9.*

**Objective:** To determine that the applicant exhibits instructional knowledge of the elements of the teaching process by describing:

1. Preparation of a lesson for a ground or flight instructional period.
2. Presentation of knowledge and skills, including the methods, which are suitable in particular situations.
3. Application, by the student, of the knowledge and skills presented by the instructor.
4. Review of the material presented and the evaluation of student performance and accomplishment.

### **Task D: Teaching Methods**

*Reference: FAA-H-8083-9.*

**Objective:** To determine that the applicant exhibits instructional knowledge of the elements of teaching methods by describing:

1. The organization of a lesson, i.e., introduction, development, and conclusion.
2. The lecture method.
3. The guided discussion method.
4. The demonstration-performance method.
5. Computer/video assisted instruction.

### **Task E: Critique and Evaluation**

*Reference: FAA-H-8083-9.*

**Objective:** To determine that the applicant exhibits instructional knowledge of the elements of critique and evaluation by describing:

1. Purpose and characteristics of an effective critique.
2. Difference between critique and evaluation.
3. Characteristics of effective oral questions and what type to avoid.
4. Responses to student questions.
5. Characteristics and development of effective written tests.
6. Characteristics and uses of performance tests, specifically, the FAA practical test standards.

### **Task F: Flight Instructor Characteristics and Responsibilities**

*Reference: FAA-H-8083-9.*

**Objective:** To determine that the applicant exhibits instructional knowledge of the elements of flight instructor characteristics and responsibilities by describing:

1. Major characteristics and qualifications of a professional flight instructor.
2. Role of the flight instructor in dealing with student stress, anxiety, and psychological abnormalities.
3. Flight instructor's responsibility with regard to student pilot supervision and surveillance.
4. Flight instructor's authority and responsibility for endorsements and recommendations.
5. Flight instructor's responsibility in the conduct of the required FAA flight review.

### ***Task G: Planning Instructional Activity***

*Reference:* FAA-H-8083-9.

**Objective:** To determine that the applicant exhibits instructional knowledge of the elements related to the planning of instructional activity by describing:

1. Development of a course of training.
2. Content and use of a training syllabus.
3. Purpose, characteristics, proper use, and items of a lesson plan.
4. Flexibility features of a course of training, syllabus, and lesson plan required to accommodate students with varying backgrounds, levels of experience, and ability.

## II. Technical Subjects

**Note:** *The examiner shall select Task L and at least one other Task.*

### **Task A: Aeromedical Factors**

*References: FAA-H-8083-25; AIM.*

**Objective:** To determine that the applicant exhibits instructional knowledge of the elements related to aeromedical factors by describing:

1. Hypoxia, its symptoms, effects, and corrective action.
2. Hyperventilation, its symptoms, effects, and corrective action.
3. Middle ear and sinus problems, their causes, effects, and corrective action.
4. Spatial disorientation, its causes, effects, and corrective action.
5. Motion sickness, its causes, effects, and corrective action.
6. Effects of alcohol and drugs, and their relationship to safety.
7. Carbon monoxide poisoning, its symptoms, effects, and corrective action.
8. How evolved gas from scuba diving can affect a pilot during flight.
9. Fatigue, its effects and corrective action.

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

*References: FAA-H-8083-25; AC 90-48; AIM.*

**Objective:** To determine that the applicant exhibits instructional knowledge of the elements related to visual scanning and collision avoidance by describing:

1. Relationship between a pilot's physical or mental condition and vision.
2. Environmental conditions and optical illusions that affect vision.
3. "See and avoid" concept.
4. Practice of "time sharing" of attention inside and outside the cockpit.
5. Proper visual scanning technique.
6. Relationship between poor visual scanning habits, aircraft speed differential, and increased collision risk.
7. Appropriate clearing procedures.
8. Situations which involve the greatest collision risk.

### **Task C: Use of Distractions During Flight Training**

*Reference: FAA-H-8083-9.*

**Objective:** To determine that the applicant exhibits instructional knowledge of the elements related to use of distractions during flight training by describing:

1. Flight situations where pilot distraction can be a causal factor related to aircraft accidents.
2. Selection of realistic distractions for specific flight situations.
3. Relationship between division of attention and flight instructor use of distractions.
4. Difference between proper use of distractions and harassment.

### **Task D: Principles of Flight**

*Reference: FAA-H-8083-21.*

**Objective:** To determine that the applicant exhibits instructional knowledge of the elements related to principles of flight by describing:

1. Characteristics of different rotor systems.
2. Effect of lift, weight, thrust, and drag during various flight maneuvers.
3. Retreating blade stall.
4. Torque effect.
5. Dissymmetry of lift.
6. Blade flapping and coning.
7. Coriolis effect.
8. Translating tendency.
9. Translational lift.
10. Transverse flow effect.
11. Pendular action.

### **Task E: Helicopter Flight Controls**

*Reference: FAA-H-8083-21.*

**Objective:** To determine that the applicant exhibits instructional knowledge of the elements related to flight controls of the helicopter used for the practical test by describing:

1. Collective pitch control.
2. Cyclic pitch control.
3. Anti-torque control.
4. Throttle control.

## **Task F: Helicopter Weight and Balance**

*References: FAA-H-8083-1, FAA-H-8083-21.*

**Objective:** To determine that the applicant exhibits instructional knowledge of the elements related to weight and balance by describing:

1. Weight and balance terms.
2. Effect of weight and balance on performance.
3. Determination of total weight, center of gravity (longitudinal and lateral), and changes that occur when adding, removing, or shifting weight.

## **Task G: Navigation and Flight Planning**

*References: FAA-H-8083-25.*

**Objective:** To determine that the applicant exhibits instructional knowledge of the elements related to navigation and flight planning by describing:

1. Terms used in navigation.
2. Features of aeronautical charts.
3. Importance of using proper and current aeronautical charts.
4. Identification of various types of airspace.
5. Method of plotting a course, selection of fuel stops and alternates, and appropriate actions in the event of unforeseen situations.
6. Fundamentals of pilotage and dead reckoning.
7. Fundamentals of radio navigation.
8. Diversion to an alternate.
9. Lost procedures.
10. Computation of fuel requirement.
11. Importance of preparing and properly using a flight log.
12. Importance of a weather check and the use of good judgment in making a “go/no-go” decision.
13. Purpose of, and procedure used in, filing a flight plan.
14. Global positioning system (GPS).

## **Task H: Night Operations**

*References: FAA-H-8083-21, FAA-H-8083-25; AIM; FAA-S-8081-15.*

**Objective:** To determine that the applicant exhibits instructional knowledge of the elements related to night operations by describing:

1. Factors related to night vision, disorientation, and optical illusions.
2. Weather considerations specific to night operations.
3. Preflight inspection, including windshield and window cleanliness.
4. Proper adjustment of interior lights, including availability of flashlight.
5. Use of position and anticollision lights prior to, during, and after engine start.
6. Hover taxiing and orientation on an airport or heliport.
7. Takeoff and climb-out.
8. Inflight orientation.
9. Importance of verifying the helicopter's attitude by visual references and flight instruments.
10. Recovery from critical flight attitudes by visual references and flight instruments.
11. Emergencies such as electrical failure, engine malfunction, and emergency landings.
12. Traffic patterns.
13. Approaches and landings with and without landing lights.

### **Task I: Regulations and Publications**

*References: 14 CFR parts 1, 61, 91; NTSB Part 830; AC 00-2; AIM, Rotorcraft Flight Manual.*

**Objective:** To determine that the applicant exhibits instructional knowledge of the elements related to pertinent regulations and publications, their purpose, general content, availability, and method of revision, by describing:

1. 14 CFR parts 1, 61, and 91.
2. NTSB Part 830.
3. Flight information publications.
4. Practical Test Standards.
5. Helicopter Flight Manual (as applicable).

### **Task J: Airworthiness Requirements**

*References: 14 CFR parts 1, 27, 29, 39, 43, and 91; FAA-H-8083-21.*

**Objective:** To determine that the applicant exhibits knowledge of the elements related to airworthiness requirements by:

1. Explaining—
  - a. required instruments and equipment for day/night VFR.

- b. procedures and limitations for determining airworthiness of the helicopter with inoperative instruments and equipment with and without an MEL.
  - c. requirements and procedures for obtaining a special flight permit.
2. Locating and explaining—
    - a. airworthiness directives.
    - b. compliance records.
    - c. maintenance/inspection requirements.
    - d. appropriate record keeping.

### **Task K: National Airspace System**

*References:* 14 CFR part 91; FAA-S-8081-12, FAA-S-8081-14; AIM.

**Objective:** To determine that the applicant exhibits instructional knowledge of the elements of the national airspace system by describing:

1. Basic VFR Weather Minimums—for all classes of airspace.
2. Airspace classes—the operating rules, pilot certification, and aircraft equipment requirements for the following—
  - a. Class A.
  - b. Class B.
  - c. Class C.
  - d. Class D.
  - e. Class E.
  - f. Class G.
3. Special use airspace and other airspace areas.
4. Temporary flight restrictions (TFRs).

### **Task L: Logbook Entries and Certificate Endorsements**

*References:* 14 CFR part 61; AC 61-65, AC 61-98.

**Objective:** To determine that the applicant exhibits instructional knowledge of the elements related to logbook entries and certificate endorsements by describing:

1. Required logbook entries for instruction given.
2. Required student pilot certificate endorsements, including appropriate logbook entries.
3. Preparation of a recommendation for a pilot practical test, including appropriate logbook entry.
4. Required endorsement of a pilot logbook for the satisfactory completion of an FAA flight review.
5. Required flight instructor records.

### III. Preflight Preparation

*Note: The examiner shall select at least one Task.*

#### **Task A: Certificates and Documents**

References: 14 CFR parts 43, 61, 67, 91; FAA-H-8083-21, FAA-H-8083-25; Rotorcraft Flight Manual.

**Objective:** To determine that the applicant exhibits instructional knowledge of the elements related to certificates and documents by describing:

1. Requirements for the issuance of pilot and flight instructor certificates and ratings, and the privileges and limitations of those certificates and ratings.
2. Medical certificates, class, duration, and how to obtain them.
3. Airworthiness and registration certificates.
4. Helicopter handbooks and manuals.
5. Helicopter maintenance requirements and records.

#### **Task B: Weather Information**

References: AC 00-6, AC 00-45, AC 61-84; FAA-H-8083-25; AIM.

**Objective:** To determine that the applicant exhibits instructional knowledge of the elements related to weather information by describing:

1. Importance of a thorough weather check.
2. Various sources for obtaining weather information.
3. Use of weather reports, forecasts, and charts.
4. Use of PIREPs, SIGMETs, and AIRMETs.
5. Recognition of aviation weather hazards to include wind shear.
6. Factors to be considered in making a "go/no-go" decision.

#### **Task C: Operation of Systems**

References: FAA-H-8083-21; Rotorcraft Flight Manual.

**Objective:** To determine that the applicant exhibits instructional knowledge of the elements related to operation of systems, as applicable to the helicopter used for the practical test, by describing:

1. Powerplant, including controls, indicators, cooling, and fire detection.
2. Main rotor system.

3. Anti-torque system.
4. Landing gear, brakes, and steering system.
5. Fuel, oil, and hydraulic systems.
6. Electrical system.
7. Environmental system.
8. Pitot static/vacuum system and associated instruments.
9. Anti-icing systems.
10. Avionics equipment.

### **Task D: Performance and Limitations**

*References: AC 61-84, FAA-H-8083-1, FAA-H-8083-21; Rotorcraft Flight Manual.*

**Objective:** To determine that the applicant exhibits instructional knowledge of the elements related to performance and limitations by describing:

1. Determination of weight and balance condition.
2. Use of performance charts and other data for determining performance in various phases of flight.
3. Effects of density altitude and other atmospheric conditions on performance.
4. Factors to be considered when operating within “avoid” areas of the height/velocity diagram.
5. Conditions that may cause loss of tail rotor effectiveness/ unanticipated loss of directional control.
6. Other factors to be considered in determining that required performance is within the helicopter's capabilities.

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

**Note:** Examiner shall select at least one maneuver from Areas of Operation VII through XII, and ask the applicant to present a preflight lesson on the selected maneuver as the lesson would be taught to a student. Previously developed lesson plans from the applicant's library may be used.

### **Task A: Maneuver Lesson**

**References:** FAA-H-8083-9, FAA-H-8083-21; FAA-S-8081-15, FAA-S-8081-16; Rotorcraft Flight Manual.

**Objective:** To determine that the applicant exhibits instructional knowledge of the selected maneuver by:

1. Using a lesson plan that includes all essential items to make an effective and organized presentation.
2. Stating the objective.
3. Giving an accurate, comprehensive oral description of the maneuver, including the elements and associated common errors.
4. Using instructional aids, as appropriate.
5. Describing the recognition, analysis, and correction of common errors.

## V. Preflight Procedures

**Note:** *The examiner shall select at least one Task.*

### **Task A: Preflight Inspection**

References: FAA-H-8083-9, FAA-H-8083-21; FAA-S-8081-15, FAA-S-8081-16; Rotorcraft Flight Manual.

**Objective:** To determine that the applicant:

1. Exhibits instructional knowledge of the elements of a preflight inspection, as applicable to the helicopter used for the practical test, by describing—
  - a. reasons for the preflight inspection, items that should be inspected, and how defects are detected.
  - b. importance of using the appropriate checklist.
  - c. removal of control locks, rotor blade tie-down, and wheel chocks, if applicable.
  - d. determination of fuel, oil, and hydraulic fluid quantity, possible contamination and/or leaks.
  - e. inspection of flight controls.
  - f. detection of visible structural damage.
  - g. importance of proper loading and securing of baggage and equipment.
  - h. use of sound judgment in determining whether the helicopter is in condition for safe flight.
2. Exhibits instructional knowledge of common errors related to a preflight inspection by describing—
  - a. failure to use or improper use of checklist.
  - b. hazards which may result from allowing distractions to interrupt a preflight inspection.
  - c. inability to recognize discrepancies.
  - d. failure to ensure servicing with the proper fuel and oil.
3. Demonstrates and simultaneously explains a preflight inspection from an instructional standpoint.

### **Task B: Single-Pilot Resource Management**

References: FAA-H-8083-9, AC 91-32; CFR part 91; FAA-S-8081-15, FAA-S-8081-16; Rotorcraft Flight Manual.

**Objective:** To determine that the applicant:

1. Exhibits instructional knowledge of the elements of crew resource management by describing—

- a. proper arranging and securing of essential materials and equipment in the cockpit.
  - b. proper use and/or adjustment of such cockpit items as safety belts, shoulder harnesses, anti-torque pedals, and seats.
  - c. occupant briefing on emergency procedures, rotor blade avoidance, and use of safety belts and shoulder harnesses.
  - d. utilization of all available human resources, maintenance personnel, weather briefers, and air traffic control, and other groups routinely working with the pilot who are involved in decisions that are required to operate a flight safely.
2. Exhibits instructional knowledge of common errors related to crew resource management by describing—
- a. failure to place and secure essential materials and equipment for easy access during flight.
  - b. improper adjustment of equipment and controls.
  - c. failure to brief occupants on emergency procedures, rotor blade avoidance, and use of safety belts and shoulder harnesses.
  - d. failure to utilize all available human resources, maintenance personnel, weather briefers, air traffic control, and other groups routinely working with the pilot who are involved in decisions that are required to operate a flight safely.
3. Demonstrates and simultaneously explains crew resource management from an instructional standpoint.

### ***Task C: Engine Starting and Rotor Engagement***

*References: FAA-H-8083-9, FAA-H-8083-21, AC 91-13, AC 91-42; FAA-S-8081-15, FAA-S-8081-16; Rotorcraft Flight Manual.*

**Objective:** To determine that the applicant:

1. Exhibits instructional knowledge of the elements of engine starting and rotor engagement, as appropriate to the helicopter used for the practical test, by describing—
  - a. safety precautions related to engine starting and rotor engagement.
  - b. proper positioning of helicopter to avoid hazards.
  - c. use of external power.
  - d. effect of atmospheric conditions on engine starting and rotor engagement.
  - e. importance of proper friction adjustment.

- f. importance of following the appropriate checklist.
  - g. adjustment of engine and flight controls during engine start and rotor engagement.
  - h. prevention of undesirable helicopter movement during and after engine start and rotor engagement.
2. Exhibits instructional knowledge of common errors related to engine starting and rotor engagement by describing—
    - a. failure to use or improper use of checklist.
    - b. exceeding starter time limitations.
    - c. excessive engine RPM and/or temperatures during start.
    - d. failure to ensure adequate main rotor or tail rotor clearance.
  3. Demonstrates and simultaneously explains engine starting and rotor engagement from an instructional standpoint.

**Task D: Before Takeoff Check**

*References: FAA-H-8083-9, FAA-H-8083-21; FAA-S-8081-15, FAA-S-8081-16; Rotorcraft Flight Manual.*

**Objective:** To determine that the applicant:

1. Exhibits instructional knowledge of the elements of the before takeoff check by describing—
  - a. division of attention inside and outside the cockpit.
  - b. importance of following the checklist and responding to each item.
  - c. reasons for ensuring suitable engine temperatures and pressures for run-up and takeoff.
  - d. method used to determine that the helicopter is in safe operating condition.
  - e. importance of reviewing emergency procedures.
  - f. method used for ensuring that takeoff area or path is free of hazards.
  - g. method used for ensuring adequate clearance from other traffic.
2. Exhibits instructional knowledge of common errors related to the before takeoff check by describing—
  - a. failure to use or the improper use of the checklist.
  - b. acceptance of marginal helicopter performance.
  - c. an improper check of controls.
3. Demonstrates and simultaneously explains a before takeoff check from an instructional standpoint.

4. Analyzes and corrects simulated common errors related to a before takeoff check.

## VI. Airport and Heliport Operations

*Note: The examiner shall select at least one Task.*

### **Task A: Radio Communications and ATC Light Signals**

*References: AIM; FAA-S-8081-15, FAA-S-8081-16; 14 CFR part 91.*

**Objective:** To determine that the applicant:

1. Exhibits instructional knowledge of the elements of radio communications and ATC light signals by describing—
  - a. selection and use of appropriate radio frequencies.
  - b. recommended procedure and phraseology for radio voice communications.
  - c. receipt, acknowledgment of, and compliance with, ATC clearances and other instructions.
  - d. prescribed procedure for radio communications failure.
  - e. interpretation of, and compliance with, ATC light signals.
2. Exhibits instructional knowledge of common errors related to radio communications and ATC light signals by describing—
  - a. use of improper frequencies.
  - b. improper techniques and phraseologies when using radio voice communications.
  - c. failure to acknowledge, or properly comply with, ATC clearances and other instructions.
  - d. use of improper procedures for radio communications failure.
  - e. failure to understand, or to properly comply with, ATC light signals.

### **Task B: Traffic Patterns**

*References: FAA-H-8083-9, FAA-H-8083-21; 14 CFR part 91; AIM; FAA-S-8081-15, FAA-S-8081-16, AC 90-42, AC 90-48, AC 90-66*

**Objective:** To determine that the applicant:

1. Exhibits instructional knowledge of the elements of traffic pattern operations by describing—

- a. operations at controlled and uncontrolled airports and heliports.
  - b. adherence to traffic pattern procedures, instructions, and appropriate regulations.
  - c. how to maintain appropriate spacing from other traffic.
  - d. how to maintain desired ground track.
  - e. wind shear and wake turbulence.
  - f. orientation with landing area or heliport in use.
  - g. how to establish an approach to the landing area or heliport.
  - h. use of checklist.
2. Exhibits instructional knowledge of common errors related to traffic patterns by describing—
    - a. failure to comply with traffic pattern instructions, procedures, and rules.
    - b. improper correction for wind drift.
    - c. inadequate spacing from other traffic.
    - d. improper altitude or airspeed control.
  3. Demonstrates and simultaneously explains traffic patterns from an instructional standpoint.
  4. Analyzes and corrects simulated common errors related to traffic patterns.

**Task C: Airport and Heliport Markings and Lighting**

*References: AIM; FAA-H-8083-25; FAA-S-8081-15, FAA-S-8081-16. AC 150/5340-1, AC 150/5340-18, AC-150/5340-30*

**Objective:** To determine that the applicant exhibits instructional knowledge of the elements of airport and heliport markings and lighting by describing:

1. Identification and proper interpretation of airport and heliport markings.
2. Identification and proper interpretation of airport and heliport lighting.

## VII. Hovering Maneuvers

*Note: The examiner shall select at least one Task.*

### **Task A: Vertical Takeoff and Landing**

*References: FAA-H-8083-9, FAA-H-8083-21; FAA-S-8081-15, FAA-S-8081-16; Rotorcraft Flight Manual.*

**Objective.** To determine that the applicant:

1. Exhibits instructional knowledge of the elements of a vertical takeoff and landing by describing—
  - a. how to establish and maintain proper RPM.
  - b. proper position of collective pitch, cyclic, and anti-torque pedals prior to initiating takeoff.
  - c. ascending vertically, at a suitable rate, to the recommended hovering altitude, in headwind, crosswind, and tailwind conditions.
  - d. descending vertically, at a suitable rate, to a selected touchdown point.
  - e. touching down vertically in headwind, crosswind, and tailwind conditions.
  - f. how to maintain desired heading during the maneuver.
2. Exhibits instructional knowledge of common errors related to a vertical takeoff and landing by describing—
  - a. improper RPM control.
  - b. failure to ascend and descend vertically at a suitable rate.
  - c. failure to recognize and correct undesirable drift.
  - d. improper heading control.
  - e. terminating takeoff at an improper altitude.
  - f. overcontrol of collective pitch, cyclic, or anti-torque pedals.
  - g. failure to reduce collective pitch to the full-down position, smoothly and positively, upon surface contact.
3. Demonstrates and simultaneously explains a vertical takeoff and landing from an instructional standpoint.
4. Analyzes and corrects simulated common errors related to a vertical takeoff and landing.

### **Task B: Surface Taxi**

*Note: This Task applies only to helicopters equipped with wheel-type landing gear.*

*References: FAA-H-8083-9, FAA-H-8083-21; AIM; FAA-S-8081-15, FAA-S-8081-16; Rotorcraft Flight Manual.*

**Objective:** To determine that the applicant:

1. Exhibits instructional knowledge of the elements of surface taxi by describing—
  - a. positioning of cyclic and collective to begin forward movement.
  - b. proper use of cyclic, collective, and brakes to control speed while taxiing.
  - c. use of anti-torque pedals to maintain directional control.
  - d. use of brakes during minimum radius turns.
  - e. proper position of tailwheel (if applicable) locked or unlocked.
  - f. positioning of controls to slow and stop helicopter.
2. Exhibits instructional knowledge of common errors related to surface taxi by describing—
  - a. improper positioning of cyclic and collective to start and stop movement.
  - b. improper use of brakes.
  - c. hazards of taxiing too fast.
  - d. improper use of anti-torque pedals.
3. Demonstrates and simultaneously explains surface taxi from an instructional standpoint.
4. Analyzes and corrects simulated common errors related to surface taxi.

### **Task C: Hover Taxi**

*References: FAA-H-8083-9, FAA-H-8083-21; AIM; FAA-S-8081-15, FAA-S-8081-16; Rotorcraft Flight Manual.*

**Objective:** To determine that the applicant:

1. Exhibits instructional knowledge of the elements of hover taxi by describing—
  - a. how to maintain proper Revolutions Per Minute (RPM).
  - b. maintaining desired ground track and heading.
  - c. how to make precise turns to headings.
  - d. holding recommended hovering altitude.
  - e. appropriate groundspeed.
2. Exhibits instructional knowledge of common errors related to hover taxi by describing—

- a. improper RPM control.
  - b. improper control of heading and track.
  - c. erratic altitude control.
  - d. misuse of flight controls.
3. Demonstrates and simultaneously explains hover taxi from an instructional standpoint.
  4. Analyzes and corrects simulated common errors related to hover taxi.

### **Task D: Air Taxi**

*References: FAA-H-8083-9, FAA-H-8083-21; AIM; FAA-S-8081-15, FAA-S-8081-16; Rotorcraft Flight Manual.*

**Objective:** To determine that the applicant:

1. Exhibits instructional knowledge of the elements of air taxi by describing—
  - a. how to maintain proper RPM.
  - b. selection of an altitude and airspeed appropriate for the operation.
  - c. proper use of collective pitch, cyclic, and anti-torque pedals to maintain desired track and groundspeed in headwind and crosswind conditions.
  - d. compensation for wind effect.
2. Exhibits instructional knowledge of common errors related to air taxi by describing—
  - a. improper RPM control.
  - b. erratic altitude and airspeed control.
  - c. improper use of collective pitch, cyclic, and anti-torque pedals during operation.
  - d. improper use of controls to compensate for wind effect.
3. Demonstrates and simultaneously explains air taxi from an instructional standpoint.
4. Analyzes and corrects simulated common errors related to air taxi.

### **Task E: Slope Operation**

*References: FAA-H-8083-9, FAA-H-8083-21; FAA-S-8081-16; Rotorcraft Flight Manual.*

**Objective:** To determine that the applicant:

1. Exhibits instructional knowledge of the elements of a slope operation by describing—
  - a. factors to consider in selection of slope.
  - b. planning and performance of a slope operation, considering wind effect, obstacles, and discharging of passengers.
  - c. effect of slope surface texture.
  - d. how to maintain proper RPM.
  - e. control technique during descent to touchdown on a slope.
  - f. use of brakes (if applicable).
  - g. factors that should be considered to avoid dynamic rollover.
  - h. technique during a slope takeoff and departure.
2. Exhibits instructional knowledge of common errors related to a slope operation by describing—
  - a. improper planning selection of, approach to, or departure from the slope.
  - b. failure to consider wind effects.
  - c. improper RPM control.
  - d. turning tail of the helicopter upslope.
  - e. lowering downslope skid or wheels too rapidly.
  - f. sliding downslope.
  - g. improper use of brakes (if applicable).
  - h. conditions that, if allowed to develop, may result in dynamic rollover.
3. Demonstrates and simultaneously explains a slope operation from an instructional standpoint.
4. Analyzes and corrects simulated common errors related to a slope operation.

## VIII. Takeoffs, Landings, and Go-Arounds

**Note:** The examiner shall select at least one takeoff Task and one approach Task.

### **Task A: Normal and Crosswind Takeoff and Climb**

**References:** FAA-H-8083-9, FAA-H-8083-21; FAA-S-8081-15, FAA-S-8081-16; Rotorcraft Flight Manual.

**Objective:** To determine that the applicant:

1. Exhibits instructional knowledge of the elements of a normal and crosswind takeoff and climb by describing—
  - a. consideration of wind conditions.
  - b. factors affecting takeoff and climb performance.
  - c. how to maintain proper RPM.
  - d. how to establish a stationary position on the surface or a stabilized hover, prior to takeoff in headwind and crosswind conditions.
  - e. presence of effective translational lift.
  - f. acceleration to a normal climb.
  - g. climb airspeed and power setting.
  - h. crosswind correction and ground track during climb.
2. Exhibits instructional knowledge of common errors related to a normal and crosswind takeoff and climb by describing—
  - a. improper RPM control.
  - b. improper use of cyclic, collective pitch, or anti-torque pedals.
  - c. failure to use sufficient power to avoid settling prior to entering effective translational lift.
  - d. improper coordination of attitude and power during initial phase of climb-out.
  - e. failure to establish and maintain climb power and airspeed.
  - f. drift during climb.
3. Demonstrates and simultaneously explains a normal or a crosswind takeoff and climb from an instructional standpoint.
4. Analyzes and corrects simulated common errors related to a normal or a crosswind takeoff and climb.

## **Task B: Maximum Performance Takeoff and Climb**

*References: FAA-H-8083-9, FAA-H-8083-21; FAA-S-8081-15, FAA-S-8081-16; Rotorcraft Flight Manual.*

**Objective:** To determine that the applicant:

1. Exhibits instructional knowledge of the elements of a maximum performance takeoff and climb by describing—
  - a. importance of considering performance data, to include height/velocity diagram.
  - b. factors related to takeoff and climb performance of the aircraft.
  - c. how to establish and maintain proper RPM.
  - d. preparatory technique prior to increasing collective pitch to initiate takeoff.
  - e. technique to initiate takeoff and establish a forward climb attitude to clear obstacles
  - f. transition to normal climb power and airspeed.
  - g. crosswind correction and track during climb.
2. Exhibits instructional knowledge of common errors related to a maximum performance takeoff and climb by describing—
  - a. failure to consider performance data, including height/velocity diagram.
  - b. improper RPM control.
  - c. improper use of cyclic, collective pitch, or anti-torque pedals.
  - d. failure to use the predetermined power setting for establishing attitude and airspeed appropriate to the obstacles to be cleared.
  - e. failure to resume normal climb power and airspeed after obstacle clearance.
  - f. drift during climb.
3. Demonstrates and simultaneously explains a maximum performance takeoff and climb from an instructional standpoint.
4. Analyzes and corrects simulated common errors related to a maximum performance takeoff and climb.

## **Task C: Rolling Takeoff**

**Note:** *This Task applies only to helicopters equipped with wheel-type landing gear.*

*References: FAA-H-8083-9, FAA-H-8083-21; FAA-S-8081-15, FAA-S-8081-16; Rotorcraft Flight Manual.*

**Objective:** To determine that the applicant:

1. Exhibits instructional knowledge of the elements of a rolling takeoff by describing—
  - a. situations where this maneuver is recommended.
  - b. factors related to takeoff and climb performance of the aircraft.
  - c. how to establish and maintain proper RPM.
  - d. preparatory technique prior to initiating takeoff.
  - e. how to initiate forward accelerating movement on the surface.
  - f. indication of reaching effective translational lift.
  - g. transition to a normal climb airspeed and power setting.
  - h. crosswind correction and track during climb.
2. Exhibits instructional knowledge of common errors related to a rolling takeoff by describing—
  - a. improper RPM control.
  - b. improper use of cyclic, collective pitch, or anti-torque pedals.
  - c. failure to maintain heading and ground track.
  - d. failure to attain effective translational lift prior to attempting transition to flight.
  - e. use of excessive forward cyclic during the surface run.
  - f. settling back to the takeoff surface after becoming airborne.
  - g. excessive altitude prior to attaining climb airspeed.
  - h. failure to establish and maintain climb power and airspeed.
3. Demonstrates and simultaneously explains a rolling takeoff from an instructional standpoint.
4. Analyzes and corrects simulated common errors related to a rolling takeoff.

**Task D: Normal and Crosswind Approach**

*References: FAA-H-8083-9, FAA-H-8083-21; FAA-S-8081-15, FAA-S-8081-16; Rotorcraft Flight Manual.*

**Objective:** To determine that the applicant:

1. Exhibits instructional knowledge of the elements of a normal and crosswind approach by describing—
  - a. factors affecting performance.
  - b. how to maintain proper RPM.

- c. establishment and maintenance of the recommended approach angle and rate of closure.
  - d. coordination of flight controls.
  - e. crosswind correction and ground track.
  - f. loss of effective translational lift.
  - g. how to terminate the approach.
2. Exhibits instructional knowledge of common errors related to a normal and crosswind approach by describing—
    - a. improper RPM control.
    - b. improper approach angle.
    - c. improper use of cyclic to control rate of closure and collective pitch to control approach angle.
    - d. failure to coordinate pedal corrections with power changes.
    - e. failure to arrive at the termination point at zero groundspeed.
  3. Demonstrates and simultaneously explains a normal or a crosswind approach from an instructional standpoint.
  4. Analyzes and corrects simulated common errors related to a normal or a crosswind approach.

### **Task E: Steep Approach**

*References: FAA-H-8083-9, FAA-H-8083-21; FAA-S-8081-15, FAA-S-8081-16; Rotorcraft Flight Manual.*

**Objective:** To determine that the applicant:

1. Exhibits instructional knowledge of the elements of a steep approach by describing—
  - a. purpose of the maneuver.
  - b. importance of considering performance data, to include height/velocity diagram.
  - c. selection of proper approach angle for obstacle clearance.
  - d. how to maintain proper RPM.
  - e. establishment and maintenance of the appropriate approach angle and rate of closure.
  - f. coordination of flight controls.
  - g. crosswind correction and ground track.
  - h. location where effective translational lift is lost.
  - i. how to terminate the approach.
2. Exhibits instructional knowledge of common errors related to a steep approach by describing—
  - a. improper approach angle.
  - b. improper RPM control.

- c. improper use of cyclic to control rate of closure and collective pitch to control approach angle.
  - d. failure to coordinate pedal corrections with power changes.
  - e. failure to arrive at the termination point at zero groundspeed.
  - f. inability to determine location where effective translational lift is lost.
3. Demonstrates and simultaneously explains a steep approach from an instructional standpoint.
  4. Analyzes and corrects simulated common errors related to a steep approach.

### **Task F: *Shallow Approach and Running/Roll-On Landing***

*References: FAA-H-8083-9, FAA-H-8083-21; FAA-S-8081-15, FAA-S-8081-16; Rotorcraft Flight Manual.*

**Objective:** To determine that the applicant:

1. Exhibits instructional knowledge of the elements of a shallow approach and running/roll-on landing by describing—
  - a. purpose of the maneuver.
  - b. effect of landing surface texture.
  - c. factors affecting performance.
  - d. how to maintain proper RPM.
  - e. obstacles and other hazards, which should be considered.
  - f. establishment and maintenance of the recommended approach angle and rate of closure.
  - g. coordination of flight controls.
  - h. crosswind correction and ground track.
  - i. loss of effective translational lift.
  - j. transition from descent to surface contact.
  - k. flight control technique after surface contact.
2. Exhibits instructional knowledge of common errors related to a shallow approach and running/roll-on landing by describing—
  - a. improper RPM control.
  - b. improper approach angle.
  - c. improper use of cyclic to control rate of closure and collective pitch to control approach angle.
  - d. failure to coordinate pedal corrections with power changes.

- e. failure to maintain a speed that will take advantage of effective translational lift during the final phase of approach.
  - f. touching down at an excessive groundspeed.
  - g. failure to touch down in appropriate attitude.
  - h. failure to maintain directional control after touchdown.
3. Demonstrates and simultaneously explains a shallow approach and running/roll-on landing from an instructional standpoint.
  4. Analyzes and corrects simulated common errors related to a shallow approach and running/roll-on landing.

### **Task G: Go-Around**

*References: FAA-H-8083-9, FAA-H-8083-21; FAA-S-8081-15, FAA-S-8081-16; Rotorcraft Flight Manual.*

**Objective:** To determine that the applicant:

1. Exhibits instructional knowledge of the elements of a go-around by describing—
  - a. situations where a go-around is necessary.
  - b. importance of making a timely decision, considering obstacles, loss of translational lift, and engine response time.
  - c. proper use of power throughout maneuver.
  - d. timely and coordinated application of flight controls during transition to climb attitude.
  - e. proper track and obstacle clearance during climb.
2. Exhibits instructional knowledge of common errors related to a go-around by describing—
  - a. failure to recognize a situation where a go-around is necessary.
  - b. hazards of delaying the decision to go around.
  - c. improper application of flight controls during transition to climb attitude.
  - d. failure to control drift and clear obstacles safely.
3. Demonstrates and simultaneously explains a go-around from an instructional standpoint.
4. Analyzes and corrects simulated common errors related to a go-around.

## **Task H: Approach and Landing with Simulated Powerplant Failure - Multiengine Helicopter**

**Note:** *In a multiengine helicopter maneuvering to a landing, the applicant should follow a procedure that simulates the loss of one powerplant.*

**References:** *FAA-H-8083-21; Rotorcraft Flight Manual*

**Objective.** To determine that the applicant:

1. Exhibits instructional knowledge of the elements an approach and landing with simulated powerplant failure.
2. Exhibits adequate knowledge of maneuvering to a landing with a powerplant inoperative, including the controllability factors associated with maneuvering, and the applicable emergency procedures.
3. Selects a suitable touchdown point.
4. Maintains, prior to beginning the final approach segment, the desired altitude  $\pm 100$  feet, the desired airspeed  $\pm 10$  knots, the desired heading  $\pm 5^\circ$ , and maintains desired track.
5. Establishes the approach and landing configuration appropriate for the runway or landing area, and adjusts the powerplant controls as required.
6. Maintains a normal approach angle and recommended airspeed to the point of transition to touchdown.
7. Terminates the approach in a smooth transition to touchdown.
8. Completes the after-landing checklist items in a timely manner, after clearing the landing area, and as recommended by the manufacturer.
9. Exhibits instructional knowledge of common errors related to approach and landing with simulated powerplant failure by describing—
  - a. hazards resulting from not following manufacturer's recommended procedures in the event of a powerplant failure.
  - b. failure of the pilot to follow the appropriate checklist.
10. Demonstrates and simultaneously explains approaching and landing procedures with a simulated powerplant failure.
11. Analyzes and corrects simulated common errors related to an approach and landing with simulated powerplant failure.

## IX. Fundamentals of Flight

**Note:** *The examiner shall select at least one Task.*

### **Task A: Straight-and-Level Flight**

*References: FAA-H-8083-9, FAA-H-8083-21.*

**Objective:** To determine that the applicant:

1. Exhibits instructional knowledge of the elements of straight-and-level flight by describing—
  - a. effect and use of flight controls.
  - b. the Integrated Flight Instruction method.
  - c. trim technique.
  - d. methods that can be used to overcome tenseness and over controlling.
2. Exhibits instructional knowledge of common errors related to straight-and-level flight by describing—
  - a. improper coordination of flight controls.
  - b. failure to cross-check and correctly interpret outside and instrument references.
  - c. faulty trim technique.
3. Demonstrates and simultaneously explains straight-and-level flight from an instructional standpoint.
4. Analyzes and corrects simulated common errors related to straight-and-level flight.

### **Task B: Level Turns**

*References: FAA-H-8083-9, FAA-H-8083-21.*

**Objective:** To determine that the applicant:

1. Exhibits instructional knowledge of the elements of level turns by describing—
  - a. effect and use of flight controls.
  - b. the Integrated Flight Instruction method.
  - c. trim technique.
  - d. methods that can be used to overcome tenseness and over controlling.
2. Exhibits instructional knowledge of common errors related to level turns by describing—
  - a. improper coordination of flight controls.

- b. failure to cross-check and correctly interpret outside and instrument references.
  - c. faulty trim technique.
3. Demonstrates and simultaneously explains level turns from an instructional standpoint.
  4. Analyzes and corrects simulated common errors related to level turns.

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

*References: FAA-H-8083-9, FAA-H-8083-21.*

**Objective:** To determine that the applicant:

1. Exhibits instructional knowledge of the elements of straight climbs and climbing turns by describing—
  - a. effect and use of flight controls.
  - b. the Integrated Flight Instruction method.
  - c. trim technique.
  - d. methods that can be used to overcome tenseness and over controlling.
2. Exhibits instructional knowledge of common errors related to straight climbs and climbing turns by describing—
  - a. improper coordination of flight controls.
  - b. failure to cross-check and correctly interpret outside and instrument references.
  - c. faulty trim technique.
3. Demonstrates and simultaneously explains straight climbs and climbing turns from an instructional standpoint.
4. Analyzes and corrects simulated common errors related to straight climbs and climbing turns.

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

*References: FAA-H-8083-9, FAA-H-8083-21.*

**Objective:** To determine that the applicant:

1. Exhibits instructional knowledge of the elements of straight descents and descending turns by describing—
  - a. effect and use of flight controls.
  - b. the Integrated Flight Instruction method.
  - c. trim technique.
  - d. methods that can be used to overcome tenseness and over controlling.

2. Exhibits instructional knowledge of common errors related to straight descents and descending turns by describing—
  - a. improper coordination of flight controls.
  - b. failure to cross-check and correctly interpret outside and instrument references.
  - c. faulty trim technique.
3. Demonstrates and simultaneously explains straight descents and descending turns from an instructional standpoint.
4. Analyzes and corrects simulated common errors related to straight descents and descending turns.

## Change 1 (3/22/2016)

### X. Performance Maneuvers

**Note:** The examiner shall select at least Task B or C. In addition, applicant shall provide a helicopter appropriate for demonstrating touchdown autorotations.

**Note:** See paragraph titled Performance of Autorotations in the Introduction section for detailed information.

#### **Task A: Rapid Deceleration**

**References:** FAA-H-8083-9, FAA-H-8083-21; FAA-S-8081-15, FAA-S-8081-16; Rotorcraft Flight Manual.

**Objective:** To determine that the applicant:

1. Exhibits instructional knowledge of the elements of a rapid deceleration by describing—
  - a. purpose of the maneuver.
  - b. how to maintain proper RPM throughout maneuver.
  - c. evaluation of wind direction and speed, terrain, and obstructions.
  - d. proper use of anti-torque pedals.
  - e. selection of an altitude that will permit safe clearance between tail boom and terrain.
  - f. coordinated use of cyclic and collective controls throughout maneuver.
2. Exhibits instructional knowledge of common errors related to a rapid deceleration by describing—
  - a. improper RPM control.
  - b. improper use of anti-torque pedals.
  - c. improper coordination of cyclic and collective controls.
  - d. failure to properly control the rate of deceleration.
  - e. stopping of forward motion in a tail-low attitude.
  - f. failure to maintain safe clearance over terrain.
3. Demonstrates and simultaneously explains a rapid deceleration from an instructional standpoint.
4. Analyzes and corrects simulated common errors related to a rapid deceleration.

#### **Task B: Straight-In Autorotation**

**References:** FAA-H-8083-9, FAA-H-8083-21; FAA-S-8081-15; Rotorcraft Flight Manual.

**Objective:** To determine that the applicant:

1. Exhibits instructional knowledge of the elements of a straight-in autorotation by describing—
  - a. purpose of maneuver.
  - b. selection of a suitable touchdown area.
  - c. how to maintain proper engine and rotor RPM.
  - d. evaluation of wind direction and speed.
  - e. effect of density altitude, gross weight, rotor RPM, airspeed, and wind to determine a touchdown point.
  - f. how and at what point maneuver is initiated.
  - g. flight control coordination, aircraft attitude, and autorotational speed.
  - h. deceleration, collective pitch application, and touchdown technique, or
  - i. technique for performing a power recovery to a hover.
2. Exhibits instructional knowledge of common errors related to a straight-in autorotation by describing—
  - a. improper engine and rotor RPM control.
  - b. uncoordinated use of flight controls, particularly anti-torque pedals.
  - c. improper attitude and airspeed during descent.
  - d. improper judgment and technique during termination.
3. Demonstrates and simultaneously explains a straight-in autorotation to touchdown from an instructional standpoint.
4. Analyzes and corrects simulated common errors related to a straight-in autorotation.

**Task C: 180° Autorotation**

*References: FAA-H-8083-9, FAA-H-8083-21; FAA-S-8081-16; Rotorcraft Flight Manual.*

**Objective:** To determine that the applicant:

1. Exhibits instructional knowledge of the elements of a 180° autorotation by describing—
  - a. purpose of maneuver.
  - b. selection of a suitable touchdown area.
  - c. how to maintain proper engine and rotor RPM.
  - d. evaluation of wind direction and speed.
  - e. effect of density altitude, gross weight, rotor RPM, airspeed, and wind to determine a touchdown point.
  - f. how and at what point the maneuver is initiated.

- g. flight control coordination, aircraft attitude, and autorotation airspeed.
  - h. proper planning and performance of the autorotative turn.
  - i. deceleration, collective pitch application, and touchdown technique, or
  - j. technique for performing a power recovery to a hover.
2. Exhibits instructional knowledge of common errors related to a 180° autorotation by describing—
    - a. improper engine and rotor RPM control.
    - b. uncoordinated use of flight controls, particularly anti-torque pedals.
    - c. improper attitude and airspeed during descent.
    - d. improper judgment and technique during the termination.
  3. Demonstrates and simultaneously explains a 180° autorotation to touchdown from an instructional standpoint.
  4. Analyzes and corrects simulated common errors related to a 180° autorotation.

## XI. Emergency Operations

**Note:** *The examiner shall select at least one Task from A, B, C, or D to be accomplished in flight and at least one Task from E, F, G, H, I, or J to be accomplished orally on the ground.*

### **Task A: Power Failure at A Hover**

*References: FAA-H-8083-9, FAA-H-8083-21; FAA-S-8081-15, FAA-S-8081-16; Rotorcraft Flight Manual.*

**Objective:** To determine that the applicant:

1. Exhibits instructional knowledge of the elements related to power failure at a hover by describing—
  - a. recognition of power failure.
  - b. how to maintain a constant heading.
  - c. correction for drift.
  - d. effect of density altitude, height above the surface, gross weight, wind, and rotor RPM on performance.
  - e. autorotation and touchdown technique from a stationary or forward hover.
2. Exhibits instructional knowledge of common errors related to power failure at a hover by describing—
  - a. failure to apply correct and adequate pedal when power is reduced.
  - b. failure to correct drift prior to touchdown.
  - c. improper application of collective pitch.
  - d. failure to touch down in a level attitude.
3. Demonstrates and simultaneously explains a simulated power failure at a hover from an instructional standpoint.
4. Analyzes and corrects simulated common errors related to a simulated power failure at a hover.

### **Task B: Power Failure at Altitude**

*References: FAA-H-8083-9, FAA-H-8083-21; FAA-S-8081-15, FAA-S-8081-16; Rotorcraft Flight Manual.*

**Note:** *Examiner shall direct the applicant to terminate this Task with a power recovery at an altitude high enough to ensure a safe touchdown could be accomplished in the event of an actual power failure.*

**Objective:** To determine that the applicant:

1. Exhibits instructional knowledge of the elements related to power failure at altitude by describing—
  - a. importance of being continuously aware of suitable landing areas.
  - b. technique for establishing and maintaining proper rotor RPM, airspeed, and pedal trim during autorotation.
  - c. method used to evaluate wind direction and speed.
  - d. effect of density altitude, gross weight, rotor RPM, airspeed, and wind to determine landing area.
  - e. selection of a suitable landing area.
  - f. planning and performance of approach to the selected landing area.
  - g. importance of dividing attention between flying the approach and accomplishing the emergency procedure, as time permits.
  - h. techniques that can be used to compensate for undershooting or overshooting selected landing area.
  - i. when and how to terminate approach.
2. Exhibits instructional knowledge of common errors related to power failure at altitude by describing—
  - a. failure to promptly recognize the emergency, establish and maintain proper rotor RPM, and confirm engine condition.
  - b. improper judgment in selection of a landing area.
  - c. failure to estimate approximate wind direction and speed.
  - d. uncoordinated use of flight controls during autorotation entry and descent.
  - e. improper attitude and airspeed during autorotation entry and descent.
  - f. failure to fly the most suitable pattern for existing situation.
  - g. failure to accomplish the emergency procedure, as time permits.
  - h. undershooting or overshooting selected landing area.
  - i. uncoordinated use of flight controls during power recovery.
3. Demonstrates and simultaneously explains a simulated power failure at altitude from an instructional standpoint.
4. Analyzes and corrects simulated common errors related to power failure at altitude.

### **Task C: Settling-with-Power**

*References: FAA-H-8083-9, FAA-H-8083-21; FAA-S-8081-15, FAA-S-8081-16; Rotorcraft Flight Manual.*

**Objective:** To determine that the applicant:

1. Exhibits instructional knowledge of the elements related to settling-with-power by describing—
  - a. conditions that are likely to result in settling-with-power.
  - b. timely recognition of settling-with-power.
  - c. techniques for recovery.
2. Exhibits instructional knowledge of common errors related to settling-with-power by describing—
  - a. failure to recognize conditions that are conducive to development of settling-with-power.
  - b. failure to detect first indications of settling-with-power.
  - c. improper use of controls during recovery.
3. Demonstrates and simultaneously explains settling-with-power from an instructional standpoint.

### **Task D: Low Rotor RPM Recovery**

**Note:** *The examiner may accomplish this Task orally if the helicopter used for the practical test has a governor that cannot be disabled.*

*References: FAA-H-8083-9, FAA-H-8083-21; FAA-S-8081-15, FAA-S-8081-16; Rotorcraft Flight Manual.*

**Objective:** To determine that the applicant:

1. Exhibits instructional knowledge of the elements related to low rotor RPM recovery by describing—
  - a. conditions that are likely to result in low rotor RPM.
  - b. potential problems from low rotor RPM if not corrected timely.
  - c. techniques for recovery.
2. Exhibits instructional knowledge of common errors related to low rotor RPM recovery by describing—
  - a. failure to recognize conditions that are conducive to the development of low rotor RPM.
  - b. failure to detect the development of low rotor RPM and to initiate prompt corrective action.

- c. improper use of controls.
3. Demonstrates and simultaneously explains low rotor RPM recovery from an instructional standpoint.

### **Task E: Anti-Torque System Failure**

*References: FAA-H-8083-9, FAA-H-8083-21; FAA-S-8081-15, FAA-S-8081-16; Helicopter Flight Manual.*

**Objective:** To determine that the applicant exhibits instructional knowledge of the elements related to anti-torque system failure by describing:

1. Helicopter aerodynamics related to failure.
2. Indications of failure.
3. Recommended pilot technique to maintain controlled flight.
4. How to select a landing area.
5. Recommended technique to accomplish a safe landing, when failure occurs.

### **Task F: Dynamic Rollover**

*References: FAA-H-8083-21; AC 90-87; FAA-S-8081-15, FAA-S-8081-16; Rotorcraft Flight Manual.*

**Objective:** To determine that the applicant exhibits instructional knowledge of the elements related to dynamic rollover by describing:

1. Helicopter aerodynamics involved.
2. How interaction between anti-torque thrust, crosswind, slope, cyclic and collective pitch control contribute to dynamic rollover.
3. Preventive actions used for takeoffs and landings on different surfaces.

### **Task G: Ground Resonance**

*References: FAA-H-8083-21; FAA-S-8081-15, FAA-S-8081-16; Rotorcraft Flight Manual.*

**Objective:** To determine that the applicant exhibits instructional knowledge of the elements related to ground resonance by describing:

1. Aerodynamics involved and association with a fully articulated rotor system.
2. Conditions that are conducive to the development of ground resonance.

3. Preventive actions used for takeoffs and landings on different surfaces.

### **Task H: Low “G” Conditions**

*Reference: Rotorcraft Flight Manual.*

**Objective:** To determine that the applicant exhibits instructional knowledge of the elements of low “G” conditions by describing:

1. Situations that will cause a low “G” condition.
2. Recognition of low “G” conditions.
3. Proper recovery procedures to prevent mast bumping.
4. Effects of this condition on different types of rotor systems.

### **Task I: Systems and Equipment Malfunctions**

*References: FAA-H-8083-21; FAA-S-8081-15, FAA-S-8081-16; Rotorcraft Flight Manual.*

**Objective:** To determine that the applicant exhibits instructional knowledge of the elements related to systems and equipment malfunctions by describing recommended pilot action, appropriate to the helicopter used for the practical test, in the following areas:

1. Smoke or fire during ground or flight operations.
2. Engine/oil and fuel system.
3. Carburetor or induction icing.
4. Hydraulic system.
5. Electrical system.
6. Flight controls.
7. Rotor/drive system.
8. Pitot/static system.
9. Any other system or equipment.

### **Task J: Emergency Equipment and Survival Gear**

*References: FAA-H-8083-21; Rotorcraft Flight Manual.*

**Objective:** To determine that the applicant exhibits instructional knowledge of the elements related to emergency equipment and survival gear appropriate to the helicopter used for the practical test by describing:

1. Location in the helicopter.
2. Method of operation or use.
3. Servicing.
4. Storage.

5. Equipment and gear appropriate for operation in various climates, over various types of terrain, and over water.

## XII. Special Operations

*Note: The examiner shall select at least one Task.*

### **Task A: Confined Area Operation**

*References: FAA-H-8083-9, FAA-H-8083-21; FAA-S-8081-16; Rotorcraft Flight Manual.*

**Objective:** To determine that the applicant:

1. Exhibits instructional knowledge of the elements of a confined area operation by describing—
  - a. conduct of high and low reconnaissance.
  - b. method used to evaluate wind direction and speed, turbulence, terrain, obstacles, and emergency landing areas.
  - c. selection of a suitable approach path, termination point, and departure path.
  - d. how to maintain proper RPM.
  - e. how to track the selected approach path to the termination point, establishing an acceptable approach angle and rate of closure.
  - f. factors that should be considered in determining whether to terminate at a hover or on the surface.
  - g. conduct of ground reconnaissance and selection of a suitable takeoff point, considering wind and obstructions.
  - h. factors affecting takeoff and climb performance.
  - i. factors to consider in performing a takeoff and climb under various conditions.
2. Exhibits instructional knowledge of common errors related to a confined area operation by describing—
  - a. failure to perform, or improper performance of high and low reconnaissance.
  - b. failure to track the selected approach path or to fly an acceptable approach angle and rate of closure.
  - c. improper RPM control.
  - d. inadequate planning to ensure obstacle clearance during the approach or the departure.
  - e. failure to consider emergency landing areas.
  - f. failure to select a definite termination point during the high reconnaissance.
  - g. failure to change the termination point, if conditions so dictate.

- h. failure to consider effect of wind direction or speed, turbulence, or loss of effective translational lift during the approach.
  - i. improper takeoff and climb technique for existing conditions.
3. Demonstrates and simultaneously explains a confined area operation from an instructional standpoint.
  4. Analyzes and corrects simulated common errors related to a confined area operation.

### **Task B: Pinnacle/Platform Operation**

*References: FAA-H-8083-9, FAA-H-8083-21; FAA-S-8081-16; Rotorcraft Flight Manual.*

**Objective:** To determine that the applicant:

1. Exhibits instructional knowledge of the elements of a pinnacle/platform operation by describing—
  - a. conduct of high and low reconnaissance.
  - b. methods used to evaluate wind direction and speed, turbulence, terrain, obstacles, and emergency landing areas.
  - c. selection of a suitable approach path, termination point, and departure path.
  - d. how to maintain proper RPM.
  - e. how to track the selected approach path to the termination point, and establish an acceptable approach angle and rate of closure.
  - f. factors that should be considered in determining whether to terminate in a hover or on the surface.
  - g. selection of a suitable takeoff point, considering wind and obstructions.
  - h. factors affecting takeoff and climb performance.
  - i. factors to consider in performing a takeoff and climb under various conditions.
2. Exhibits instructional knowledge of common errors related to a pinnacle/platform operation by describing—
  - a. failure to perform, or improper performance of, high and low reconnaissance.
  - b. failure to track selected approach path or to fly an acceptable approach angle and rate of closure.
  - c. improper RPM control.
  - d. inadequate planning to assure obstacle clearance during approach or departure.
  - e. failure to consider emergency landing areas.

- f. failure to select a definite termination point during the high reconnaissance.
  - g. failure to change the termination point, if conditions so dictate.
  - h. failure to consider effect of wind direction or speed, turbulence, or loss of effective translational lift during the approach.
  - i. improper takeoff and climb technique for existing conditions.
3. Demonstrates and simultaneously explains a pinnacle/platform operation from an instructional standpoint.
  4. Analyzes and corrects simulated common errors related to a pinnacle/platform operation.

### **XIII. Postflight Procedures**

#### **Task A: After-Landing and Securing**

*References: FAA-H-8083-9; FAA-S-8081-15,  
FAA-S-8081-16; Rotorcraft Flight Manual.*

**Objective:** To determine that the applicant:

1. Exhibits instructional knowledge of the elements of after-landing and securing by describing—
  - a. methods to minimize hazardous effects of rotor downwash during hovering to parking area.
  - b. engine temperature stabilization and shutdown.
  - c. method to secure rotor blades and cockpit.
  - d. safety concerns for passenger(s) when exiting.
  - e. postflight inspection to include use of checklist.
  - f. refueling procedures, including safety concerns.
2. Exhibits instructional knowledge of common errors related to after-landing and securing by describing—
  - a. hazards resulting from failure to follow recommended procedures.
  - b. failure to conduct a postflight inspection and use a checklist.
3. Demonstrates and simultaneously explains after-landing and securing from an instructional standpoint.
4. Analyzes and corrects simulated common errors related to after-landing and securing.

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## **Section 2**

### **Flight Instructor Rotorcraft – Gyroplane**

#### **Practical Test Standards**

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## Additional Rating Task Table

**Addition of a Gyroplane Class Rating (and a Rotorcraft Category Rating, if appropriate) to a Flight Instructor Certificate**

### Flight Instructor Certificate and Rating Held

Required Areas of Operation	ASE	AME	RH	G	IAH
<b>I</b>	N	N	N	N	N
<b>II</b>	Y	Y	Y	Y	Y
<b>III</b>	Y	Y	Y	Y	Y
<b>IV</b>	N	N	N	N	N
<b>V</b>	Y	Y	Y	Y	Y
<b>VI</b>	N	N	N	N	N
<b>VII</b>	Y	Y	Y	Y	Y
<b>VIII</b>	Y	Y	Y	Y	Y
<b>IX</b>	Y	Y	Y	Y	Y
<b>X</b>	Y	Y	Y	Y	Y
<b>XI</b>	Y	Y	Y	Y	Y
<b>XII</b>	Y	Y	Y	Y	Y
<b>XIII</b>	Y	Y	Y	Y	Y

**Legend:**

ASE	Airplane Single-Engine
AME	Airplane Multiengine
RH	Rotorcraft Helicopter
G	Glider Powered
IAH	Instrument Airplane/Helicopter

**Note:** *If an applicant holds more than one rating on a flight instructor certificate and the table indicates both a Y (Yes) and an N (No) for a particular Area of Operation, the N entry applies. This is logical since the applicant has satisfactorily accomplished the Area of Operation on a previous flight instructor practical test. At the discretion of the examiner, the applicant's competence in all Areas of Operation may be evaluated.*

## Renewal or Reinstatement of a Flight Instructor

Required Areas of Operation	Number of Tasks
II	Task L and 1 other Task
III	1
IV	1
V	1
VI	1
VII	1
VIII	2 Takeoffs and 2 Landings
IX	1

The renewal or reinstatement of one rating on a Flight Instructor Certificate renews or reinstates all privileges existing on the certificate. (14 CFR part 61, sections 61.197 and 61.199)

# **Applicant's Practical Test Checklist (Gyroplane)**

## **Appointment with Examiner**

Examiner's Name: \_\_\_\_\_

Location: \_\_\_\_\_

Date/Time: \_\_\_\_\_

### **Acceptable Aircraft**

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

### **Personal Equipment**

- Practical Test Standard
- Lesson Plan Library
- Current Aeronautical Charts
- Computer and Plotter
- Flight Plan and Flight Log Forms
- Current AIM, Airport Facility Directory, and Appropriate Publications

### **Personal Records**

- Identification – Photo/Signature ID
- Pilot Certificate
- Current and Appropriate Medical Certificate
- Completed FAA Form 8710-1, Airman Certificate and/or Rating Application
- AC Form 8080-2, Airman Written Test Report or Computer Test Report
- Pilot Logbook with Appropriate Instructor Endorsements
- FAA Form 8060-5, Notice of Disapproval (if applicable)
- Approved School Graduation Certificate (if applicable)
- Examiner's Fee (if applicable)

**Examiner's Practical Test Checklist  
(Gyroplane)  
Flight Instructor – Rotorcraft**

Applicant's Name: \_\_\_\_\_

Location: \_\_\_\_\_

Date/Time: \_\_\_\_\_

**I. Fundamentals of Instructing**

- A. The Learning Process
- B. Human Behavior
- C. The Teaching Process
- D. Teaching Methods
- E. Critique and Evaluation
- F. Flight Instructor Characteristics and Responsibilities
- G. Planning Instructional Activity

**II. Technical Subjects**

- A. Aeromedical Factors
- B. Visual Scanning and Collision Avoidance
- C. Use of Distractions during Flight Training
- D. Principles of Flight
- E. Helicopter Flight Controls
- F. Helicopter Weight and Balance
- G. Navigation and Flight Planning
- H. Night Operations
- I. Regulations and Publications
- J. Airworthiness Requirements
- K. National Airspace System
- L. Logbook Entries and Certificate Endorsements

**III. Preflight Preparation**

- A. Certificates and Documents
- B. Weather Information
- C. Operation of Systems
- D. Performance and Limitations

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

- A. Maneuver Lesson

**V. Preflight Procedures**

- A. Preflight Inspection
- B. Single-Pilot Resource Management

- C. Engine Starting
- D. Taxiing
- E. Before Takeoff Check

**VI. Airport Operations**

- A. Radio Communications and ATC Light Signals
- B. Traffic Patterns
- C. Airport Markings, Signs, and Lighting

**VII. Takeoffs, Landings, and Go-Arounds**

- A. Normal and Crosswind Takeoff and Climb
- B. Soft-Field Takeoff and Climb
- C. Normal and Crosswind Approach and Landing
- D. Soft-Field Approach and Landing
- E. Go-Around

**VIII. Fundamentals of Flight**

- A. Straight-and-Level Flight
- B. Level Turns
- C. Straight Climbs and Climbing Turns
- D. Straight Descents and Descending Turns

**IX. Performance Maneuvers**

- A. Steep Turns

**X. Flight at Slow Airspeed**

- A. Straight-and-Level Flight, Turns, Climbs, and Descents
- B. High Rates of Descent and Recovery

**XI. Ground Reference Maneuvers**

- A. Rectangular Course
- B. S-Turns Across a Road
- C. Turns Around a Point

**XII. Emergency Operations**

- A. Lift-off at Low Airspeed and High Angle of Attack
- B. Emergency Approach and Landing (Simulated)
- C. Systems and Equipment Malfunctions
- D. Ground Resonance
- E. Emergency Equipment and Survival Gear

**XIII. Postflight Procedures**

- A. After-Landing and Securing

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# Areas of Operation:

## I. Fundamentals of Instructing

*Note: The examiner shall select at least Tasks E and F.*

### **Task A: The Learning Process**

*Reference: FAA-H-8083-9.*

**Objective:** To determine that the applicant exhibits instructional knowledge of the elements of the learning process by describing:

1. The definition and characteristics of learning.
2. Practical application of the laws of learning.
3. Factors involved in how people learn.
4. Recognition and proper use of the various levels of learning.
5. Principles that are applied in learning a skill.
6. Factors related to forgetting and retention.
7. How the transfer of learning affects the learning process.
8. How the formation of habit patterns affects the learning process.

### **Task B: Human Behavior**

*Reference: FAA-H-8083-9.*

**Objective:** To determine that the applicant exhibits instructional knowledge of the elements related to human behavior by describing:

1. Control of human behavior.
2. Development of student potential.
3. Relationship of human needs to behavior and learning.
4. Relationship of defense mechanisms to student learning and pilot decision-making.
5. General rules which a flight instructor should follow during student training to ensure good human relations.

### **Task C: The Teaching Process**

*Reference: FAA-H-8083-9.*

**Objective:** To determine that the applicant exhibits instructional knowledge of the elements of the teaching process by describing:

1. Preparation of a lesson for a ground or flight instructional period.
2. Presentation of knowledge and skills, including the methods, which are suitable in particular situations.
3. Application, by the student, of the knowledge and skills presented by the instructor.
4. Review of the material presented and the evaluation of student performance and accomplishment.

### **Task D: Teaching Methods**

*Reference:* FAA-H-8083-9.

**Objective:** To determine that the applicant exhibits instructional knowledge of the elements of teaching methods by describing:

1. The organization of a lesson, i.e., introduction, development, and conclusion.
2. The lecture method.
3. The guided discussion method.
4. The demonstration-performance method.
5. Computer/video assisted instruction.

### **Task E: Critique and Evaluation**

*Reference:* FAA-H-8083-9.

**Objective:** To determine that the applicant exhibits instructional knowledge of the elements of critique and evaluation by describing:

1. Purpose and characteristics of an effective critique.
2. Difference between critique and evaluation.
3. Characteristics of effective oral questions and what type to avoid.
4. Responses to student questions.
5. Characteristics and development of effective written tests.
6. Characteristics and uses of performance tests, specifically, the FAA practical test standards.

### **Task F: Flight Instructor Characteristics and Responsibilities**

*Reference:* FAA-H-8083-9.

**Objective:** To determine that the applicant exhibits instructional knowledge of the elements of flight instructor characteristics and responsibilities by describing:

1. Major characteristics and qualifications of a professional flight instructor.
2. Role of the flight instructor in dealing with student stress, anxiety, and psychological abnormalities.
3. Flight instructor's responsibility with regard to student pilot supervision and surveillance.
4. Flight instructor's authority and responsibility for endorsements and recommendations.
5. Flight instructor's responsibility in the conduct of the required FAA flight review.

***Task G: Planning Instructional Activity***

*Reference:* FAA-H-8083-9.

**Objective:** To determine that the applicant exhibits instructional knowledge of the elements related to the planning of instructional activity by describing:

1. Development of a course of training.
2. Content and use of a training syllabus.
3. Purpose, characteristics, proper use, and items of a lesson plan.
4. Flexibility features of a course of training, syllabus, and lesson plan required to accommodate students with varying backgrounds, levels of experience, and ability.

## II. Technical Subjects

**Note:** *The examiner shall select Task L and at least one other Task.*

### **Task A: Aeromedical Factors**

*References: FAA-H-8083-25; AIM.*

**Objective:** To determine that the applicant exhibits instructional knowledge of the elements related to aeromedical factors by describing:

1. Hypoxia, its symptoms, effects, and corrective action.
2. Hyperventilation, its symptoms, effects, and corrective action.
3. Middle ear and sinus problems, their causes, effects, and corrective action.
4. Spatial disorientation, its causes, effects, and corrective action.
5. Motion sickness, its causes, effects, and corrective action.
6. Effects of alcohol and drugs, and their relationship to safety.
7. Carbon monoxide poisoning, its symptoms, effects, and corrective action.
8. How evolved gas from scuba diving can affect a pilot during flight.
9. Fatigue, its effects and corrective action.

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

*References: FAA-H-8083-9; AC 90-48; AIM.*

**Objective:** To determine that the applicant exhibits instructional knowledge of the elements of visual scanning and collision avoidance by describing:

1. Relationship between a pilot's physical or mental condition and vision.
2. Environmental conditions and optical illusions that affect vision.
3. "See and avoid" concept.
4. Practice of "time sharing" of attention inside and outside the cockpit.
5. Proper visual scanning technique.
6. Relationship between poor visual scanning habits, aircraft speed differential, and increased collision risk.
7. Appropriate clearing procedures.
8. Situations which involve the greatest collision risk.

### **Task C: Use of Distractions during Flight Training**

*Reference: FAA-H-8083-9.*

**Objective:** To determine that the applicant exhibits instructional knowledge of the elements of the use of distractions during flight training by describing:

1. Flight situations where pilot distraction can be a causal factor related to aircraft accidents.
2. Selection of realistic distractions for specific flight situations.
3. Relationship between division of attention and flight instructor use of distractions.
4. Difference between proper use of distractions and harassment.

### **Task D: Principles of Flight**

*Reference: FAA-H-8083-9.*

**Objective:** To determine that the applicant exhibits instructional knowledge of the elements of principles of flight by describing:

1. Rotor system characteristics.
2. Effect of lift, weight, thrust, and drag during various flight maneuvers.
3. Stability and controllability, to include pilot induced oscillation and power pushover.
4. Autorotation and inverted airflow.
5. Dissymmetry of lift.
6. Retreating blade stall.
7. Blade flapping and coning.
8. Coriolis effect.
9. Negative roll with yaw.
10. Lateral stick force/position change with airspeed.

### **Task E: Gyroplane Flight Controls**

*References: FAA-H-8083-21, Gyroplane Flight Manual.*

**Objective:** To determine that the applicant exhibits instructional knowledge of the flight controls of the gyroplane used for the practical test by describing:

1. Cyclic control.
2. Rudder control.
3. Prerotator/rotor spin-up control.
4. Collective pitch control (if applicable).
5. Throttle control.

## **Task F: Gyroplane Weight and Balance**

*References: FAA-H-8083-1, FAA-H-8083-21; Gyroplane Flight Manual.*

**Objective:** To determine that the applicant exhibits instructional knowledge of the elements of gyroplane weight and balance by describing:

1. Weight and balance terms.
2. Effect of weight and balance on performance.
3. Determination of total weight, center of gravity, and the changes that occur when adding, removing, or shifting weight.

## **Task G: Navigation and Flight Planning**

*Reference: FAA-H-8083-25.*

**Objective:** To determine that the applicant exhibits instructional knowledge of the elements of navigation and flight planning by describing:

1. Terms used in navigation.
2. Features of aeronautical charts.
3. Importance of using the proper and current aeronautical charts.
4. Identification of various types of airspace.
5. Method of plotting a course, selection of fuel stops and alternates, and appropriate actions in the event of unforeseen situations.
6. Fundamentals of pilotage and dead reckoning.
7. Fundamentals of radio navigation.
8. Diversion to an alternate.
9. Lost procedures.
10. Computation of fuel requirement.
11. Importance of preparing and properly using a flight log.
12. Importance of a weather check and the use of good judgment in making a "go/no-go" decision.
13. Purpose of, and procedure used in, filing a flight plan.
14. Global Positioning System (GPS).

## **Task H: Night Operations**

*References: FAA-H-8083-21, FAA-H-8083-25; AIM; FAA-S-8081-15.*

**Objective:** To determine that the applicant exhibits instructional knowledge of the elements related to night operations by describing:

1. Factors related to night vision, disorientation, and optical illusions.
2. Weather considerations specific to night operations.
3. Preflight inspection, including windshield and window cleanliness.
4. Proper adjustment of interior lights, including availability of flashlight.
5. Engine starting procedures, including proper use of exterior lighting prior to start.
6. Taxiing and orientation on an airport.
7. Takeoff and climb-out.
8. Inflight orientation.
9. Importance of verifying the gyroplane's attitude by visual references and flight instruments.
10. Recovery from critical flight attitudes by visual references and flight instruments.
11. Emergencies such as electrical failure, engine malfunction, and emergency landings.
12. Traffic patterns.
13. Approaches and landings with and without landing lights.

## **Task I: Regulations and Publications**

*References: 14 CFR parts 1, 61, 91; NTSB part 830;; AIM, Gyroplane Flight Manual.*

**Objective:** To determine that the applicant exhibits instructional knowledge of the elements related to regulations and publications, their purpose, general content, availability, and method of revision, by describing:

1. 14 CFR parts 1, 61, and 91.
2. NTSB part 830.
3. Flight information publications.
4. Practical Test Standards.
5. FAA-Approved Flight Manual.

## **Task J: Airworthiness Requirements**

*References: 14 CFR parts 1, 27, 29, 39, 43, and 91; FAA-H-8083-21.*

**Objective:** To determine that the applicant exhibits instructional knowledge of the elements related to airworthiness requirements by:

1. Explaining—
  - a. required instruments and equipment for day/night Visual Flight Rules (VFR).
  - b. procedures and limitations for determining airworthiness of the gyroplane with inoperative instruments and equipment with and without an Minimal Equipment Level (MEL).
  - c. requirements and procedures for obtaining a special flight permit.
2. Locating and explaining—
  - a. airworthiness directives.
  - b. compliance records.
  - c. maintenance/inspection requirements.
  - d. appropriate record keeping.

## **Task K: National Airspace System**

*References: 14 CFR part 91; FAA-S-8081-12, FAA-S-8081-14; AIM.*

**Objective:** To determine that the applicant exhibits instructional knowledge of the elements of the national airspace system by describing:

1. Basic VFR Weather Minimums—for all classes of airspace.
2. Airspace classes—the operating rules, pilot certification, and aircraft equipment requirements for the following—
  - a. Class A.
  - b. Class B.
  - c. Class C.
  - d. Class D.
  - e. Class E.
  - f. Class G.
3. Special use airspace and other airspace areas.
4. Temporary flight restrictions (TFRs).

## ***Task L: Logbook Entries and Certificate Endorsements***

*References: 14 CFR part 61; AC 61-65, AC 61-98.*

**Objective:** To determine that the applicant exhibits instructional knowledge of the elements related to logbook entries and certificate endorsements by describing:

1. Required logbook entries for instruction given.
2. Required student pilot certificate endorsements, including appropriate logbook entries.
3. Preparation of a recommendation for a pilot practical test, including appropriate logbook entry.
4. Required endorsement of a pilot logbook for satisfactory completion of an FAA flight review.
5. Required flight instructor records.

### III. Preflight Preparation

*Note: The examiner shall select at least one Task.*

#### **Task A: Certificates and Documents**

*References: 14 CFR parts 43, 61, 67, FAA-H-8083-21, FAA-H-8083-25; Gyroplane Flight Manual.*

**Objective:** To determine that the applicant exhibits instructional knowledge of the elements related to certificates and documents by describing:

1. Requirements for the issuance of pilot and flight instructor certificates and ratings, and the privileges and limitations of those certificates and ratings.
2. Medical certificates, class, duration, and how to obtain them.
3. Airworthiness and registration certificates.
4. Gyroplane flight manuals.
5. Gyroplane maintenance requirements and records.

#### **Task B: Weather Information**

*References: FAA-H-8083-21; AC 00-6, AC 00-45, AC 61-84; AIM.*

**Objective:** To determine that the applicant exhibits instructional knowledge of the elements related to weather information by describing:

1. Importance of a thorough weather check.
2. Various methods of obtaining weather information.
3. Use of weather reports, forecasts, and charts.
4. Use of PIREPs, SIGMETs, and AIRMETs.
5. Recognition of aviation weather hazards to include wind shear.
6. Factors to be considered in making a "go/no-go" decision.

#### **Task C: Operation of Systems**

*References: FAA-H-8083-21; Gyroplane Flight Manual.*

**Objective:** To determine that the applicant exhibits instructional knowledge of the elements related to the operation of systems, as applicable to the gyroplane used for the practical test, by describing:

1. Powerplant, including controls, indicators, and cooling.
2. Rotor and pre-rotator/rotor spin-up.
3. Landing gear, brakes, and steering.

4. Fuel, oil, and hydraulic.
5. Electrical.
6. Pitot static/vacuum and associated instruments.
7. Environmental.
8. Anti-icing.
9. Avionics.

**Task D: Performance and Limitations**

*References: FAA-H-8083-1, FAA-H-8083-21, FAA-H-8083-25; AC 61-84; Gyroplane Flight Manual.*

**Objective:** To determine that the applicant exhibits instructional knowledge of the elements related to performance and limitations by describing:

1. Determination of weight and balance condition.
2. Use of performance charts, including height/velocity diagram, and other data for determining performance in various phases of flight.
3. Engine thrust vs. center of gravity.
4. Effects of density altitude, wind shear, and other atmospheric conditions on performance.
5. Other factors to be considered in determining that required performance is within the gyroplane's capabilities.

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

**Note:** *The examiner shall select at least one maneuver from Areas of Operation VI through XII and will ask the applicant to present a preflight lesson on the selected maneuver, as the lesson would be taught to a student. Previously developed lesson plans from the applicant's library may be used.*

### **Task A: Maneuver Lesson**

**References:** *FAA-H-8083-3, FAA-H-8083-9, FAA-H-8083-21; FAA-S-8081-15, FAA-S-8081-16; Gyroplane Flight Manual.*

**Objective:** To determine that the applicant exhibits instructional knowledge of the selected maneuver by:

1. Using a lesson plan that includes all essential items to make an effective and organized presentation.
2. Stating the objective.
3. Giving an accurate, comprehensive oral description of the maneuver, including the elements and associated common errors.
4. Using instructional aids, as appropriate.
5. Describing the recognition, analysis, and correction of common errors.

## V. Preflight Procedures

**Note:** *The examiner shall select at least one Task.*

### **Task A: Preflight Inspection**

**References:** *FAA-H-8083-4, FAA-H-8083-21; FAA-S-8081-15, FAA-S-8081-16; Gyroplane Flight Manual.*

**Objective:** To determine that the applicant:

1. Exhibits instructional knowledge of the elements of a preflight inspection, as applicable to the gyroplane used for the practical test, by describing—
  - a. reasons for the preflight inspection, items that should be inspected, and how defects are detected.
  - b. importance of using the appropriate checklist.
  - c. determination of fuel, oil, and hydraulic fluid quantity, possible contamination and/or leaks.
  - d. inspection of flight controls.
  - e. detection of visible structural damage.
  - f. removal of control locks, rotor blade tie-down, and wheel chocks, if applicable.
  - g. importance of proper loading and securing of baggage, cargo, and equipment.
  - h. use of sound judgment in determining whether the gyroplane is in condition for safe flight.
2. Exhibits instructional knowledge of common errors related to a preflight inspection by describing—
  - a. failure to use or improper use of checklist.
  - b. hazards which may result from allowing distractions to interrupt a preflight inspection.
  - c. inability to recognize discrepancies.
  - d. failure to ensure servicing with proper fuel and oil.
3. Demonstrates and simultaneously explains a preflight inspection from an instructional standpoint.

### **Task B: Single-Pilot Resource Management**

**References:** *FAA-H-8083-9, AC 91-32; CFR part 91; FAA-S-8081-15, FAA-S-8081-16; Gyroplane Flight Manual.*

**Objective:** To determine that the applicant:

1. Exhibits instructional knowledge of the elements of crew resource management by describing—

- a. proper arranging and securing of essential materials and equipment in the cockpit.
  - b. proper use and/or adjustment of such cockpit items as safety belts, shoulder harnesses, rudder pedals, and seats.
  - c. occupant briefing on emergency procedures, rotor blade avoidance, and use of safety belts, and shoulder harnesses.
  - d. utilization of all available human resources, maintenance personnel, weather briefers, and air traffic control, and other groups routinely working with the pilot who are involved in decisions that are required to operate a flight safely.
2. Exhibits instructional knowledge of common errors related to crew resource management by describing—
- a. failure to place and secure essential materials and equipment for easy access during flight.
  - b. improper adjustment of equipment and controls.
  - c. failure to brief occupants on emergency procedures, rotor blade avoidance, and use of safety belts, and shoulder harnesses.
  - d. failure to utilize all available human resources, maintenance personnel, weather briefers, air traffic control, and other groups routinely working with the pilot who are involved in decisions that are required to operate a flight safely.
3. Demonstrates and simultaneously explains crew resource management from an instructional standpoint.

### ***Task C: Engine Starting***

*References: FAA-H-8083-9, FAA-H-8083-21; AC 91-13, AC 91-42; FAA-S-8081-15, FAA-S-8081-16; Gyroplane Flight Manual.*

**Objective:** To determine that the applicant:

1. Exhibits instructional knowledge of the elements of engine starting as appropriate to the gyroplane used for the practical test by describing—
  - a. safety precautions related to engine starting.
  - b. use of external power.
  - c. effect of various atmospheric conditions on starting.
  - d. importance of following the appropriate checklist.
  - e. proper position of engine and flight controls during engine start.

- f. prevention of gyroplane movement after engine start.
2. Exhibits instructional knowledge of common errors related to engine starting by describing—
  - a. failure to use or improper use of checklist.
  - b. failure to monitor engine instruments.
  - c. improper position of flight controls during and after start.
3. Demonstrates and simultaneously explains engine starting from an instructional standpoint.

### **Task D: Taxiing**

*References: FAA-H-8083-9, FAA-H-8083-21; FAA-S-8081-15, FAA-S-8081-16; Gyroplane Flight Manual.*

**Objective:** To determine that the applicant:

1. Exhibits instructional knowledge of the elements of taxiing by describing—
  - a. proper check and correct use of brakes.
  - b. compliance with airport surface markings, signals, and clearances.
  - c. how to control direction and speed.
  - d. proper rotor blade management while taxiing, based on terrain and wind conditions.
  - e. techniques to avoid other aircraft and hazards.
2. Exhibits instructional knowledge of common errors related to taxiing by describing—
  - a. improper use of brakes.
  - b. hazards of taxiing too fast.
  - c. failure to use proper rotor blade management while taxiing.
  - d. failure to comply with markings, signals, or clearances.
  - e. improper positioning for run-up.
3. Demonstrates and simultaneously explains taxiing from an instructional standpoint.
4. Analyzes and corrects simulated common errors related to taxiing.

### **Task E: Before Takeoff Check**

*References: FAA-H-8083-9, FAA-H-8083-21; FAA-S-8081-15, FAA-S-8081-16; Gyroplane Flight Manual.*

**Objective:** To determine that the applicant:

1. Exhibits instructional knowledge of the elements of a before takeoff check by describing—
  - a. division of attention inside and outside the cockpit.
  - b. importance of following the checklist and responding to each item.
  - c. reasons for ensuring suitable engine temperatures and pressures for run-up and takeoff.
  - d. method used to determine that gyroplane is in a safe operating condition.
  - e. importance of reviewing emergency procedures, to include low speed/high speed blade flap situations.
  - f. method used for ensuring that takeoff area or path is free of hazards or obstacles.
  - g. method used for ensuring adequate clearance from other traffic.
  - h. rotor spin-up procedure.
2. Exhibits instructional knowledge of common errors related to a before takeoff check by describing—
  - a. failure to use or the improper use of the checklist.
  - b. acceptance of marginal gyroplane performance.
  - c. an improper check of controls.
  - d. failure to check for hazards and other traffic.
3. Demonstrates and simultaneously explains a before takeoff check from an instructional standpoint.
4. Analyzes and corrects simulated common errors related to a before takeoff check.

## VI. Airport Operations

*Note: The examiner shall select at least one Task.*

### **Task A: Radio Communications and ATC Light Signals**

*References: AIM; FAA-S-8081-15, FAA-S-8081-16; 14 CFR part 91.*

**Objective:** To determine that the applicant:

1. Exhibits instructional knowledge of the elements of radio communications and ATC light signals by describing—
  - a. selection and use of appropriate radio frequencies.
  - b. recommended procedure and phraseology for radio voice communications.
  - c. receipt, acknowledgment of, and compliance with, ATC clearances and other instructions.
  - d. prescribed procedure for radio communications failure.
  - e. interpretation of, and compliance with, ATC light signals.
2. Exhibits instructional knowledge of common errors related to radio communications and ATC light signals by describing—
  - a. use of improper frequencies.
  - b. improper techniques and phraseologies when using radio voice communications.
  - c. failure to acknowledge, or properly comply with, ATC clearances and other instructions.
  - d. use of improper procedures for radio communications failure.
  - e. failure to understand, or to properly comply with, ATC light signals.

### **Task B: Traffic Patterns**

*References: FAA-H-8083-9, FAA-H-8083-21; 14 CFR part 91; AIM; FAA-S-8081-15, FAA-S-8081-16.*

**Objective:** To determine that the applicant:

1. Exhibits instructional knowledge of the elements of traffic patterns by describing—
  - a. operations at controlled and uncontrolled airports.
  - b. adherence to traffic pattern procedures, instructions, and appropriate regulations.

- c. how to maintain proper spacing from other traffic.
  - d. how to maintain proper ground track.
  - e. wind shear and wake turbulence.
  - f. orientation with runway or landing area.
  - g. how to establish a final approach at an appropriate distance from the approach end of the runway or landing area.
  - h. use of checklist.
2. Exhibits instructional knowledge of common errors related to traffic patterns by describing—
    - a. failure to comply with traffic pattern instructions, procedures, and rules.
    - b. improper correction for wind drift.
    - c. inadequate spacing from other traffic.
    - d. improper altitude or airspeed control.
  3. Demonstrates and simultaneously explains traffic patterns from an instructional standpoint.
  4. Analyzes and corrects simulated common errors related to traffic patterns.

### ***Task C: Airport Markings, Signs, and Lighting***

*References: FAA-H-8083-25; AIM; FAA-S-8081-15, FAA-S-8081-16.*

**Objective:** To determine that the applicant exhibits instructional knowledge of the elements of airport signs, markings, and lighting by describing:

1. Identification and proper interpretation of airport signs, runway, and taxiway markings.
2. Identification and proper interpretation of airport signs, runway, and taxiway lighting.

## VII. Takeoffs, Landings, and Go-Arounds

**Note:** *The examiner shall select at least one takeoff Task and one landing Task.*

### **Task A: Normal and Crosswind Takeoff and Climb**

**References:** *FAA-H-8083-9; FAA-S-8081-15, FAA-S-8081-16; Gyroplane Flight Manual.*

**Objective:** To determine that the applicant:

1. Exhibits instructional knowledge of the elements of a normal and crosswind takeoff and climb by describing—
  - a. consideration of wind conditions.
  - b. factors affecting takeoff and climb performance.
  - c. alignment with takeoff path.
  - d. initial positioning of flight controls.
  - e. prerotation of rotor blades to required RPM.
  - f. application of power for takeoff.
  - g. directional control and crosswind technique.
  - h. lift-off attitude, airspeed, and rotor RPM.
  - i. climb attitude, power setting, and airspeed.
  - j. crosswind correction and track during climb.
2. Exhibits instructional knowledge of common errors related to a normal and crosswind takeoff and climb by describing—
  - a. failure to check rotor for proper operation, track, and RPM prior to initiating takeoff.
  - b. improper initial positioning of flight controls.
  - c. improper power application.
  - d. inappropriate removal of hand from throttle.
  - e. poor directional control.
  - f. failure to lift off at proper airspeed.
  - g. failure to establish and maintain proper climb attitude and airspeed.
  - h. drift during climb.
3. Demonstrates and simultaneously explains a normal and crosswind takeoff and climb from an instructional standpoint.
4. Analyzes and corrects simulated common errors related to a normal and crosswind takeoff and climb.

## **Task B: Soft-field Takeoff and Climb**

*References: FAA-H-8083-9, FAA-H-8083-21; FAA-S-8081-15, FAA-S-8081-16; Gyroplane Flight Manual.*

**Objective:** To determine that the applicant:

1. Exhibits instructional knowledge of the elements of a soft-field takeoff and climb by describing—
  - a. consideration of wind conditions and takeoff surface.
  - b. factors affecting takeoff and climb performance.
  - c. how to align the gyroplane with the takeoff path without stopping.
  - d. initial positioning of flight controls.
  - e. prerotation of rotor blades (if applicable).
  - f. directional control during acceleration on the surface.
  - g. lift-off attitude, airspeed, and rotor RPM.
  - h. acceleration in ground effect to climb airspeed.
  - i. obstacle clearance (if applicable).
  - j. climb attitude, power setting, and airspeed.
  - k. track during climb.
2. Exhibits instructional knowledge of common errors related to a soft-field takeoff and climb by describing—
  - a. failure to check rotor for proper operation, track, and RPM prior to initiating takeoff.
  - b. improper initial positioning of flight controls.
  - c. hazards of allowing the gyroplane to stop on the takeoff surface prior to initiating takeoff.
  - d. improper power application.
  - e. inappropriate removal of hand from throttle.
  - f. poor directional control.
  - g. improper pitch attitude during lift-off.
  - h. hazards of settling back to takeoff surface after becoming airborne.
  - i. failure to establish and maintain proper climb attitude and airspeed.
  - j. drift during climb.
3. Demonstrates and simultaneously explains a soft-field takeoff and climb from an instructional standpoint.
4. Analyzes and corrects simulated common errors related to a soft-field takeoff and climb.

## **Task C: Normal and Crosswind Approach and Landing**

*References: FAA-H-8083-9, FAA-H-8083-21; FAA-S-8081-15, FAA-S-8081-16; Gyroplane Flight Manual.*

**Objective:** To determine that the applicant:

1. Exhibits instructional knowledge of the elements of a normal and crosswind approach and landing by describing—
  - a. how to determine landing performance and limitations.
  - b. power and trim.
  - c. obstructions and other hazards, which should be considered.
  - d. a stabilized approach at the recommended airspeed to the selected touchdown area.
  - e. use of a controlled high-sink to adjust desired approach angle.
  - f. coordination of flight controls.
  - g. a precise ground track.
  - h. possibility of wind shear and wake turbulence.
  - i. most suitable crosswind technique.
  - j. timing, judgment, and control touch during flare and touchdown.
  - k. directional control after touchdown.
  - l. use of brakes.
2. Exhibits instructional knowledge of common errors related to a normal and crosswind approach and landing by describing—
  - a. improper use of landing performance data and limitations.
  - b. failure to establish and maintain a stabilized approach.
  - c. inappropriate removal of hand from throttle.
  - d. improper technique during flare and touchdown.
  - e. touchdown at too low an airspeed with strong headwinds, causing rearward roll.
  - f. poor directional control after touchdown.
  - g. improper use of brakes.
3. Demonstrates and simultaneously explains a normal or a crosswind approach and landing from an instructional standpoint.
4. Analyzes and corrects simulated common errors related to a normal and crosswind approach and landing.

## **Task D: Soft-Field Approach and Landing**

*References: FAA-H-8083-9, FAA-H-8083-21; FAA-S-8081-15, FAA-S-8081-16; Gyroplane Flight Manual.*

**Objective:** To determine that the applicant:

1. Exhibits instructional knowledge of the elements of a soft-field approach and landing by describing—
  - a. how to determine landing performance and limitations.
  - b. power and trim.
  - c. obstacles and other hazards, which should be considered.
  - d. effect of wind and landing surface.
  - e. selection of a touchdown area.
  - f. a stabilized approach at the recommended airspeed to the selected touchdown area.
  - g. use of a controlled high-sink to adjust desired approach angle.
  - h. coordination of flight controls.
  - i. a precise ground track.
  - j. timing, judgment, and control touch during flare and touchdown.
  - k. directional control after touchdown.
2. Exhibits instructional knowledge of common errors related to a soft-field approach and landing by describing—
  - a. improper use of landing performance data and limitations.
  - b. failure to establish and maintain a stabilized approach.
  - c. failure to consider the effect of wind and landing surface.
  - d. faulty technique in use of power.
  - e. inappropriate removal of hand from throttle.
  - f. faulty technique during flare and touchdown.
  - g. touchdown at too low an airspeed with strong headwinds, causing rearward roll.
  - h. poor directional control after touchdown.
  - i. improper use of brakes.
3. Demonstrates and simultaneously explains a soft-field approach and landing from an instructional standpoint.
4. Analyzes and corrects simulated common errors related to a soft-field approach and landing.

## **Task E: Go-Around**

*References: FAA-H-8083-9, FAA-H-8083-21; FAA-S-8081-15, FAA-S-8081-16; Gyroplane Flight Manual.*

**Objective:** To determine that the applicant:

1. Exhibits instructional knowledge of the elements of a go-around by describing—
  - a. situations where a go-around is necessary.
  - b. importance of making a prompt decision.
  - c. importance of applying takeoff power immediately after the go-around decision is made.
  - d. importance of establishing proper pitch attitude.
  - e. use of trim.
  - f. proper climb speed.
  - g. proper track and obstacle clearance.
2. Exhibits instructional knowledge of common errors related to a go-around by describing—
  - a. failure to recognize a situation where a go-around is necessary.
  - b. hazards of delaying a decision to go around.
  - c. improper power application.
  - d. failure to control pitch attitude.
  - e. improper trim technique.
  - f. failure to maintain recommended airspeeds.
  - g. failure to maintain proper track during climb-out.
  - h. failure to remain well clear of obstacles and other traffic.
3. Demonstrates and simultaneously explains a go-around from an instructional standpoint.
4. Analyzes and corrects simulated common errors related to a go-around.

## VIII. Fundamentals of Flight

**Note:** The examiner shall select at least one Task.

### **Task A: Straight-and-Level Flight**

*References: FAA-H-8083-9, FAA-H-8083-21.*

**Objective:** To determine that the applicant:

1. Exhibits instructional knowledge of the elements of straight-and-level flight by describing—
  - a. effect and use of flight controls.
  - b. the Integrated Flight Instruction method.
  - c. trim technique.
  - d. methods that can be used to overcome tenseness and overcontrolling.
2. Exhibits instructional knowledge of common errors related to straight-and-level flight by describing—
  - a. improper coordination of flight controls.
  - b. failure to cross-check and correctly interpret outside and instrument references.
  - c. faulty trim technique.
3. Demonstrates and simultaneously explains straight-and-level flight from an instructional standpoint.
4. Analyzes and corrects simulated common errors related to straight-and-level flight.

### **Task B: Level Turns**

*References: FAA-H-8083-9, FAA-H-8083-21.*

**Objective:** To determine that the applicant:

1. Exhibits instructional knowledge of the elements of level turns by describing—
  - a. effect and use of flight controls.
  - b. the Integrated Flight Instruction method.
  - c. trim technique.
  - d. methods that can be used to overcome tenseness and overcontrolling.
2. Exhibits instructional knowledge of common errors related to level turns by describing—
  - a. improper coordination of flight controls.

- b. failure to cross-check and correctly interpret outside and instrument references.
  - c. faulty trim technique.
3. Demonstrates and simultaneously explains level turns from an instructional standpoint.
4. Analyzes and corrects simulated common errors related to level turns.

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

*References: FAA-H-8083-9, FAA-H-8083-21.*

**Objective:** To determine that the applicant:

1. Exhibits instructional knowledge of the elements of straight climbs and climbing turns by describing—
  - a. effect and use of flight controls.
  - b. the Integrated Flight Instruction method.
  - c. trim technique.
  - d. methods that can be used to overcome tenseness and overcontrolling.
2. Exhibits instructional knowledge of common errors related to straight climbs and climbing turns by describing—
  - a. improper coordination of flight controls.
  - b. failure to cross-check and correctly interpret outside and instrument references.
  - c. faulty trim technique.
3. Demonstrates and simultaneously explains straight climbs and climbing turns from an instructional standpoint.
4. Analyzes and corrects simulated common errors related to straight climbs and climbing turns.

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

*References: FAA-H-8083-9, FAA-H-8083-21.*

**Objective:** To determine that the applicant:

1. Exhibits instructional knowledge of the elements of straight descents and descending turns by describing—
  - a. effect and use of flight controls.
  - b. the Integrated Flight Instruction method.
  - c. trim technique.
  - d. methods that can be used to overcome tenseness and overcontrolling.

2. Exhibits instructional knowledge of common errors related to straight descents and descending turns by describing—
  - a. improper coordination of flight controls.
  - b. failure to cross-check and correctly interpret outside and instrument references.
  - c. faulty trim technique.
3. Demonstrates and simultaneously explains straight descents and descending turns from an instructional standpoint.
4. Analyzes and corrects simulated common errors related to straight descents and descending turns.

## IX. Performance Maneuvers

### **Task A: Steep Turns**

*References: FAA-H-8083-9, FAA-H-8083-21; FAA-S-8081-15, FAA-S-8081-16; Gyroplane Flight Manual.*

**Objective:** To determine that the applicant:

1. Exhibits instructional knowledge of the elements of steep turns by describing—
  - a. load factor and angle of bank limitations.
  - b. selection of a suitable altitude.
  - c. appropriate power setting and airspeed prior to entry.
  - d. entry and rollout technique.
  - e. bank and power requirements.
  - f. effect and use of flight controls.
  - g. orientation, division of attention, and planning.
2. Exhibits instructional knowledge of common errors related to steep turns by describing—
  - a. improper bank and power coordination during entry and rollout.
  - b. uncoordinated use of flight controls.
  - c. exceeding manufacturer's recommended maximum bank angle.
  - d. improper technique in correcting altitude deviations.
  - e. loss of orientation.
  - f. excessive deviation from desired heading during rollout.
3. Demonstrates and simultaneously explains steep turns from an instructional standpoint.
4. Analyzes and corrects simulated common errors related to steep turns.

## X. Flight at Slow Airspeeds

*Note: The examiner shall select at least one Task.*

### **Task A: Straight-and-Level Flight, Turns, Climbs, and Descents**

*References: FAA-H-8083-9, FAA-H-8083-21; FAA-S-8081-15, FAA-S-8081-16; Gyroplane Flight Manual.*

**Objective:** To determine that the applicant:

1. Exhibits instructional knowledge of the elements of flight at slow airspeeds in straight-and-level flight, turns, climbs, and descents by describing—
  - a. flight characteristics and controllability associated with these maneuvers.
  - b. relationship of airspeed/rotor RPM to critical flight situations.
  - c. establishment and maintenance of a specified airspeed in straight-and-level flight, turns, climbs, and descents.
  - d. coordination of flight controls.
  - e. proper trim technique.
  - f. re-establishment of cruising flight.
2. Exhibits instructional knowledge of common errors related to flight at slow airspeeds in straight-and-level flight, turns, climbs, and descents by describing—
  - a. improper entry technique.
  - b. failure to establish and maintain an appropriate airspeed.
  - c. excessive variations of altitude and heading when a constant altitude and heading are specified.
  - d. use of too steep a bank angle.
  - e. rough or uncoordinated control technique.
  - f. faulty trim technique.
3. Demonstrates and simultaneously explains flight at slow airspeeds in straight-and-level flight, turns, climbs, and descents from an instructional standpoint.
4. Analyzes and corrects simulated common errors related to flight at slow airspeeds in straight-and-level flight, turns, climbs, and descents.

## **Task B: High Rate of Descent and Recovery**

*References: FAA-H-8083-9, FAA-H-8083-21; FAA-S-8081-15, FAA-S-8081-16; Gyroplane Flight Manual.*

**Objective:** To determine that the applicant:

1. Exhibits instructional knowledge of the elements of high rate of descent and recovery by describing—
  - a. related aerodynamic factors.
  - b. flight situations for the intentional use of a high rate of descent and recovery.
  - c. flight situations leading to an inadvertent entry into a high rate of descent.
  - d. recognition of a high rate of descent.
  - e. proper technique for an intentional power-on and power-off entry.
  - f. use of height velocity chart in determining minimum recovery altitude.
  - g. proper technique for a power-on and power-off recovery.
2. Exhibits instructional knowledge of common errors related to high rate of descent and recovery by describing—
  - a. improper entry technique.
  - b. failure to recognize a high rate of descent.
  - c. improper use of controls during recovery.
  - d. initiation of recovery below minimum recovery altitude.
3. Demonstrates and simultaneously explains high rate of descent and recovery from an instructional standpoint.
4. Analyzes and corrects simulated common errors related to high rate of descent and recovery.

## XI. Ground Reference Maneuvers

**Note:** *The examiner shall select at least one Task.*

### **Task A: Rectangular Course**

**References:** *FAA-H-8083-9, FAA-H-8083-21; FAA-S-8081-15; Gyroplane Flight Manual.*

**Objective:** To determine that the applicant:

1. Exhibits instructional knowledge of the elements of a rectangular course by describing—
  - a. how to select a suitable altitude.
  - b. how to select a suitable ground reference with consideration given to emergency landing areas.
  - c. orientation, division of attention, and planning.
  - d. airspeed prior to entry.
  - e. relationship of a rectangular course to an airport traffic pattern.
  - f. wind drift correction.
  - g. how to maintain desired altitude, airspeed, and distance from ground reference boundaries.
  - h. timing of turn entries and rollouts.
  - i. coordination of flight controls.
2. Exhibits instructional knowledge of common errors related to a rectangular course by describing—
  - a. poor planning, orientation, or division of attention.
  - b. uncoordinated flight control application.
  - c. improper correction for wind drift.
  - d. failure to maintain selected altitude or airspeed.
  - e. selection of a ground reference where there is no suitable emergency landing area within gliding distance.
3. Demonstrates and simultaneously explains a rectangular course from an instructional standpoint.
4. Analyzes and corrects simulated common errors related to a rectangular course.

### **Task B: S-Turns Across a Road**

**References:** *FAA-H-8083-9, FAA-H-8083-21; FAA-S-8081-15; Gyroplane Flight Manual.*

**Objective:** To determine that the applicant:

1. Exhibits instructional knowledge of the elements of S-turns across a road by describing—
  - a. how to select a suitable altitude.
  - b. how to select a suitable ground reference line with consideration given to emergency landing areas.
  - c. orientation, division of attention, and planning.
  - d. airspeed prior to entry.
  - e. entry technique.
  - f. wind drift correction.
  - g. tracking of semicircles of equal radii on either side of the selected ground reference line.
  - h. how to maintain desired altitude and airspeed.
  - i. turn reversal over the ground reference line.
  - j. coordination of flight controls.
2. Exhibits instructional knowledge of common errors related to S-turns across a road by describing—
  - a. faulty entry technique.
  - b. poor planning, orientation, or division of attention.
  - c. uncoordinated flight control application.
  - d. improper correction for wind drift.
  - e. an unsymmetrical ground track.
  - f. failure to maintain selected altitude and/or airspeed.
  - g. selection of a ground reference line where there is no suitable emergency landing area within gliding distance.
3. Demonstrates and simultaneously explains S-turns across a road from an instructional standpoint.
4. Analyzes and corrects simulated common errors related to S-turns across a road.

### **Task C: Turns Around a Point**

*References: FAA-H-8083-9, FAA-H-8083-21; FAA-S-8081-15; Gyroplane Flight Manual.*

**Objective:** To determine that the applicant:

1. Exhibits instructional knowledge of the elements of turns around a point by describing—
  - a. how to select a suitable altitude.
  - b. how to select a suitable ground reference point with consideration given to emergency landing areas.
  - c. orientation, division of attention, and planning.
  - d. airspeed prior to entry.
  - e. entry technique.
  - f. wind drift correction.

- g. how to maintain desired altitude, airspeed, and distance from the reference point.
  - h. coordination of flight controls.
2. Exhibits instructional knowledge of common errors related to turns around a point by describing—
    - a. faulty entry technique.
    - b. poor planning, orientation, or division of attention.
    - c. uncoordinated flight control application.
    - d. improper correction for wind drift.
    - e. failure to maintain selected altitude and/or airspeed.
    - f. selection of a ground reference point where there is no suitable emergency landing area within gliding distance.
  3. Demonstrates and simultaneously explains turns around a point from an instructional standpoint.
  4. Analyzes and corrects simulated common errors related to turns around a point.

## XII. Emergency Operations

**Note:** *The examiner shall select at least one Task.*

### **Task A: Lift-Off at Low Airspeed and High Angle of Attack**

**Note:** *This maneuver may be tested orally at the discretion of the examiner.*

**References:** *FAA-H-8083-9, FAA-H-8083-21; FAA-S-8081-15, FAA-S-8081-16; Gyroplane Flight Manual.*

**Objective:** To determine that the applicant:

1. Exhibits instructional knowledge of the elements related to lift-off at low airspeed and high angle of attack by describing—
  - a. consideration of wind conditions.
  - b. alignment with takeoff path.
  - c. initial positioning of flight controls.
  - d. prerotation of rotor blades (if applicable).
  - e. proper RPM prior to brake release.
  - f. a power setting that simulates a “behind the power curve” situation.
  - g. directional control during acceleration.
  - h. rotation prior to normal lift-off airspeed.
  - i. decision to abort or continue takeoff.
  - j. establishment of a normal climb.
  - k. track during climb.
  - l. use of checklist.
2. Exhibits instructional knowledge of common errors related to lift-off at low airspeed and high angle of attack by describing—
  - a. failure to check rotor for proper operation, track, and RPM prior to initiating takeoff.
  - b. improper initial positioning of flight controls.
  - c. use of a power setting that does not simulate a “behind the power curve” situation.
  - d. inappropriate removal of hand from throttle.
  - e. poor directional control.
  - f. rotation at a speed that is inappropriate for the maneuver.
  - g. poor judgment in determining whether to abort or continue takeoff.
  - h. failure to establish and maintain proper climb attitude and airspeed, if takeoff is continued.

- i. drift during climb.
3. Demonstrates and simultaneously explains a lift-off at low airspeed and high angle of attack from an instructional standpoint.
  4. Analyzes and corrects simulated common errors related to a lift-off at low airspeed and high angle of attack.

**Task B: Emergency Approach and Landing (Simulated)**

*References: FAA-H-8083-9, FAA-H-8083-21; FAA-S-8081-15, FAA-S-8081-16; Gyroplane Flight Manual.*

**Objective:** To determine that the applicant:

1. Exhibits instructional knowledge of the elements related to an emergency approach and landing by describing—
  - a. prompt establishment of the best-glide airspeed.
  - b. how to select a suitable emergency landing area.
  - c. planning and execution of approach to the selected landing area.
  - d. importance of attempting to determine reason for the malfunction.
  - e. importance of dividing attention between flying the approach and accomplishing emergency checklist.
  - f. techniques that can be used to compensate for undershooting or overshooting the selected emergency landing area.
2. Exhibits instructional knowledge of common errors related to an emergency approach and landing by describing—
  - a. improper airspeed control.
  - b. poor judgment in the selection of an emergency landing area.
  - c. failure to estimate approximate wind direction and speed.
  - d. failure to fly the most suitable pattern for existing situation.
  - e. undershooting or overshooting selected emergency landing area.
3. Demonstrates and simultaneously explains an emergency approach with a simulated engine failure from an instructional standpoint.
4. Analyzes and corrects simulated common errors related to an emergency approach with a simulated engine failure.

### **Task C: Systems and Equipment Malfunctions**

*References: FAA-H-8083-21; FAA-S-8081-15, FAA-S-8081-16; Gyroplane Flight Manual.*

**Objective:** To determine that the applicant exhibits instructional knowledge of the elements related to systems and equipment malfunctions by describing recommended pilot action, appropriate to the gyroplane used for the practical test, in the event of:

1. Smoke or fire during ground or flight operations.
2. Engine malfunction.
3. Oil/fuel system malfunction.
4. Hydraulic system malfunction.
5. Electrical system malfunction.
6. Carburetor or induction icing.
7. Trim system malfunction.
8. Landing gear malfunction.
9. Any other system or equipment malfunction.

### **Task D: Ground Resonance**

*References: FAA-H-8083-21; FAA-S-8081-15, FAA-S-8081-16; Gyroplane Flight Manual.*

**Objective:** To determine that the applicant exhibits instructional knowledge of the elements related to ground resonance by describing:

1. Aerodynamics involved, and association with, a fully articulated rotor system.
2. Conditions that are conducive to development of ground resonance.
3. Preventive actions used during takeoffs and landings on different surfaces.

### **Task E: Emergency Equipment and Survival Gear**

*Reference: Gyroplane Flight Manual.*

**Objective:** To determine that the applicant exhibits instructional knowledge of the elements related to emergency equipment and survival gear appropriate to the gyroplane used for the practical test by describing:

1. Locations in the gyroplane.
2. Method of operation or use.
3. Servicing.
4. Storage.

5. Equipment and gear appropriate for operation in various climates, over various types of terrain, and over water.

### **XIII. Postflight Procedures**

#### **Task A: After-Landing and Securing**

*References: FAA-H-8083-9, FAA-H-8083-21, AC 91-32; FAA-S-8081-15, FAA-S-8081-16; Gyroplane Flight Manual.*

**Objective:** To determine that the applicant:

1. Exhibits instructional knowledge of the elements of after-landing and securing by describing—
  - a. proper technique for parking.
  - b. proper procedure for engine shutdown and securing cockpit.
  - c. method used to secure rotor blades.
  - d. safety concerns for passenger(s) when exiting.
  - e. postflight inspection to include use of checklist.
  - f. refueling procedures, including safety concerns.
2. Exhibits instructional knowledge of common errors related to after-landing and securing by describing—
  - a. hazards resulting from failure to follow recommended procedures.
  - b. failure to conduct a postflight inspection and use a checklist.
3. Demonstrates and simultaneously explains after-landing and securing from an instructional standpoint.
4. Analyzes and corrects simulated common errors related to after-landing and securing.