FAA-S-8081-11

FLIGHT INSTRUCTOR

Practical Test Standards

for

LIGHTER-THAN-AIR

BALLOON

AIRSHIP

MARCH 1995

FLIGHT STANDARDS SERVICE
Washington, DC 20591

FLIGHT INSTRUCTOR
LIGHTER-THAN-AIR

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NOTE

This book establishes the Flight Instructor - Lighter-Than-Air Practical Test Standards. These testing standards are for flight instructor certification in balloons and airships. These standards will become effective **only** when the recommended change to FAR Part 61 is approved establishing a flight instructor certificate for this category. However, these standards may be used for the familiarization and training of applicants considering exercising flight instructor privileges in the lighter-than-air category.

FOREWORD

The Flight Instructor - Lighter-Than-Air 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 lighter-than-air category, balloon and airship 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.

William J. White
Deputy Director, Flight Standards Service

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 - lighter-than-air (balloon) and flight instructor - lighter-than-air (airship) 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.

Information considered directive in nature is described in this practical test standard in terms such as “shall” and “must” and means that the actions are mandatory. Guidance information is described in terms such as “will,” “should,” or “may,” and indicate actions that are desirable, permissive, or not mandatory and provide for flexibility.

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

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Federal Aviation Administration
Flight Standards Service
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PRACTICAL TEST STANDARD CONCEPT

Federal Aviation Regulations (FAR's) specify 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. FAR's provide the flexibility that permits the FAA to publish practical test standards containing specific TASKS in which competency shall be demonstrated. The FAA may revise this book whenever it is determined that changes are needed in the interest of safety. Adherence to provisions of regulations and practical test standards is mandatory for evaluation of flight instructor applicants.

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 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[1] while giving effective flight instruction; and
4. competent to pass the required practical test for 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.

[1]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.

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. These areas are covered in AC 90-48, Pilots' Role in Collision Avoidance; AC 61-21, Flight Training Handbook; AC 61-23, Pilot's Handbook of Aeronautical Knowledge; and the Airman's Information Manual.

EXAMINER[2] RESPONSIBILITY

The examiner who conducts the practical test is responsible for determining that the applicant meets acceptable standards of knowledge, skill, and teaching ability 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 fundamentals of instructing;
2. knowledge of, and ability to teach, subject matter, procedures, and maneuvers covered in the TASKS;
3. ability to perform 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 procedures and maneuvers covered in the TASKS.

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.

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 evaluate use of visual scanning and collision avoidance procedures and the applicant's ability to teach these procedures.

[2]The word "examiner" is used throughout the standard to denote either the FAA inspector or FAA designated pilot examiner who conducts an official practical test.

FLIGHT INSTRUCTOR PRACTICAL TEST BOOK DESCRIPTION

This test book contains the practical test standards for Flight Instructor - Lighter-Than-Air (Balloon and Airship). Other flight instructor practical test books include:

FAA-S-8081-6, Flight Instructor - Airplane (Single-Engine and Multiengine)
FAA-S-8081-7, Flight Instructor - Rotorcraft (Helicopter and Gyroplane)
FAA-S-8081-8, Flight Instructor - Glider
FAA-S-8081-9, Flight Instructor - Instrument (Airplane and Helicopter)

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. In this practical test book, the first AREA OF OPERATION is Fundamentals of Instructing; the last is Postflight Procedures. However, an examiner may conduct the practical test in any sequence that results in a complete and efficient test.

TASKS are knowledge areas, flight procedures, or maneuvers appropriate to an AREA OF OPERATION. Abbreviation(s) within parentheses immediately following a TASK refer to the category and/or class aircraft appropriate to that TASK. The meaning of each abbreviation follows:

LAA	Lighter-Than-Air, Airship
LBG	Lighter-Than-Air, Balloon (Gas)
LBH	Lighter-Than-Air, Balloon (W/Airborne Heater)

REFERENCE identifies the publication(s) that describes the TASK. Descriptions of TASKS and maneuver tolerances are not included in flight instructor practical test 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:

FAR Part 1	Definitions and Abbreviations
FAR Part 43	Maintenance, Preventative Maintenance, Rebuilding, and Alteration
FAR Part 61	Certification: Pilots and Flight Instructors
FAR Part 91	General Operating and Flight Rules
NTSB 830	Notification and Reporting of Aircraft Accidents and Incidents
AC 00-2	Advisory Circular Checklist
AC 00-6	Aviation Weather
AC 00-45	Aviation Weather Services
AC 60-14	Aviation Instructor's Handbook
AC 61-21	Flight Training Handbook
AC 61-23	Pilot's Handbook of Aeronautical Knowledge
AC 61-27	Instrument Flying Handbook
AC 61-65	Certification: Pilots and Flight Instructors
AC-61-67	Stall and Spin Awareness Training
AC 61-84	Role of Preflight Preparation
AC 61-98	Currency and Additional Qualification Requirements for Certificated Pilots
AC 67-2	Medical Handbook for Pilots
AC 90-48	Pilots' Role in Collision Avoidance
AC 91-13	Cold Weather Operation of Aircraft
FAA-S-8081-1	Private Pilot Practical Test Standards
FAA-S-8081-2	Commercial Pilot Practical Test Standards
AIM	Airman's Information Manual
	Propane and Fuel Management (BFA)
	How To Fly A Balloon (Balloon Publishing Co.)
	Aerostatics (US Air Corps)

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:

l. 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 AC 60-14, Aviation Instructor's Handbook, AC 61-21; Flight Training Handbook; and AC 61-27, Instrument Flying Handbook; and
4. the ability to analyze and correct common errors related to a TASK.

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 "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 a practical test shall be evaluated in its entirety.

With the exception of the **required** TASKS, the examiner shall not tell the applicant in advance which TASKS are included in the written "plan of action." 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 simultaneously demonstrate and explain 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 AC 60-14, 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 crew resource management, spatial disorientation, collision avoidance, checklist usage, use of distractions, and any other areas directed by future revisions of the standards.

FLIGHT INSTRUCTOR PRACTICAL TEST PREREQUISITES

An applicant for a flight instructor **initial** certification practical test is required by FAR's to:

1. have passed the appropriate flight instructor knowledge test(s) since the beginning of the 24th month before the month in which he/she takes the practical test;
2. hold a commercial pilot or airline transport pilot certificate with an aircraft rating appropriate to the flight instructor rating sought;
3. hold an instrument rating if applying for an airplane, airship, or instrument instructor rating;
4. have the prescribed aeronautical experience and instruction for a flight instructor certificate with the rating sought;
5. have reached the age of 18 years; and
6. 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 FAR 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.

An applicant holding a flight instructor certificate who applies for an **additional** rating on that certificate must:

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 aircraft category and class appropriate to the rating sought; and
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/she takes the practical test.
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 FAR 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.[1] Although FAR Section 61.191 refers to additional flight instructor ratings, the basis for the knowledge and practical tests required for any additional flight instructor rating will be found in FAR Section 61.187(a).

AIRCRAFT AND EQUIPMENT REQUIRED FOR THE PRACTICAL TEST

The flight instructor applicant is required by FAR 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 FAR Section 61.45; and
2. be capable of performing all appropriate TASKS for the flight instructor rating sought and have no operating limitations which prohibit the performance of those operations.

[1]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 the previous statement, provided all appropriate FAR Part 61 requirements are substantiated by reliable records.

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 fundamentals of instructing;
2. knowledge of technical subject areas;
3. knowledge of flight instructor responsibilities concerning the pilot certification process;
4. knowledge of flight instructor responsibilities concerning log book entries and pilot certificate endorsements;
5. ability to demonstrate procedures and maneuvers selected by the examiner to at least the COMMERCIAL PILOT skill level while giving effective instruction;
6. competence in teaching 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 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 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 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.

SECTION 1

FLIGHT INSTRUCTOR
LIGHTER-THAN-AIR - BALLOON

Practical Test Standards

ADDITION OF A BALLOON CLASS RATING (AND A LIGHTER-THAN-AIR CATEGORY RATING, IF APPROPRIATE) TO A FLIGHT INSTRUCTOR CERTIFICATE								
REQUIRED AREAS OF OPERATION	**FLIGHT INSTRUCTOR CERTIFICATE AND RATING HELD**							
	ASE	**AME**	**RH**	**RG**	**G**	**IA**	**IH**	**LA**
I	N	N	N	N	N	N	N	N
II	Y	Y	Y	Y	Y	Y	Y	Y
III	Y	Y	Y	Y	Y	Y	Y	Y
IV	N	N	N	N	N	N	N	N
V	Y	Y	Y	Y	Y	Y	Y	Y
VI	N	N	N	N	N	N	N	N
VII	Y	Y	Y	Y	Y	Y	Y	Y
VIII	Y	Y	Y	Y	Y	Y	Y	Y
IX	Y	Y	Y	Y	Y	Y	Y	Y
X	Y	Y	Y	Y	Y	Y	Y	Y
XI	Y	Y	Y	Y	Y	Y	Y	Y

LEGEND:

ASE	Airplane Single-Engine	IA	Instrument Airplane
AME	Airplane Multiengine	IH	Instrument Helicopter
RH	Rotorcraft Helicopter	LB	Lighter-Than-Air Balloon
RG	Rotorcraft Gyroplane	LA	Lighter-Than-Air Airship
G	Glider		

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.

CONTENTS

APPLICANT'S PRACTICAL TEST CHECKLIST

APPOINTMENT WITH EXAMINER:

EXAMINER'S NAME_____

LOCATION_____

DATE/TIME_____

ACCEPTABLE AIRCRAFT

- ☐ Aircraft Documents:
  - Airworthiness Certificate
  - Registration Certificate
  - Operating Limitations
- ☐ Aircraft Maintenance Records:
  - Airworthiness Inspections
- ☐ Pilot's Operating Handbook, FAA-Approved Flight Manual
- ☐ FCC Station License

PERSONAL EQUIPMENT

- ☐ Practical Test Standard
- ☐ Current Aeronautical Chart
- ☐ Computer and Plotter
- ☐ Flight Plan Form
- ☐ Flight Log
- ☐ Current AIM

PERSONAL RECORDS

- ☐ Identification - Photo/Signature ID
- ☐ Pilot Certificate
- ☐ Medical Statement
- ☐ 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 Instructor's Endorsement
- ☐ 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
FLIGHT INSTRUCTOR - LIGHTER-THAN-AIR (BALLOON)

APPLICANT'S NAME_____

LOCATION_____

DATE/TIME _____

I. FUNDAMENTALS OF INSTRUCTING

- ☐ A. The Learning Process
- ☐ B. The Teaching Process
- ☐ C. Teaching Methods
- ☐ D. Evaluation
- ☐ E. Flight Instructor Characteristics and Responsibilities
- ☐ F. Human Factors
- ☐ 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. Refueling
- ☐ F. Tethering
- ☐ G. Navigation and Flight Planning
- ☐ H. Winter Flying
- ☐ I. Mountain Flying
- ☐ J. Regulations and Publications
- ☐ 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

☐ Maneuver Lesson

V. PREFLIGHT PROCEDURES

☐ A. Launch Site Selection
☐ B. Crew Briefing and Preparation
☐ C. Layout and Assembly
☐ D. Visual Inspection
☐ E. Inflation
☐ F. Basket/Gondola Management
☐ G. Pre-Launch Check

VI. AIRPORT OPERATIONS

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VII. LAUNCHES AND LANDINGS

☐ A. Normal Launch
☐ B. Launch Over Obstacle
☐ C. Approach to Landing
☐ D. Normal Landing
☐ E. High-Wind Landing

VIII. FUNDAMENTALS OF FLIGHT

☐ A. Altitude Control (Level Flight)
☐ B. Ascents
☐ C. Descents

IX. PERFORMANCE MANEUVERS

☐ A. Rapid Ascent
☐ B. Rapid Descent
☐ C. Contour Flying
☐ D. High Altitude Flight
☐ E. Obstruction Clearance

X. EMERGENCY OPERATIONS

- ☐ A. Systems and Equipment Malfunctions
- ☐ B. Emergency Equipment and Survival Gear
- ☐ C. Water Landing
- ☐ D. Thermal Flight

XI. POSTFLIGHT PROCEDURES

- ☐ A. Recovery
- ☐ B. Deflation and Packing

I. AREA OF OPERATION: FUNDAMENTALS OF INSTRUCTING

NOTE: The examiner will select at least TASKS E and G.

A. TASK: THE LEARNING PROCESS (LBH, LBG)

REFERENCE: AC 60-14.

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

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

B. TASK: THE TEACHING PROCESS (LBH, LBG)

REFERENCE: AC 60-14.

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

1. Preparation for a lesson or an 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.

C. TASK: TEACHING METHODS (LBH, LBG)

REFERENCE: AC 60-14.

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. Programmed instruction.
6. Audio-visual instruction.

D. TASK: EVALUATION (LBH, LBG)

REFERENCE: AC 60-14.

Objective. To determine that the applicant exhibits instructional knowledge of the elements of evaluation by describing:

1. The purpose of evaluation.
2. Characteristics of effective oral questions.
3. Types of oral questions 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.

E. TASK: FLIGHT INSTRUCTOR CHARACTERISTICS AND RESPONSIBILITIES (LBH, LBG)

REFERENCE: AC 60-14.

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

1. Major considerations and qualifications which must be included in flight instructor professionalism.
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.

F. TASK: HUMAN FACTORS (LBH, LBG)

REFERENCE: AC 60-14.

Objective. To determine that the applicant exhibits instructional knowledge of the elements related to human factors 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.
5. Relationship of defense mechanisms to pilot decision making.
6. General rules which a flight instructor should follow during student training to ensure good human relations.

G. TASK: PLANNING INSTRUCTIONAL ACTIVITY (LBH, LBG)

REFERENCE: AC 60-14.

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. AREA OF OPERATION: TECHNICAL SUBJECTS

NOTE: The examiner will select TASK L and at least one other TASK.

A. TASK: AEROMEDICAL FACTORS (LBH, LBG)

REFERENCES: AC 61-21, AC 67-2; 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. Effects of alcohol and drugs, and their relationship to safety.
5. Effect of nitrogen excesses during scuba dives and how this affects a pilot and passengers during flight.
6. Fatigue, its effects and corrective action.

B. TASK: VISUAL SCANNING AND COLLISION AVOIDANCE (LBH, LBG)

REFERENCES: AC 61-21, AC 61-23, 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. Practice of “time sharing” of attention inside and outside the basket.
3. Proper visual scanning techniques.
4. Importance of controlling ascents and descents to assist in collision avoidance.
5. Situations which involve the greatest collision risk.

C. TASK: USE OF DISTRACTIONS DURING FLIGHT TRAINING (LBH, LBG)

REFERENCE: AC 61-67.

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 cause factor related to loss of control.
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.

D. TASK: PRINCIPLES OF FLIGHT (LBH, LBG)

REFERENCE: How To Fly a Balloon.

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

1. Physical laws applicable to balloon flight.
2. Effects of changes in temperature, pressure, humidity, and altitude on maintaining equilibrium.
3. Effects of false or uncontrolled lift during takeoff, landing, and windshear penetration.

E. TASK: REFUELING (LBH)

REFERENCES: Propane and Fuel Management; FAA-Approved Balloon Flight Manual.

Objective. To determine that the applicant exhibits instructional knowledge of the elements of refueling by describing:

1. Physical properties of propane.
2. Propane cylinders and related parts.
3. Safety factors, to include ventilation.
4. Danger of explosion and burns when handling propane.
5. Water contamination.
6. Proper method of filling cylinders.

F. TASK: TETHERING (LBH, LBG)

REFERENCES: FAA-Approved Balloon Flight Manual.

Objective. To determine that the applicant exhibits instructional knowledge of the elements of tethering by describing:

1. Recommended procedures to include number, strength, and location of lines.
2. Proper recognition of wind conditions and obstructions.
3. Effects of false lift and wind gusts.
4. Importance of briefing groundcrew on procedures, to include crowd control.

G. TASK: NAVIGATION AND FLIGHT PLANNING (LBH, LBG)

REFERENCES: AC 61-21, AC 61-23.

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 proper and current charts.
4. Identification of various types of airspace.
5. Method of plotting a course.
6. Fundamentals of pilotage and dead reckoning.
7. Construction of a flight profile and course for intended route of flight based on winds aloft.

H. TASK: WINTER FLYING (LBH, LBG)

REFERENCE: FAA-Approved Balloon Flight Manual.

Objective. To determine that the applicant exhibits instructional knowledge of the elements of winter flying by describing:

1. Fuel pressure concerns and proper methods of pressurizing fuel tanks.
2. Equipment and preparation necessary for cold temperatures.
3. Added concerns for fuel vaporization, leaks, and fire risk during cold weather.

I. TASK: MOUNTAIN FLYING (LBH, LBG)

REFERENCE: FAA-Approved Balloon Flight Manual.

Objective. To determine that the applicant exhibits instructional knowledge of the elements of mountain flying by describing:

1. Consideration for access to landing areas.
2. Evidence of possible turbulence and descending air currents on leeward side of mountains.
3. Concerns for terrain, effects on wind (upslope/downslope), and possible rapid weather changes.

J. TASK: REGULATIONS AND PUBLICATIONS (LBH, LBG)

REFERENCES: FAR Parts 1, 61, 91; NTSB 830; AC 00-2; AIM, FAA-Approved Balloon Flight Manual.

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

1. FAR Parts1, 61, 91.
2. NTSB 830.
3. Flight information publications.
4. Advisory circulars.
5. Practical test standards.
6. FAA-approved flight manual.

K. TASK: NATIONAL AIRSPACE SYSTEM (LBH, LBG)

REFERENCES: FAR Part 91; AIM.

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

1. General dimensions of airspace segments.
2. Operating limitations associated with uncontrolled, controlled, special use, and other airspace.

L. TASK: LOGBOOK ENTRIES AND CERTIFICATE ENDORSEMENTS (LBH, LBG)

REFERENCES: FAR Part 61; AC 61-21, AC 61-65.

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

1. Required logbook entries for instruction given.
2. Logbook entry certifying student's completion of presolo knowledge test.
3. Required student pilot certificate endorsements, including appropriate logbook entries.
4. Preparation of a recommendation for a pilot practical test, including appropriate logbook entry.
5. Required endorsement of a pilot logbook for the satisfactory completion of the required FAA flight review.
6. Required flight instructor records.

III. AREA OF OPERATION: PREFLIGHT PREPARATION

NOTE: The examiner will select at least one TASK.

A. TASK: CERTIFICATES AND DOCUMENTS (LBH, LBG)

REFERENCES: FAR Parts 43, 61, 91; AC 61-21, AC 61-23; FAA-Approved Balloon 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 requirements.
3. Airworthiness and registration certificates.
4. Balloon handbooks and manuals.
5. Balloon maintenance requirements, tests, and records.

B. TASK: WEATHER INFORMATION (LBH, LBG)

REFERENCES: AC 00-6, AC 00-45, AC 61-21, AC 61-23, AC 61-84.

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 means of obtaining weather information.
3. Use of weather reports, forecasts, and charts.
4. Use of PIREP's, SIGMET's, and AIRMET's.
5. Recognition of aviation weather hazards relative to balloon operations.
6. Factors to be considered in making a “go/no go” decision.

C. TASK: OPERATION OF SYSTEMS (LBH, LBG)

REFERENCE: FAA-Approved Balloon Flight Manual.

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

1. Fuel system and associated instruments.
2. Flight instruments.
3. Venting and/or deflation systems.
4. Avionics/communications system.

D. TASK: PERFORMANCE AND LIMITATIONS (LBH, LBG)

REFERENCES: AC 61-84; FAA-Approved Balloon Flight Manual.

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

1. Use of performance charts, tables, and other data in determining performance in various phases of flight.
2. Determine load and altitude limits.
3. Requirements to arrest a terminal velocity descent.
4. Effects of atmospheric conditions on performance.
5. Factors to be considered in determining that the required performance is within the balloon's capabilities.

IV. AREA OF OPERATION: PREFLIGHT LESSON ON A MANEUVER TO BE PERFORMED IN FLIGHT

NOTE: Examiner will select at least one maneuver from AREAS OF OPERATION VII through X and ask the applicant to present a preflight lesson on the maneuver selected as the lesson would be taught to a student.

TASK: MANEUVER LESSON (LBH, LBG)

REFERENCES: AC 60-14; FAA-S-8081-1, FAA-S-8081-2; FAA-Approved Balloon Flight Manual.

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

1. Stating the purpose.
2. Giving an accurate, comprehensive oral description, including the elements and common errors.
3. Using instructional aids, as appropriate.
4. Describing the recognition, analysis, and correction of common errors.

V. AREA OF OPERATION: PREFLIGHT PROCEDURES

NOTE: The examiner will select at least one TASK.

A. TASK: LAUNCH SITE SELECTION (LBH, LBG)

REFERENCES: AC 60-14; FAA-S-8081-1, FAA-S-8081-2; FAA-Approved Balloon Flight Manual.

Objective. To determine that the applicant:

1. Exhibits instructional knowledge of the elements of launch site selection by describing—

    a. importance of size and surface condition of site.
    b. consideration of accessibility and obstacles.
    c. hazards surrounding launch site.
    d. consideration of suitable landing areas based on wind conditions.

2. Exhibits instructional knowledge of common errors related to launch site selection by describing—

    a. inability to properly assess size and surface condition of site.
    b. failure to consider site accessibility and obstacles.
    c. failure to properly determine direction of flight and suitable landing areas based on launch site selection.

3. Demonstrates and simultaneously explains launch site selection from an instructional standpoint.
4. Analyzes and corrects simulated common errors related to launch site selection.

B. TASK: CREW BRIEFING AND PREPARATION (LBH, LBG)

REFERENCES: AC 60-14; FAA-S-8081-1, FAA-S-8081-2; FAA-Approved Balloon Flight Manual.

Objective. To determine that the applicant:

1. Exhibits instructional knowledge of the elements of crew briefing and preparation by describing—

    a. importance of designating a crewchief (if appropriate).
    b. necessity of clearly explaining duties and responsibilities to each crewmember and occupant.
    c. importance of describing possible direction of flight and estimated time aloft.
    d. methods of communicating with groundcrew.

2. Exhibits instructional knowledge of common errors related to crew briefing and preparation by describing—

    a. failure to designate a crewchief (if applicable).
    b. failure to thoroughly brief crewmembers on designated duties and responsibilities.
    c. problems that can occur due to incomplete flight information and communications.

3. Demonstrates and simultaneously explains crew briefing and preparation from an instructional standpoint.

C. TASK: LAYOUT AND ASSEMBLY (LBH, LBG)

REFERENCES: AC 60-14; FAA-S-8081-1, FAA-S-8081-2; FAA-Approved Balloon Flight Manual.

Objective. To determine that the applicant:

1. Exhibits instructional knowledge of the elements of layout and assembly by describing—

    a. proper procedure for envelope layout relative to wind direction, surface, and hazards.
    b. attachment of all cables and lines and assembly of basket to envelope.
    c. assembly of burner and fuel system and related safety checks.
    d. importance of following checklist.

2. Exhibits instructional knowledge of common errors related to layout and assembly by describing—

    a. lack of regard for wind direction, surface, and hazards during envelope layout.
    b. improper assembly of burner and fuel system.
    c. improper layout and attachment of envelope, cables, and lines.

3. Demonstrates and simultaneously explains layout and assembly from an instructional standpoint.
4. Analyzes and corrects common errors related to layout and assembly.

D. TASK: VISUAL INSPECTION (LBH, LBG)

REFERENCES: AC 60-14; FAA-S-8081-1, FAA-S-8081-2; FAA-Approved Balloon Flight Manual.

Objective. To determine that the applicant:

1. Exhibits instructional knowledge of the elements of a visual inspection, as applicable to the balloon used for the practical test, by describing—

    a. reasons for the inspection, items that should be inspected, and how defects are detected.
    b. venting and/or deflation systems.
    c. burner and fuel system check.
    d. condition of suspension and handling lines.
    e. use of checklist.
    f. use of sound judgment in determining whether balloon is in condition for safe flight.

2. Exhibits instructional knowledge of common errors related to a visual inspection by describing—

    a. failure to use a checklist.
    b. inability to recognize discrepancies.
    c. hazards which may result from allowing distractions to interrupt a visual inspection.

3. Demonstrates and simultaneously explains a visual inspection from an instructional standpoint.

E. TASK: INFLATION (LBH, LBG)

REFERENCES: AC 60-14; FAA-S-8081-1, FAA-S-8081-2; FAA-Approved Balloon Flight Manual.

Objective. To determine that the applicant:

1. Exhibits instructional knowledge of the elements of inflation by describing—

    a. importance of following checklist.
    b. proper position/operation of inflator.
    c. initial inflation with cold air.
    d. proper ignition and heating procedure during inflation.
    e. smooth, controlled heating of air to bring balloon to equilibrium.
    f. proper tie-off procedure.

2. Exhibits instructional knowledge of common errors related to inflation by describing—

    a. failure to follow checklist.
    b. improper position/operation of inflator.
    c. lack of understanding cold air inflation.
    d. incorrect procedures during initial ignition and heating.
    e. failure to reach equilibrium and stabilize balloon.
    f. improper tie-off procedure.

3. Demonstrates and simultaneously explains inflation from an instructional standpoint.
4. Analyzes and corrects simulated common errors related to inflation.

F. TASK: BASKET/GONDOLA MANAGEMENT (LBH, LBG)

REFERENCES: AC 60-14; FAA-S-8081-1, FAA-S-8081-2; FAA-Approved Balloon Flight Manual.

Objective. To determine that the applicant:

1. Exhibits instructional knowledge of the elements of basket/gondola management by describing—

    a. proper arranging and securing of essential materials and equipment in the basket.
    b. passenger briefing regarding position and equipment.

2. Exhibits instructional knowledge of common errors related to basket/gondola management by describing—

    a. failure to arrange and secure equipment in the basket.
    b. potential problems resulting from incomplete passenger briefing prior to launch.

3. Demonstrates and simultaneously explains basket/gondola management from an instructional standpoint.

G. TASK: PRE-LAUNCH CHECK (LBH, LBG)

REFERENCES: AC 60-14; FAA-S-8081-1, FAA-S-8081-2; FAA-Approved Balloon Flight Manual.

Objective. To determine that the applicant:

1. Exhibits instructional knowledge of the elements of a pre-launch check by describing—

    a. importance of final coordination with ground crew to include signals and emergency procedures.
    b. proper positioning of deflation and vent lines.
    c. method used to determine that balloon is in safe operating condition.
    d. determination of equilibrium.
    e. importance of reviewing wind conditions, temperatures, and obstructions.
    f. importance of following checklist.

2. Exhibits instructional knowledge of common errors related to a pre-launch check by describing—

    a. acceptance of inadequate burner operation.
    b. failure to review launch conditions.
    c. failure to conduct final coordination with ground crew.
    d. improper recognition of equilibrium and adjustments required.
    e. failure to use a checklist.

3. Demonstrates and simultaneously explains a pre-launch check from an instructional standpoint.
4. Analyzes and corrects simulated common errors related to a pre-launch check.

VI. AREA OF OPERATION: AIRPORT OPERATIONS

TASK: RADIO COMMUNICATIONS AND ATC LIGHT SIGNALS (LBH, LBG)

REFERENCES: AC 61-21, AC 61-23; AIM; FAA-S-8081-1, FAA-S-8081-2.

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. 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 procedure and phraseology when using radio voice communications.
    c. failure to acknowledge, or properly comply with, ATC clearances and other instructions.
    d. failure to understand, or to comply with, ATC light signals.

VII. AREA OF OPERATION: LAUNCHES AND LANDINGS

NOTE: The examiner will select at least one takeoff TASK and at least one landing TASK.

A. TASK: NORMAL LAUNCH (LBH, LBG)

REFERENCES: AC 60-14; FAA-S-8081-1, FAA-S-8081-2; FAA-Approved Balloon Flight Manual.

Objective. To determine that the applicant:

1. Exhibits instructional knowledge of the elements related to a normal launch by describing—

    a. recognition of false lift and wind conditions.
    b. directing groundcrew to clear area.
    c. correct use of tie-off quick release line (if appropriate).
    d. coordination of liftoff and initial ascent.

2. Exhibits instructional knowledge of common errors related to a normal launch by describing—

    a. failure to properly direct ground crew.
    b. failure to note wind conditions and potential hazards during launch.
    c. poor control of initial ascent rate.
    d. improper coordination of tie-off quick release line (if applicable).

3. Demonstrates and simultaneously explains a normal launch from an instructional standpoint.
4. Analyzes and corrects simulated common errors related to a normal launch.

B. TASK: LAUNCH OVER OBSTACLE (LBH, LBG)

REFERENCES: AC 60-14; FAA-S-8081-1, FAA-S-8081-2; FAA-Approved Balloon Flight Manual.

Objective. To determine that the applicant:

1. Exhibits instructional knowledge of the elements related to a launch over an obstacle by describing—

    a. determination of obstacle height.
    b. recognition of possible false lift.
    c. distance to obstacle relative to wind conditions.
    c. actions necessary to clear obstacle safely.

2. Exhibits instructional knowledge of common errors related to a launch over an obstacle by describing—

    a. failure to determine height of obstacle and presence of false lift.
    b. improper selection of launch site relative to obstacle and wind conditions.
    c. failure to act decisively in order to clear obstacle safely.

3. Demonstrates and simultaneously explains a launch over an obstacle from an instructional standpoint.
4. Analyzes and corrects simulated common errors related to a launch over an obstacle.

C. TASK: APPROACH TO LANDING (LBH, LBG)

REFERENCES: AC 60-14; FAA-S-8081-1, FAA-S-8081-2; FAA-Approved Balloon Flight Manual.

Objective. To determine that the applicant:

1. Exhibits instructional knowledge of the elements related to an approach to landing by describing—

    a. selection of landing area and point of touchdown.
    b. clearance of obstacles in landing area.
    c. use of appropriate approach profile and rate(s) of descent.
    d. aborting the approach, if necessary, in a timely manner.
    e. use of checklist.

2. Exhibits instructional knowledge of common errors related to an approach to landing by describing—

    a. improper consideration of obstacles in landing area.
    b. failure to establish an appropriate approach profile in a stabilized manner.
    c. failure to abort approach, if necessary, in a timely manner.

3. Demonstrates and simultaneously explains an approach to landing from an instructional standpoint.
4. Analyzes and corrects simulated common errors related to an approach to landing.

D. TASK: NORMAL LANDING (LBH, LBG)

REFERENCES: AC 60-14; FAA-S-8081-1, FAA-S-8081-2; FAA-Approved Balloon Flight Manual.

Objective. To determine that the applicant:

1. Exhibits instructional knowledge of the elements related to a normal landing by describing—

    a. briefing and positioning of occupants and equipment.
    b. proper use of vents and burner controls to stabilize balloon on touchdown.
    c. importance of stabilizing balloon prior to occupants exiting.

2. Exhibits instructional knowledge of common errors related to a normal landing by describing—

    a. incomplete briefing of occupants prior to landing.
    b. improper use of vents and burner controls.
    c. failure to stabilize balloon on touchdown.

3. Demonstrates and simultaneously explains a normal landing from an instructional standpoint.
4. Analyzes and corrects simulated common errors related to a normal landing.

E. TASK: HIGH-WIND LANDING (LBH, LBG)

REFERENCES: AC 60-14; FAA-S-8081-1, FAA-S-8081-2; FAA-Approved Balloon Flight Manual.

Objective. To determine that the applicant:

1. Exhibits instructional knowledge of the elements related to a high-wind landing by describing—

    a. selection of landing site relative to wind conditions.
    b. hazards associated with a high-wind landing.
    c. thorough briefing and positioning of occupants.
    d. proper use of vents and burner controls to land balloon and control ground travel.
    e. timing, judgment, and control during landing.
    f. importance of judgment and timing to abort landing, if necessary.

2. Exhibits instructional knowledge of common errors related to a high-wind landing by describing—

    a. incomplete briefing of occupants prior to landing.
    b. failure to determine wind conditions and hazards in the selected landing area.
    c. improper use of vents and burner controls.
    d. failure to deflate balloon in a timely manner after touchdown to minimize ground travel.
    e. failure to abort approach, if necessary, in a timely manner.

3. Demonstrates and simultaneously explains a high-wind landing from an instructional standpoint.
4. Analyzes and corrects simulated common errors related to a high-wind landing.

VIII. AREA OF OPERATION: FUNDAMENTALS OF FLIGHT

NOTE: The examiner will select at least one TASK.

A. TASK: ALTITUDE CONTROL (LEVEL FLIGHT) (LBH, LBG)

REFERENCES: AC 60-14; FAA-S-8081-1, FAA-S-8081-2; FAA-Approved Balloon Flight Manual.

Objective. To determine that the applicant:

1. Exhibits instructional knowledge of the elements related to altitude control by describing—

    a. how to recognize vertical movement.
    b. importance of maintaining equilibrium by smooth use of burner controls.
    c. use of instruments to assist in altitude control.

2. Exhibits instructional knowledge of common errors related to altitude control by describing—

    a. inability to recognize vertical movement.
    b. failure to coordinate burns with heat loss.
    c. excessive cooling and/or overburning.

3. Demonstrates and simultaneously explains altitude control from an instructional standpoint.
4. Analyzes and corrects simulated common errors related to altitude control.

B. TASK: ASCENTS (LBH, LBG)

REFERENCES: AC 60-14; FAA-S-8081-1, FAA-S-8081-2; FAA-Approved Balloon Flight Manual.

Objective. To determine that the applicant:

1. Exhibits instructional knowledge of the elements related to ascents by describing—

    a. transition from level flight to ascent, as specified.
    b. control of ascent and level off at altitude specified.
    c. proper control of balloon during transition from ascent to level flight.

2. Exhibits instructional knowledge of common errors related to ascents by describing—

    a. improper transition from level flight to ascent.
    b. failure to level off at specified altitude.
    c. exceeding performance limitations of the balloon.

3. Demonstrates and simultaneously explains ascents from an instructional standpoint.
4. Analyzes and corrects simulated common errors related to ascents.

C. TASK: DESCENTS (LBH, LBG)

REFERENCES: AC 60-14; FAA-S-8081-1, FAA-S-8081-2; FAA-Approved Balloon Flight Manual.

Objective. To determine that the applicant:

1. Exhibits instructional knowledge of the elements related to descents by describing—

    a. transition from level flight to descent, as specified.
    b. control of descent and level off at altitude specified.
    c. proper control of balloon during transition from descent to level flight.

2. Exhibits instructional knowledge of common errors related to descents by describing—

    a. improper transition from level flight to descent.
    b. failure to level off at specified altitude.
    c. exceeding performance limitations of the balloon.

3. Demonstrates and simultaneously explains descents from an instructional standpoint.
4. Analyzes and corrects simulated common errors related to descents.

IX. AREA OF OPERATION: PERFORMANCE MANEUVERS

NOTE: The examiner will select at least one TASK. Caution should be exercised during conduct of TASKS A and B. Examiner should not expect applicant to use a rate of ascent or descent that would exceed balloon's limitations or jeopardize safe flight.

A. TASK: RAPID ASCENT (LBH, LBG)

REFERENCES: AC 60-14; FAA-S-8081-1, FAA-S-8081-2; FAA-Approved Balloon Flight Manual.

Objective. To determine that the applicant:

1. Exhibits instructional knowledge of the elements related to a rapid ascent by describing—

    a. situations requiring use of a rapid ascent.
    b. design limitations during this maneuver.
    c. potential problems with envelope distortions.

2. Exhibits instructional knowledge of common errors related to a rapid ascent by describing—

    a. exceeding design limitations of the balloon.
    b. improper response to envelope distortions.

3. Demonstrates and simultaneously explains a rapid ascent from an instructional standpoint.
4. Analyzes and corrects simulated common errors related to a rapid ascent.

B. TASK: RAPID DESCENT (LBH, LBG)

REFERENCES: AC 60-14; FAA-S-8081-1, FAA-S-8081-2; FAA-Approved Balloon Flight Manual.

Objective. To determine that the applicant:

1. Exhibits instructional knowledge of the elements related to a rapid descent by describing—

    a. situations requiring use of a rapid descent.
    b. design limitations during this maneuver.
    c. potential problems with envelope distortions.
    d. altitude required to recover from rapid descent.
    e. temperature control during rapid descent.

2. Exhibits instructional knowledge of common errors related to a rapid descent by describing—

    a. exceeding design limitations of the balloon.
    b. improper response to envelope distortions.
    c. failure to monitor envelope temperature during recovery.

3. Demonstrates and simultaneously explains a rapid descent from an instructional standpoint.
4. Analyzes and corrects simulated common errors related to a rapid descent.

C. TASK: CONTOUR FLYING (LBH, LBG)

REFERENCES: AC 60-14; FAA-S-8081-1, FAA-S-8081-2; FAA-Approved Balloon Flight Manual.

Objective. To determine that the applicant:

1. Exhibits instructional knowledge of the elements related to contour flying by describing—

    a. related safety factors and proper use of controls to maintain the desired altitude, based on terrain and obstacles.
    b. effects of wind gusts, wind shear, and thermal activity based on terrain.
    c. importance of forward surveillance.

2. Exhibits instructional knowledge of common errors related to contour flying by describing—

    a. improper use of controls to maintain desired altitude.
    b. overburning and overventing.
    c. lack of division of attention.

3. Demonstrates and simultaneously explains contour flying from an instructional standpoint.
4. Analyzes and corrects simulated common errors related to contour flying.

D. TASK: HIGH ALTITUDE FLIGHT (LBH, LBG)

REFERENCES: AC 60-14; FAA-S-8081-1, FAA-S-8081-2; FAA-Approved Balloon Flight Manual.

Objective. To determine that the applicant exhibits instructional knowledge of the elements related to high altitude flight by describing:

1. Regulatory requirements for use of oxygen.
2. Physiological effects of high altitude flight.
3. Effects of high altitude on fuel system and performance.
4. Difficulties associated with altitude control.

E. TASK: OBSTRUCTION CLEARANCE (LBH, LBG)

REFERENCES: AC 60-14; FAA-S-8081-1, FAA-S-8081-2; FAA-Approved Balloon Flight Manual.

Objective. To determine that the applicant:

1. Exhibits instructional knowledge of the elements related to obstruction clearance by describing—

    a. importance of timely recognition of obstructions, to include powerlines.
    b. techniques that can be used to avoid these obstructions.
    c. proper procedures when collision is imminent.

2. Exhibits instructional knowledge of common errors related to obstruction clearance by describing—

    a. failure to respond timely to the presence of obstructions.
    b. poor techniques for avoiding obstructions.
    c. use of improper procedures when collision is imminent.

3. Demonstrates and simultaneously explains obstruction clearance from an instructional standpoint.
4. Analyzes and corrects simulated common errors related to obstruction clearance.

X. AREA OF OPERATION: EMERGENCY OPERATIONS

NOTE: The examiner will select at least one TASK.

A. TASK: SYSTEMS AND EQUIPMENT MALFUNCTIONS

(LBH, LBG)

REFERENCES: FAA-S-8081-1, FAA-S-8081-2; FAA-Approved Balloon Flight Manual.

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

1. pilot light flameout or failure.
2. blast valve failure.
3. fuel exhaustion.
4. propane leak.
5. envelope failure.
6. any other malfunction that may occur.

B. TASK: EMERGENCY EQUIPMENT AND SURVIVAL GEAR (LBH, LBG)

REFERENCES: AC 61-21; FAA-S-8081-1, FAA-S-8081-2; FAA-Approved Balloon Flight Manual.

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

1. Location and purpose.
2. Method of operation or use.
3. Equipment appropriate for operation in various climates and types of terrain.

C. TASK: WATER LANDING (LBH, LBG)

REFERENCES: FAA-S-8081-1, FAA-S-8081-2; FAA-Approved Balloon Flight Manual.

Objective. To determine that the applicant exhibits instructional knowledge of the elements of a water landing by describing:

1. Preparation required prior to contact with water.
2. Consideration for wind effects and water current.
3. Procedure to be used for actual water landing.

D. TASK: THERMAL FLIGHT (LBH, LBG)

REFERENCES: FAA-S-8081-1, FAA-S-8081-2; FAA-Approved Balloon Flight Manual.

Objective. To determine that the applicant exhibits instructional knowledge of the elements of thermal flight by describing:

1. Conditions that can cause thermal activity.
2. Recognition and effects of thermal activity on balloon flight.
3. Procedures that can be followed when encountering thermal activity.

XI. AREA OF OPERATION: POSTFLIGHT PROCEDURES

NOTE: The examiner will select at least one TASK.

A. TASK: RECOVERY (LBH, LBG)

REFERENCES: AC 60-14; FAA-S-8081-1, FAA-S-8081-2; FAA-Approved Balloon Flight Manual.

Objective. To determine that the applicant:

1. Exhibits instructional knowledge of the elements related to recovery by describing—

    a. importance of minimizing property damage.
    b. proper supervision of groundcrew.

2. Exhibits instructional knowledge of common errors related to recovery by describing—

    a. lack of consideration for minimizing property damage.
    b. incomplete briefing and poor supervision of ground crew during recovery.

3. Demonstrates and simultaneously explains recovery from an instructional standpoint.
4. Analyzes and corrects simulated common errors related to recovery.

B. TASK: DEFLATION AND PACKING (LBH, LBG)

REFERENCES: AC 60-14; FAA-S-8081-1, FAA-S-8081-2; FAA-Approved Balloon Flight Manual.

Objective. To determine that the applicant:

1. Exhibits instructional knowledge of the elements related to deflation and packing by describing—

    a. envelope deflation and fuel system security.
    b. disassembly of envelope and basket components.
    c. proper procedures for packing and storing envelope and fuel system.
    d. conduct of postflight inspection.
    e. use of checklist.

2. Exhibits instructional knowledge of common errors related to deflation and packing by describing—

    a. hazards resulting from failure to follow recommended procedures.
    b. poor planning, improper technique, or faulty judgment in performance of deflation and packing.
    c. incorrect storage procedures.

3. Demonstrates and simultaneously explains deflation and packing from an instructional standpoint.
4. Analyzes and corrects simulated common errors related to deflation and packing.

SECTION 2

FLIGHT INSTRUCTOR
LIGHTER-THAN-AIR - AIRSHIP

Practical Test Standards

ADDITION OF AN AIRSHIP CLASS RATING (AND A LIGHTER-THAN-AIR CATEGORY RATING, IF APPROPRIATE) TO A FLIGHT INSTRUCTOR CERTIFICATE								
REQUIRED AREAS OF OPERATION	**FLIGHT INSTRUCTOR CERTIFICATE AND RATING HELD**							
	ASE	**AME**	**RH**	**RG**	**G**	**IA**	**IH**	**LB**
I	N	N	N	N	N	N	N	N
II	Y	Y	Y	Y	Y	Y	Y	Y
III	Y	Y	Y	Y	Y	Y	Y	Y
IV	N	N	N	N	N	N	N	N
V	Y	Y	Y	Y	Y	Y	Y	Y
VI	N	N	N	N	N	Y	Y	Y
VII	Y	Y	Y	Y	Y	Y	Y	Y
VIII	Y	Y	Y	Y	Y	Y	Y	Y
IX	Y	Y	Y	Y	Y	Y	Y	Y
X	Y	Y	Y	Y	Y	Y	Y	Y
XI	Y	Y	Y	Y	Y	Y	Y	Y
XII	Y	Y	Y	Y	Y	Y	Y	Y
XIII	Y	Y	Y	Y	Y	Y	Y	Y

LEGEND:

ASE	Airplane Single-Engine	IA	Instrument Airplane
AME	Airplane Multiengine	IH	Instrument Helicopter
RH	Rotorcraft Helicopter	LB	Lighter-Than-Air Balloon
RG	Rotorcraft Gyroplane	LA	Lighter-Than-Air Airship
G	Glider		

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.

CONTENTS

APPLICANT'S PRACTICAL TEST CHECKLIST

APPOINTMENT WITH EXAMINER

EXAMINER'S NAME_____

LOCATION _____

DATE/TIME_____

ACCEPTABLE AIRCRAFT

- ☐ Aircraft Documents:
  - Airworthiness Certficate
  - Registration Certificate
  - Operating Limitations
- ☐ Aircraft Maintenance Records:
  - Airworthiness Inspections
- ☐ Pilot's Operating Handbook, FAA-Approved Flight Manual
- ☐ FCC Station License

PERSONAL EQUIPMENT

- ☐ View-Limiting Device
- ☐ Practical Test Standard
- ☐ Current Aeronautical Chart
- ☐ Computer and Plotter
- ☐ Flight Plan Form
- ☐ Flight Logs
- ☐ Current AIM and Airport Facility Directory

PERSONAL RECORDS

- ☐ Identification - Photo/Signature ID
- ☐ Pilot Certficate
- ☐ Current 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 Instructor's Endorsement
- ☐ 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
FLIGHT INSTRUCTOR - LIGHTER-THAN-AIR (AIRSHIP)

APPLICANT'S NAME _____

LOCATION _____

DATE/TIME _____

I. FUNDAMENTALS OF INSTRUCTING

- ☐ A. The Learning Process
- ☐ B. The Teaching Process
- ☐ C. Teaching Methods
- ☐ D. Evaluation
- ☐ E. Flight Instructor Characteristics and Responsibilities
- ☐ F. Human Factors
- ☐ 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. Elevators and Rudders
- ☐ F. Airship Weigh-off, Ballast, and Trim
- ☐ G. Navigation and Flight Planning
- ☐ H. Night Operations
- ☐ I. Regulations and Publications
- ☐ J. Use of Minimum Equipment List
- ☐ 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

☐ Maneuver Lesson

V. PREFLIGHT PROCEDURES

☐ A. Visual Inspection
☐ B. Cockpit Management
☐ C. Engine Starting
☐ D. Unmasting and Positioning for Takeoff
☐ E. Ground Handling
☐ F. Pretakeoff Check

VI. AIRPORT OPERATIONS

☐ A. Radio Communications and ATC Light Signals
☐ B. Traffic Pattern Operations
☐ C. Airport and Runway Markings and Lighting

VII. TAKEOFFS, LANDINGS, AND GO-AROUND

☐ A. Ground Weigh-Off
☐ B. Up-Ship Takeoff
☐ C. Wheel Takeoff
☐ D. Approach and Landing
☐ E. Go-Around

VIII. FUNDAMENTALS OF FLIGHT

☐ A. Straight-and-Level Flight
☐ B. Ascents and Descents
☐ C. Level Turns

IX. PERFORMANCE MANEUVERS

☐ A. Flight To, From, and At Pressure Height
☐ B. In-Flight Weigh-Off
☐ C. Manual Pressure Control
☐ D. Static and Dynamic Trim

X. GROUND REFERENCE MANEUVERS

- ☐ A. Rectangular Course
- ☐ B. Turns Around A Point

XI. BASIC INSTRUMENT MANEUVERS

- ☐ A. Straight-and-Level Flight
- ☐ B. Straight, Constant Rate Climbs
- ☐ C. Straight, Constant Rate Descents
- ☐ D. Turns to Headings
- ☐ E. Radio Aids and Radar Services

XII. EMERGENCY OPERATIONS

- ☐ A. Aborted Takeoff
- ☐ B. Engine Failure During Takeoff
- ☐ C. Engine Failure During Flight
- ☐ D. Engine Fire During Flight
- ☐ E. Envelope Emergencies
- ☐ F. Free Ballooning
- ☐ G. Ditching and Emergency Landing
- ☐ H. Systems and Equipment Malfunctions

XIII. POSTFLIGHT PROCEDURES

- ☐ A. Masting
- ☐ B. Post-masting

I. AREA OF OPERATION: FUNDAMENTALS OF INSTRUCTING

NOTE: The examiner will select at least TASKS E and G.

A. TASK: THE LEARNING PROCESS (LAA)

REFERENCE: AC 60-14.

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

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

B. TASK: THE TEACHING PROCESS (LAA)

REFERENCE: AC 60-14.

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

1. Preparation for a lesson or an 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.

C. TASK: TEACHING METHODS (LAA)

REFERENCE: AC 60-14.

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. Programmed instruction.
6. Audio-visual instruction.

D. TASK: EVALUATION (LAA)

REFERENCE: AC 60-14.

Objective. To determine that the applicant exhibits instructional knowledge of the elements of evaluation by describing:

1. The purpose of evaluation.
2. Characteristics of effective oral questions.
3. Types of oral questions 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.

E. TASK: FLIGHT INSTRUCTOR CHARACTERISTICS AND RESPONSIBILITIES (LAA)

REFERENCE: AC 60-14.

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

1. Major considerations and qualifications which must be included in flight instructor professionalism.
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.

F. TASK: HUMAN FACTORS (LAA)

REFERENCE: AC 60-14.

Objective. To determine that the applicant exhibits instructional knowledge of the elements related to human factors 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.
5. Relationship of defense mechanisms to pilot decision making.
6. General rules which a flight instructor should follow during student training to ensure good human relations.

G. TASK: PLANNING INSTRUCTIONAL ACTIVITY (LAA)

REFERENCE: AC 60-14.

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. AREA OF OPERATION: TECHNICAL SUBJECTS

NOTE: The examiner will select TASK L and at least one other TASK.

A. TASK: AEROMEDICAL FACTORS (LAA)

REFERENCES: AC 61-21, AC 67-2; AIM.

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

1. How to obtain an appropriate medical certificate.
2. How to obtain a medical certificate in the event of a possible medical deficiency.[1]
3. Hypoxia, its symptoms, effects, and corrective action.
4. Hyperventilation, its symptoms, effects, and corrective action.
5. Middle ear and sinus problems, their causes, effects, and corrective action.
6. Spatial disorientation, its causes, effects, and corrective action.
7. Motion sickness, its causes, effects, and corrective action.
8. Effects of alcohol and drugs, and their relationship to safety.
9. Carbon monoxide poisoning, its symptoms, effects, and corrective action.
10. Effect of nitrogen excess during scuba dives and how this affects a pilot and passengers during flight.
11. Fatigue, its effects and corrective action.

1 The flight instructor should encourage a person considering flight training to obtain an appropriate medical certificate from an Aviation Medical Examiner before training is started. In the event a person's eligibility to hold a medical certificate is questionable, the flight instructor should be aware that some physical handicaps do not always prohibit activity as pilot of an aircraft. The flight instructor should advise such a person that assistance in obtaining a medical certificate is available through the cooperation of the medical examiner and the local FAA Flight Standards district office. However, this assistance is available only when requested specifically by the person seeking the medical certificate.

B. TASK: VISUAL SCANNING AND COLLISION AVOIDANCE (LAA)

REFERENCES: AC 61-21, AC 61-23, AC 67-2, 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. Various environmental conditions that degrade vision.
3. Various optical illusions.
4. “See and avoid” concept.
5. Practice of “time sharing” of attention inside and outside the cockpit.
6. Proper visual scanning technique.
7. Relationship between poor visual scanning habits and increased collision risk.
8. Proper clearing procedures.
9. Importance of knowing aircraft blind spots.
10. Situations which involve the greatest collision risk.

C. TASK: USE OF DISTRACTIONS DURING FLIGHT TRAINING (LAA)

REFERENCE: AC 61-67.

Objective. To determine that the applicant exhibits instructional knowledge of the elements of the use of distractions by describing:

1. Flight situations where pilot distraction can be a cause 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.

D. TASK: PRINCIPLES OF FLIGHT (LAA)

REFERENCE: Aerostatics.

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

1. Aerostatics—

    a. physical properties of gases.
    b. laws of Charles, Boyle, and Archimedes.
    c. application of these laws (pressure height, superheat, buoyancy).
    d. lift (gross, net, useful, disposable).

2. Aerodynamics—

    a. fineness ratio.
    b. aerodynamic pressure.
    c. dynamic lift/drag.

3. Pressure system management.

E. TASK: ELEVATORS AND RUDDERS (LAA)

REFERENCE: FAA-Approved Airship Flight Manual.

Objective. To determine that the applicant exhibits instructional knowledge of the elements of elevators and rudders by describing:

1. Purpose of each primary control.
2. Location, attachments, and system of control.
3. Effect on airship control.
4. Proper technique for use.

F. TASK: AIRSHIP WEIGH-OFF, BALLAST, AND TRIM (LAA)

REFERENCES: AC 61-21, AC 61-23, AC 91-23; FAA-Approved Airship Flight Manual.

Objective. To determine that the applicant exhibits instructional knowledge of the elements of airship weigh-off, ballast, and trim by describing:

1. Purpose of and procedure for weigh-off.
2. Effects of ballast and trim on center of buoyancy and performance.
3. Methods of ballasting and trim control.
4. Effects of temperature, pressure, and humidity prior to and during flight.
5. Determination of total weight and changes that occur due to fuel consumption.

G. TASK: NAVIGATION AND FLIGHT PLANNING (LAA)

REFERENCES: AC 61-21, AC 61-23.

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 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 consumption and weight changes.
11. Consideration for accommodating airship operations at destination airport.
12. Importance of preparing and using a flight log.
13. Importance of a weather check and the use of good judgment in making a “go/no go” decision.
14. Purpose of, and procedure used in, filing a flight plan.

H. TASK: NIGHT OPERATIONS (LAA)

REFERENCES: AC 61-21, AC 61-23; AIM ; FAA-S-8081-1.

Objective. To determine that the applicant exhibits instructional knowledge of the elements of 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. Crew briefing, including hand/voice signals and crew lighting system.
6. Engine starting procedures, including proper use of exterior lighting prior to start.
7. Unmasting, takeoff, landing, and go-around.
8. In-flight orientation.
9. Importance of verifying the airship's attitude by visual reference to flight instruments.
10. Emergencies such as electrical failure and engine malfunction.
11. Traffic patterns.
12. Masting, engine shutdown, and postflight procedures.

I. TASK: REGULATIONS AND PUBLICATIONS (LAA)

REFERENCES: FAR Parts 1, 61, 91; NTSB 830; AC 00-2; AIM; FAA-Approved Airship Manual.

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

1. FAR Parts 1, 61, 91.
2. NTSB 830.
3. Flight information publications.
4. Practical test standards.
5. FAA-approved flight manual.

J. TASK: USE OF MINIMUM EQUIPMENT LIST (RH)

REFERENCE: FAR Part 91.

Objective. To determine that the applicant exhibits instructional knowledge of the elements related to use of a minimum equipment list by describing:

1. Difference between a master minimum equipment list (MMEL) and a minimum equipment list (MEL).
2. Operations that require use of an MEL.
3. Limitations imposed on aircraft operations with inoperative instruments or equipment.
4. Requirements for letter of authorization from FAA Flight Standards District Office.
5. Supplemental type certificate.
6. Instrument and equipment exceptions.
7. Situations requiring a special flight permit.
8. Procedures for deferring maintenance on aircraft without an approved MEL.

K. TASK: NATIONAL AIRSPACE SYSTEM (LAA)

REFERENCES: FAR Part 91; AIM.

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

1. Classes and general dimensions of airspace segments.
2. Operating limitations associated with uncontrolled, controlled, special use, and other airspace.

L. TASK: LOGBOOK ENTRIES AND CERTIFICATE ENDORSEMENTS (LAA)

REFERENCES: FAR Part 61; AC 61-21, AC 61-65.

Objective. To determine that the applicant exhibits instructional knowledge of 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. AREA OF OPERATION: PRE FLIGHT PREPARATION

NOTE: The examiner will select at least one TASK.

A. TASK: CERTIFICATES AND DOCUMENTS (LAA)

REFERENCES: FAR Parts 43, 61, 91; AC 61-21, AC 61-23; FAA-Approved Airship Flight Manual.

Objective. To determine that the applicant exhibits instructional knowledge of the elements of 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. Class and duration of medical certificates.
3. Airworthiness and registration certificates.
4. Airship operations manuals.
5. Airship maintenance requirements and records.

B. TASK: WEATHER INFORMATION (LAA)

REFERENCES: AC 00-6, AC 00-45, AC 61-23, AC 61-27; 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 means of obtaining weather information.
3. Use of weather reports, forecasts, and charts.
4. Use of PIREP's, SIGMET's, and AIRMET's.
5. Recognition of aviation weather hazards to include wind shear.
6. Factors to be considered in making a “go/no-go” decision.

C. TASK: OPERATION OF SYSTEMS (LAA)

REFERENCE: FAA-Approved Airship Flight Manual.

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

1. Surface control systems.
2. Flight instruments and associated controls.
3. Landing gear.
4. Engines.
5. Propellers.
6. Fuel and oil system.
7. Electrical system.
8. Envelope/ballonet pressure systems.
9. Environmental system.
10. Avionics and auxiliary equipment.
11. Any system unique to the airship flown.

D. TASK: PERFORMANCE AND LIMITATIONS (LAA)

REFERENCE: FAA-Approved Airship 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 trim condition.
2. Use of performance charts, tables, and other data in determining performance in various phases of flight.
3. Effects of the following conditions on airship performance—

    a. weights and lift (static and dynamic).
    b. relationship of ballonet fullness to pressure height.
    c. superheat on percent of fullness.
    d. average ballonet volume with respect to total envelope volume.
    e. loss of gross lift when above pressure height.
    f. leaks in ballonets and envelope.
    g. gas purity on lift.
    h. temperature inversion on descents.
    I. superheat on lift.
    j. air temperature changes.
    k. humidity, altitude, and temperature on lift.
    l. maximum rate climb and descent limitations.

IV. AREA OF OPERATION: PREFLIGHT LESSON ON A MANEUVER TO BE PERFORMED IN FLIGHT

NOTE: Examiner will 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.

TASK: MANEUVER LESSON (LAA)

REFERENCES: AC 60-14; FAA-S-8081-1, FAA-S-8081-2; FAA-Approved Airship Flight Manual.

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

1. Stating the purpose.
2. Giving an accurate, comprehensive oral description of the maneuver, including the elements and common errors.
3. Using instructional aids, as appropriate.
4. Describing the recognition, analysis, and correction of common errors.

V. AREA OF OPERATION: PREFLIGHT PROCEDURES

NOTE: The examiner will select at least one TASK.

A. TASK: VISUAL INSPECTION (LAA)

REFERENCES: AC 60-14, AC 61-21; FAA-S-8081-1, FAA-S-8081-2; FAA-Approved Airship Flight Manual.

Objective. To determine that the applicant:

1. Exhibits instructional knowledge of the elements of a visual inspection, as applicable to the airship used for the practical test, by describing—

    a. reasons for the visual inspection, items that should be inspected, and how defects are detected.
    b. importance of using appropriate checklist.
    c. how to determine fuel and oil quantity.
    d. methods used to determine fuel and oil contamination.
    e. detection of fuel and oil leaks.
    f. inspection of flight controls and pressure systems.
    g. detection of visible structural damage.
    h. importance of proper loading and securing of baggage and equipment.
    i. use of sound judgment in determining whether airship is in condition for safe flight.

2. Exhibits instructional knowledge of common errors related to a visual inspection by describing—

    a. failure to use or the improper use of checklist.
    b. hazards which may result from allowing distractions to interrupt a visual inspection.
    c. inability to recognize discrepancies.
    d. failure to ensure servicing with the proper fuel and oil.

3. Demonstrates and simultaneously explains a visual inspection from an instructional viewpoint.

B. TASK: COCKPIT MANAGEMENT (LAA)

REFERENCES: AC 60-14, AC 61-21; FAA-S-8081-1, FAA-S-8081-2; FAA-Approved Airship Flight Manual.

Objective. To determine that the applicant:

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

    a. proper arranging and securing of essential materials and equipment in the cockpit.
    b. proper and orderly maintenance of records reflecting progress of the flight.
    c. proper use and/or adjustment of such items as safety belts, shoulder harnesses, rudder pedals, and seats.
    d. occupant briefing on emergency procedures and use of safety belts.

2. Exhibits instructional knowledge of common errors related to cockpit management by describing—

    a. failure to place and secure essential materials and equipment for easy access during flight.
    b. failure to maintain accurate records essential to the progress of the flight.
    c. improper adjustment of equipment and controls.

3. Demonstrates and simultaneously explains cockpit management from an instructional standpoint.

C. TASK: ENGINE STARTING (LAA)

REFERENCES: AC 60-14, AC 61-21, AC 61-23, AC 91-13, AC 91-55; FAA-S-8081-1, FAA-S-8081-2; FAA-Approved Airship Flight Manual.

Objective. To determine that the applicant:

1. Exhibits instructional knowledge of the elements of engine starting, as applicable to the airship used for the practical test, by describing—

    a. safety precautions related to starting.
    b. use of external power.
    c. effect of atmospheric conditions on starting.
    d. importance of following the appropriate checklist.
    e. adjustment of engine controls during start.
    f. prevention of movement during and after start.

2. Exhibits instructional knowledge of common errors related to engine starting by describing—

    a. failure to use or improper use of the checklist.
    b. excessively high RPM after starting.
    c. improper preheat of the engine(s) during severe cold weather conditions.
    d. failure to assure proper clearance of the propeller(s).

3. Demonstrates and simultaneously explains engine starting from an instructional standpoint.

D. TASK: UNMASTING AND POSITIONING FOR TAKEOFF (LAA)

REFERENCES: AC 60-14; FAA-S-8081-1, FAA-S-8081-2; FAA-Approved Airship Flight Manual.

Objective. To determine that the applicant:

1. Exhibits instructional knowledge of the elements of unmasting and positioning for takeoff by describing—

    a. ground crew briefing and coordination of hand and voice signals.
    b. action necessary to prevent airship from riding up on mast.
    c. importance of ensuring proper envelope pressure and trim before coming off mast.
    d. proper use of ground crew and airship controls to move away from mast and into position for takeoff.
    e. importance of division of attention and possible immediate takeoff after coming off mast.

2. Exhibits instructional knowledge of common errors related to unmasting and positioning for takeoff by describing—

    a. failure to act timely when coming off mast.
    b. improper procedure for checking envelope pressure and trim prior to coming off mast.
    c. failure to use proper hand and voice signals with ground crew.
    d. poor division of attention.

3. Demonstrates and simultaneously explains unmasting and positioning for takeoff from an instructional standpoint.

E. TASK: GROUND HANDLING (LAA)

REFERENCES: AC 60-14; FAA-S-8081-1, FAA-S-8081-2; FAA-Approved Airship Flight Manual.

Objective. To determine that the applicant:

1. Exhibits instructional knowledge of the elements of ground handling, as applicable to the airship used for the practical test, by describing—

    a. number of crew required for conditions, status of airship, and method of handling.
    b. proper coordination of hand and voice signals with ground crew.
    c. recognition of undesirable movements and taking appropriate action.
    d. maintaining proper envelope pressure and trim.
    e. maintaining proper position while in control of ground crew.

2. Exhibits instructional knowledge of common errors related to ground handling by describing—

    a. poor planning regarding number of crew required for conditions.
    b. failure to use proper hand and voice signals with ground crew.
    c. improper envelope pressure and trim.
    d. failure to control airship movement due to wind shifts.

3. Demonstrates and simultaneously explains ground handling from an instructional standpoint.

F. TASK: PRETAKEOFF CHECK (LAA)

REFERENCES: AC 60-14, AC 61-21; FAA-S-8081-1, FAA-S-8081-2; FAA-Approved Airship Flight Manual.

Objective. To determine that the applicant:

1. Exhibits instructional knowledge of the elements of a pretakeoff check by describing—

    a. division of attention inside and outside the cockpit.
    b. importance of following checklist and responding to each checklist item.

c. reason for ensuring suitable engine temperatures and pressures for run-up and takeoff.
d. method used to determine that the airship is in safe operating condition.
e. importance of reviewing takeoff performance, expected takeoff distance, and emergency procedures, to include passenger briefing.
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.

2. Exhibits instructional knowledge of common errors related to a pretakeoff check by describing—

a. failure to use or improper use of checklist.
b. acceptance of marginal engine performance.
c. improper check of the flight controls.
d. hazards of failure to review takeoff and emergency procedures.
e. failure to check for hazards and other traffic.

3. Demonstrates and simultaneously explains a pretakeoff check from an instructional standpoint.
4. Analyzes and corrects simulated common errors related to a pretakeoff check.

VI. AREA OF OPERATION: AIRPORT OPERATIONS

NOTE: The examiner will select at least one TASK.

A. TASK: RADIO COMMUNICATIONS AND ATC LIGHT SIGNALS (LAA)

REFERENCES: AC 61-21, AC 61-23; AIM; FAA-S-8081-1, FAA-S-8081-2.

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. 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 procedure and phraseology when using radio voice communications.
    c. failure to acknowledge, or properly comply with, ATC clearances and other instructions.
    d. failure to understand, or to properly comply with, ATC light signals.

B. TASK: TRAFFIC PATTERN OPERATIONS (LAA)

REFERENCES: AC 61-21, AC 61-23; AIM; FAA-S-8081-1, FAA-S-8081-2.

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 instructions and rules.
    c. elimination of conflict with other traffic.
    d. how to maintain desired ground track.
    e. wind shear and wake turbulence.
    f. orientation with runway or landing area to be used.
    g. how to establish a final approach at an appropriate distance from the runway or landing area.
    h. use of checklist.

2. Exhibits instructional knowledge of common errors related to traffic pattern operations 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. poor altitude or airspeed control.

3. Demonstrates and simultaneously explains traffic pattern operations from an instructional standpoint.
4. Analyzes and corrects simulated common errors related to traffic pattern operations.

C. TASK: AIRPORT AND RUNWAY MARKINGS AND LIGHTING (LAA)

REFERENCES: AC 61-21, AC61-23; AIM; FAA-S-8081-1, FAA-S-8081-2.

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

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

VII. AREA OF OPERATION: TAKEOFFS, LANDINGS, AND GO-AROUND

NOTE: The examiner will select at least two TASKS.

A. TASK: GROUND WEIGH-OFF (LAA)

REFERENCES: AC 60-14; FAA-S-8081-1, FAA-S-8081-2; FAA-Approved Airship Flight Manual.

Objective. To determine that the applicant:

1. Exhibits instructional knowledge of the elements of a ground weigh-off by describing—

    a. determination of static and trim condition.
    b. use of elevator to maintain zero inclination and rudder to keep airship into the wind.
    c. proper use of engines to prevent fore-and-aft surge.
    d. check of weigh-off and trim with neutral elevator when HANDS OFF command is given.
    e. ballast requirements based on conditions and type of flight contemplated without exceeding weight limits.

2. Exhibits instructional knowledge of common errors related to a ground weigh-off by describing—

    a. improper use of engines to assist ground crew in preventing surging fore-and-aft.
    b. improper use of elevator to maintain approximately a zero-degree inclination.
    c. improper use of rudder to keep airship into the wind.
    d. failure to ballast properly.

3. Demonstrates and simultaneously explains a ground weigh-off from an instructional standpoint.
4. Analyzes and corrects simulated common errors related to a ground weigh-off.

B. TASK: UP-SHIP TAKEOFF (LAA)

REFERENCES: AC 60-14; FAA-S-8081-1, FAA-S-8081-2; FAA-Approved Airship Flight Manual.

Objective. To determine that the applicant:

1. Exhibits instructional knowledge of the elements of an up-ship takeoff by describing—

    a. determination of heaviness limitations, weather factors, and other conditions that permit an up-ship takeoff.
    b. requirement for sufficient ground personnel to ensure adequate upward velocity.
    c. use of proper hand and voice signals with ground crew.
    d. proper use of rudder and engines.
    e. requirement not to exceed takeoff heaviness limits.
    f. importance of up-elevator as ground crew lifts airship.
    g. maintenance of noseup condition.
    h. timely application of power.

2. Exhibits instructional knowledge of common errors related to an up-ship takeoff by describing—

    a. failure to have sufficient ground personnel available.
    b. improper use of hand and voice signals with ground crew.
    c. failure to consider airship heaviness limits.
    d. improper timing of up-elevator and power application.
    e. failure to establish a noseup attitude.

3. Demonstrates and simultaneously explains an up-ship takeoff from an instructional standpoint.
4. Analyzes and corrects simulated common errors related to an up-ship takeoff.

C. TASK: **WHEEL TAKEOFF** (LAA)

REFERENCES: AC 60-14; FAA-S-8081-1, FAA-S-8081-2; FAA-Approved Airship Flight Manual.

Objective. To determine that the applicant:

1. Exhibits instructional knowledge of the elements of a wheel takeoff by describing—

    a. determination that sufficient takeoff space is available, considering wind condition and field surface.
    b. use of proper hand and voice signals with ground crew.
    c. importance of airship trim.
    d. proper technique for power application.
    e. use of elevators to assist airship in lifting dynamically.
    f. maintenance of directional control and inclination.

2. Exhibits instructional knowledge of common errors related to a wheel takeoff by describing—

    a. failure to determine that sufficient space is available for takeoff.
    b. failure to use proper hand and voice signals with ground crew.
    c. improper trim technique.
    d. improper use of power during takeoff run.
    e. failure to use proper technique for heavy or light airships in nose-heavy or tail-heavy conditions.
    f. failure to maintain proper inclination during takeoff.

3. Demonstrates and simultaneously explains a wheel takeoff from an instructional standpoint.
4. Analyzes and corrects simulated common errors related to a wheel takeoff.

D. TASK: APPROACH AND LANDING (LAA)

REFERENCES: AC 60-14; FAA-S-8081-1, FAA-S-8081-2; FAA-Approved Airship Flight Manual.

Objective. To determine that the applicant:

1. Exhibits instructional knowledge of the elements of an approach and landing by describing—

    a. purpose of in-flight weigh-off prior to commencing approach.
    b. different procedures to use for landing light and heavy airships.
    c. proper coordination of flight and power controls.
    d. landing at a speed appropriate for approaching ground crew.
    e. use of checklist.

2. Exhibits instructional knowledge of common errors related to an approach and landing by describing—

    a. improper use of information from in-flight weigh-off.
    b. failure to establish a smooth, stabilized approach.
    c. failure to recognize different procedures to use for landing light and heavy airships.
    d. landing at a speed inappropriate for ground crew or wind conditions.

3. Demonstrates and simultaneously explains an approach and landing from an instructional standpoint.
4. Analyzes and corrects simulated common errors related to an approach and landing.

E. TASK: GO-AROUND (LAA)

REFERENCES: AC 60-14; FAA-S-8081-1, FAA-S-8081-2; FAA-Approved Airship 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. consideration for light or heavy airship.
    d. importance of coordinated use of power and flight controls to effect a smooth transition to climb attitude.
    e. use of checklist.

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. poor application of power and flight controls.
    d. improper trim technique.

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. AREA OF OPERATION: FUNDAMENTALS OF FLIGHT

NOTE: The examiner will select at least one TASK.

A. TASK: STRAIGHT-AND-LEVEL FLIGHT (LAA)

REFERENCES: AC 60-14; FAA-S-8081-1, FAA-S-8081-2; FAA-Approved Airship Flight Manual.

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. outside and instrument references used for pitch and power control; cross-check and interpretation of those references; and the control technique used.
    d. proper control technique to maintain heading and altitude in both smooth and turbulent air.
    e. effects of dynamic trim in flight.

2. Exhibits instructional knowledge of common errors related to straight-and-level flight by describing—

    a. failure to cross-check and correctly interpret outside and instrument references.
    b. rough or uncoordinated control technique.
    c. failure to understand dynamic trim effects.
    d. excessive pitching and yawing in turbulent air.
    e. over-control of rudder to maintain heading.

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.

B. TASK: ASCENTS AND DESCENTS (LAA)

REFERENCES: AC 60-14; FAA-S-8081-1, FAA-S-8081-2; FAA-Approved Airship Flight Manual.

Objective. To determine that the applicant:

1. Exhibits instructional knowledge of the elements of ascents and descents by describing—

    a. effect and use of flight controls.
    b. the Integrated Flight Instruction method.
    c. outside and instrument references used for pitch and power control; cross-check and interpretation of those references; and the control technique used.
    d. technique for achieving precision in pressure control.
    e. technique for smooth and precise altitude changes.

2. Exhibits instructional knowledge of common errors related to ascents and descents by describing—

    a. failure to cross-check and correctly interpret outside and instrument references.
    b. rough or uncoordinated control technique.
    c. failure to maintain gas pressure above or below specified limits (as appropriate).

3. Demonstrates and simultaneously demonstrates ascents and descents from an instructional standpoint.
4. Analyzes and corrects simulated common errors related to ascents and descents.

C. TASK: LEVEL TURNS (LAA)

REFERENCES: AC 60-14; FAA-S-8081-1, FAA-S-8081-2; FAA-Approved Airship Flight Manual.

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. outside and instrument references used for pitch and power control; cross-check and interpretation of those references; and the control technique used.
    d. proper use of elevator and rudder to control effects of rolling tendency, loss of dynamic lift, and drift.
    e. maintenance of selected altitude.
    f. coordination of turn completion technique.

2. Exhibits instructional knowledge of common errors related to level turns by describing—

    a. failure to cross-check and correctly interpret outside and instrument references.
    b. rough or uncoordinated control technique.
    c. failure to achieve or maintain dynamic trim.
    d. improper use of rudder to control drift angle.
    e. improper use of elevator to control effects of loss of dynamic lift and rolling tendency.
    f. poor altitude control throughout turn.

3. Demonstrates and simultaneously explains level turns from an instructional standpoint.
4. Analyzes and corrects simulated common errors related to level turns.

IX. AREA OF OPERATION: PERFORMANCE MANEUVERS

NOTE: The examiner will select at least one TASK.

A. TASK: FLIGHT TO, FROM, AND AT PRESSURE HEIGHT (LAA)

REFERENCES: AC 60-14, AC 61-21; FAA-S-8081-1, FAA-S-8081-2; FAA-Approved Airship Flight Manual.

Objective. To determine that the applicant:

1. Exhibits instructional knowledge of the elements of flight to, from, and at pressure height by describing—

    a. purpose of flight to pressure height.
    b. procedure and instruments used to determine approach and reaching pressure height.
    c. Consideration of atmospheric effects during flight at pressure height.
    d. envelope pressure control at pressure height.
    e. procedure for descending from pressure height.

2. Exhibits instructional knowledge of common errors related to flight to, from, and at pressure height by describing—

    a. poor procedure and use of instruments during approach to and arrival at pressure height.
    b. failure to understand atmospheric effects during flight at pressure height.
    c. failure to monitor envelope pressure.
    d. improper procedure for descending from pressure height.

3. Demonstrates and simultaneously explains flight to, from, and at pressure height from an instructional standpoint.
4. Analyzes and corrects simulated common errors related to flight to, from, and at pressure height.

B. TASK: IN-FLIGHT WEIGH-OFF (LAA)

REFERENCES: AC 60-14; FAA-S-8081-1, FAA-S-8081-2; FAA-Approved Airship Flight Manual.

Objective. To determine that the applicant:

1. Exhibits instructional knowledge of the elements of an in-flight weigh-off by describing—

    a. purpose of a weigh-off.
    b. considerations for altitude, wind direction, and static condition.
    c. determination of airship attitude and gas pressure.
    d. determination of trim and static condition relative to landing.

2. Exhibits instructional knowledge of common errors related to an in-flight weigh-off by describing—

    a. failure to initiate procedure at appropriate altitude or heading into wind.
    b. failure to attain proper airspeed to conduct weigh-off.
    c. improper procedure in estimating trim and static condition.
    d. improper adjustment of trim for landing.

3. Demonstrates and simultaneously explains an in-flight weigh-off from an instructional standpoint.
4. Analyzes and corrects simulated common errors related to an in-flight weigh-off.

C. TASK: MANUAL PRESSURE CONTROL (LAA)

REFERENCES: AC 60-14; FAA-S-8081-1, FAA-S-8081-2; FAA-Approved Airship Flight Manual.

Objective. To determine that the applicant:

1. Exhibits instructional knowledge of the elements of manual pressure control by describing—

    a. procedure for manual pressure control recommended by the manufacturer.
    b. proper control of ballonet air balance by means of air valve operation.
    c. monitoring operation of pressure valves and system.
    d. maintenance of a constant altitude.

2. Exhibits instructional knowledge of common errors related to manual pressure control by describing—

    a. failure to follow procedure recommended by the manufacturer.
    b. failure to set or maintain recommended ballonet/envelope differential pressure.

3. Demonstrates and simultaneously explains manual pressure control from an instructional standpoint.
4. Analyzes and corrects simulated common errors related to manual pressure control.

D. TASK: STATIC AND DYNAMIC TRIM (LAA)

REFERENCES: AC 60-14; FAA-S-8081-1, FAA-S-8081-2; FAA-Approved Airship Flight Manual.

Objective. To determine that the applicant:

1. Exhibits instructional knowledge of the elements of static and dynamic trim by describing—

    a. measurement of static trim.
    b. how desired static trim is achieved.
    c. relationship between lift and load conditions, static trim, and center of buoyancy.
    d. factors related to the establishment of dynamic trim in various flight conditions.

2. Exhibits instructional knowledge of common errors related to the establishment of a desired static and dynamic trim condition by describing—

    a. errors or lack of competence in the measurement of static trim.
    b. improper procedure in adjusting static trim.
    c. improper technique in adjusting dynamic trim.

3. Demonstrates and simultaneously explains static and dynamic trim from an instructional standpoint.
4. Analyzes and corrects simulated common errors related to static and dynamic trim.

X. AREA OF OPERATION: GROUND REFERENCE MANEUVERS

NOTE: The examiner will select at least one TASK.

A. TASK: RECTANGULAR COURSE (LAA)

REFERENCES: AC 60-14, AC 61-21; FAA-S-8081-1, FAA-S-8081-2; FAA-Approved Airship Flight Manual.

Objective. To determine that the applicant:

1. Exhibits instructional knowledge of the elements of a rectangular course by describing—

    a. selection of a suitable altitude and ground reference.
    b. orientation, division of attention, and planning.
    c. wind drift correction in straight and turning flight.
    d. maintenance of selected altitude.
    e. division of attention between airship control and desired ground track.
    f. timing of turn entries and turn completions.

2. Exhibits instructional knowledge of common errors related to a rectangular course by describing—

    a. poor planning, orientation, or division of attention.
    b. failure to maintain selected altitude.
    c. improper correction for wind drift.

3. Demonstrates and simultaneously explains a rectangular course from an instructional standpoint.
4. Analyzes and corrects simulated common errors related to a rectangular course.

B. TASK: TURNS AROUND A POINT (LAA)

REFERENCES: AC 60-14, AC 61-21; FAA-S-8081-1, FAA-S-8081-2; FAA-Approved Airship Flight Manual.

Objective. To determine that the applicant:

1. Exhibits instructional knowledge of the elements of turns around a point by describing—

    a. selection of a suitable altitude and ground reference point.
    b. orientation, division of attention, and planning.
    c. wind drift correction in turning flight.
    d. maintenance of selected altitude.
    e. division of attention between airship control and desired ground track.

2. Exhibits instructional knowledge of common errors related to turns around a point by describing—

    a. poor planning, orientation, or division of attention.
    b. failure to maintain selected altitude.
    c. improper correction for wind drift.

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.

XI. AREA OF OPERATION: BASIC INSTRUMENT MANEUVERS

NOTE: The examiner will select at least one TASK.

A. TASK: STRAIGHT-AND-LEVEL FLIGHT (LAA)

REFERENCES: AC 60-14, AC 61-27; FAA-S-8081-4.

Objective. To determine that the applicant:

1. Exhibits instructional knowledge of the elements of straight-and-level flight, solely by reference to instruments, by describing—
    a. instrument cross-check, instrument interpretation, and aircraft control.
    b. instruments used for pitch and power control during entry, climb, and level-off and how these instruments are used to maintain heading and airspeed.
    c. trim technique.
2. Exhibits instructional knowledge of common errors related to straight-and-level flight solely by reference to instruments by describing—
    a. “fixation,” “omission,” and “emphasis” errors during instrument cross-check.
    b. improper instrument interpretation.
    c. improper application of controls.
    d. failure to establish proper pitch and power adjustments during the maneuver.
    e. faulty trim technique.
3. Demonstrates and simultaneously explains straight-and-level flight, solely by reference to instruments, from an instructional standpoint.
4. Analyzes and corrects simulated common errors related to straight-and-level flight, solely by reference to instruments.

B. TASK: STRAIGHT, CONSTANT RATE CLIMBS (LAA)

REFERENCES: AC 60-14, AC 61-27; FAA-S-8081-4.

Objective. To determine that the applicant:

1. Exhibits instructional knowledge of the elements of straight, constant rate climbs, solely by reference to instruments, by describing—

    a. instrument cross-check, instrument interpretation, and aircraft control.
    b. instruments used for pitch and power control during entry, climb, and level-off and how these instruments are used to maintain heading and rate of climb.
    c. trim technique.

2. Exhibits instructional knowledge of common errors related to straight, constant rate climbs, solely by reference to instruments, by describing—

    a. “fixation,” “omission,” and “emphasis” errors during instrument cross-check.
    b. improper instrument interpretation.
    c. improper application of controls.
    d. failure to establish proper pitch and power adjustments during the maneuver.
    e. improper entry or level-off technique.
    f. faulty trim technique.

3. Demonstrates and simultaneously explains a straight, constant rate climb, solely by reference to instruments, from an instructional standpoint.
4. Analyzes and corrects simulated common errors related to straight, constant rate climbs, solely by reference to instruments.

C. TASK: STRAIGHT, CONSTANT RATE DESCENTS (LAA)

REFERENCES: AC 60-14, AC 61 -27; FAA-S-8081-4.

Objective. To determine that the applicant:

1. Exhibits instructional knowledge of the elements of straight, constant rate descents, solely by reference to instruments, by describing—

    a. instrument cross-check, instrument interpretation, and aircraft control.
    b. instruments used for pitch and power control during entry, descent, and level-off and how these instruments are used to maintain heading and rate of descent.
    c. trim technique.

2. Exhibits instructional knowledge of common errors related to straight, constant rate descents, solely by reference to instruments, by describing—

    a. “fixation,” “omission,” and “emphasis” errors during instrument cross-check.
    b. improper instrument interpretation.
    c. improper application of controls.
    d. failure to establish proper pitch and power adjustments during the maneuver.
    e. improper entry or level-off technique.
    f. faulty trim technique.

3. Demonstrates and simultaneously explains a straight, constant rate descent, solely by reference to instruments, from an instructional standpoint.
4. Analyzes and corrects simulated common errors related to straight, constant rate descents, solely by reference to instruments.

D. TASK: TURNS TO HEADINGS (LAA)

REFERENCES: AC 60-14, AC 61-27; FAA-S-8081-4.

Objective. To determine that the applicant:

1. Exhibits instructional knowledge of the elements of turns to headings, solely by reference to instruments, by describing—

    a. instrument cross-check, instrument interpretation, and aircraft control.
    b. instruments used for pitch and power control during entry, turn, and rollout, and how these instruments are used.
    c. trim technique.

2. Exhibits instructional knowledge of common errors related to turns to headings, solely by reference to instruments, by describing—

    a. “fixation,” “omission,” and “emphasis” errors during instrument cross-check.
    b. improper instrument interpretation.
    c. improper control applications.
    d. failure to establish proper pitch and power adjustments during the turns.
    e. improper entry or rollout technique.
    f. faulty trim technique.

3. Demonstrates and simultaneously explains turns to headings, solely by reference to instruments, from an instructional standpoint.
4. Analyzes and corrects simulated common errors related to turns to headings, solely by reference to instruments.

E. TASK: RADIO AIDS AND RADAR SERVICES (LAA)

REFERENCES: AC 60-14, AC 61-21, AC 61-27; FAA-S-8081-4.

Objective. To determine that the applicant:

1. Exhibits instructional knowledge of the elements related to the emergency use of radio aids and radar services by describing—

    a. situations that would require the use of radio aids or radar assistance.
    b. available radio aids and radar services.
    c. how to determine minimum safe altitude.
    d. procedures to be followed when using a radio aid or radar services.

2. Exhibits instructional knowledge of common errors related to the emergency use of radio aids and radar services by describing—

    a. hazards of delay in using a radio aid or in obtaining radar services.
    b. failure to properly control the airship.
    c. failure to properly select, tune, or identify a radio facility.
    d. failure to maintain a safe altitude.

3. Demonstrates and simultaneously explains the emergency use of radio aids or radar services from an instructional standpoint.
4. Analyzes and corrects simulated common errors related to the emergency use of radio aids and radar services.

XII. AREA OF OPERATION: EMERGENCY OPERATIONS

NOTE: The examiner will select at least one TASK.

A. TASK: ABORTED TAKEOFF (LAA)

REFERENCES: AC 60-14; FAA-S-8081-2; FAA-Approved Airship Flight Manual.

Objective. To determine that the applicant:

1. Exhibits instructional knowledge of the elements of an aborted takeoff by describing—
    a. conditions which lead to the decision to abort a takeoff.
    b. recommended procedures concerning reduction of power and application of reverse thrust (if applicable).
    c. importance of maintaining a straight course into the wind.
    d. importance of timely communication with ground crew.
2. Exhibits instructional knowledge of common errors related to an aborted takeoff by describing—
    a. results of poor judgment in making an aborted takeoff decision.
    b. lack of timely communication with ground crew.
    c. failure to follow manufacturer's recommended procedure.
3. Demonstrates and simultaneously explains an aborted takeoff from an instructional standpoint.
4. Analyzes and corrects simulated common errors related to an aborted takeoff.

B. TASK: ENGINE FAILURE DURING TAKEOFF (LAA)

REFERENCES: AC 60-14; FAA-S-8081-1, FAA-S-8081-2; FAA-Approved Airship Flight Manual.

Objective. To determine that the applicant:

1. Exhibits instructional knowledge of the elements of an engine failure during takeoff by describing—

    a. importance of maintaining heading into the wind.
    b. if heavy, dropping ballast (if applicable), and landing straight ahead.
    c. if light, free-ballooning to a safe altitude, and establishing equilibrium and trim.
    d. following checklist for engine restart or shutdown.

2. Exhibits instructional knowledge of common errors related to engine failure during takeoff by describing—

    a. lack of timely decision to abort or continue takeoff.
    b. failure to consider light/heavy condition.
    c. failure to follow manufacturer's recommended procedures (checklist).

3. Demonstrates and simultaneously explains engine failure during takeoff from an instructional standpoint.
4. Analyzes and corrects simulated common errors related to engine failure during takeoff.

C. TASK: ENGINE FAILURE DURING FLIGHT (LAA)

REFERENCES: AC 60-14, FAA-S-8081-1, FAA-S-8081-2; FAA-Approved Airship Flight Manual.

Objective. To determine that the applicant:

1. Exhibits instructional knowledge of the elements of engine failure during flight by describing—

    a. determination for engine failure.
    b. restart procedure.
    c. why a heavy airship should be brought to near-equilibrium, if practical, when one engine fails.
    d. procedures for free-ballooning when both engines fail.
    e. importance of following procedures recommended by manufacturer.

2. Exhibits instructional knowledge of common errors related to engine failure during flight by describing—

    a. failure to attempt determination of engine failure.
    b. use of improper engine restart procedure.
    c. improper determination of static condition.
    d. failure to follow proper procedure for free-ballooning, if both engines fail.
    e. failure to follow manufacturer's recommended procedures.

3. Demonstrates and simultaneously explains engine failure during flight from an instructional standpoint.
4. Analyzes and corrects simulated common errors related to engine failure during flight.

D. TASK: ENGINE FIRE DURING FLIGHT (LAA)

REFERENCES: AC 60-14; FAA-S-8081-2; FAA-Approved Airship Flight Manual.

Objective. To determine that the applicant:

1. Exhibits instructional knowledge of the elements of an engine fire during flight by describing—

    a. procedure for applying full power attempting to blow out fire in affected engine.
    b. requirement to shut down engine, using checklist, if fire persists.
    c. procedure to extinguish fire.
    d. preparation for landing at earliest opportunity.

2. Exhibits instructional knowledge of common errors related to engine fire during flight by describing—

    a. failure to attempt “blowout” of fire by using full power.
    b. failure to follow checklist for complete engine shutdown.
    c. lack of preparation for landing as soon as practical.

3. Demonstrates and simultaneously explains engine fire during flight from an instructional standpoint.
4. Analyzes and corrects simulated common errors related to engine fire during flight.

E. TASK: ENVELOPE EMERGENCIES (LAA)

REFERENCES: AC 60-14; FAA-S-8081-1; FAA-Approved Airship Flight Manual.

Objective. To determine that the applicant exhibits instructional knowledge of the elements of envelope emergencies by describing:

1. Results of various types of ballonet/envelope rips or damage.
2. Excessive helium loss in flight.
3. Rain/icing on envelope.
4. Emergency valve operations
5. Emergency air-to-helium operations
6. Recommended procedures to use when experiencing a specific envelope emergency.

F. TASK: FREE BALLOONING (LAA)

REFERENCES: AC 60-14, FAA-S-8081-1, FAA-S-8081-2; FAA-Approved Airship Flight Manual.

Objective. To determine that the applicant:

1. Exhibits instructional knowledge of the elements of free ballooning by describing—

    a. importance of assessing airship static condition and determining ballast needs.
    b. requirement to turn off all nonessential electrical equipment.
    c. determining cause of engine failure and attempting restart.
    d. selection of landing site and communications with ground crew.
    e. reasons for minimum helium valving and ballast dumping during descent.

2. Exhibits instructional knowledge of common errors related to free ballooning by describing—

    a. failure to assess static condition and reach equilibrium.
    b. failure to turn off all nonessential equipment and attempt restart.

c. poor judgment in selection of landing site.
d. failure to follow manufacturer's recommended procedures.
e. poor judgment and technique in helium valving and ballast dumping.

3. Demonstrates and simultaneously explains free ballooning from an instructional standpoint.
4. Analyzes and corrects simulated common errors related to free ballooning.

G. TASK: DITCHING AND EMERGENCY LANDING (LAA)

REFERENCES: AC 60-14; FAA-S-8081-1, FAA-S-8081-2; FAA-Approved Airship Flight Manual.

Objective. To determine that the applicant:

1. Exhibits instructional knowledge of the elements of ditching and emergency landing by describing—

   a. importance of heading airship into the wind (if power is available).
   b. proper procedures to follow for ditching and emergency landing, including fuel and ballast dumping.
   c. importance of following checklist.

2. Exhibits instructional knowledge of common errors related to ditching and emergency landing by describing—

   a. failure to maintain airship heading into wind.
   b. Improper preparation of passengers and equipment for ditching.
   c. failure to follow checklist.

3. Demonstrates and simultaneously explains ditching and emergency landing from an instructional standpoint.
4. Analyzes and corrects simulated common errors related to ditching and emergency landing.

H. TASK: SYSTEMS AND EQUIPMENT MALFUNCTIONS (LAA)

REFERENCES: AC 60-14; FAA-S-8081-1, FAA-S-8081-2; FAA-Approved Airship Flight Manual.

NOTE: The examiner will not simulate a system or equipment malfunction in a manner that may jeopardize safe flight or result in possible damage to the airship.

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

1. Control system/actuator malfunction.
2. Fuel starvation.
3. Electrical system malfunction.
4. Propeller malfunction.
5. Pressure system malfunctions.

XIII. AREA OF OPERATION: POSTFLIGHT PROCEDURES

NOTE: The examiner will select at least one TASK.

A. TASK: MASTING (LAA)

REFERENCES: AC 60-14, AC 61-21; FAA-S-8081-1, FAA-S-8081-2; FAA-Approved Airship Flight Manual.

Objective. To determine that the applicant:

1. Exhibits instructional knowledge of the elements of masting by describing—

    a. proper coordination and use of hand and voice signals with ground crew.
    b. importance of airspeed control and positioning.
    c. smooth, coordinated use of power and flight controls.
    d. importance of proper trim when approaching mast.

2. Exhibits instructional knowledge of common errors related to masting by describing—

    a. failure to use proper hand and voice signals with ground crew.
    b. rough, uncoordinated use of controls.
    c. incorrect trim adjustment technique.
    d. poor airspeed control and positioning technique.

3. Demonstrates and simultaneously explains masting from an instructional standpoint.
4. Analyzes and corrects simulated common errors related to masting.

B. **POST-MASTING** (LAA)

REFERENCES: AC 60-14, FAA-S-8081-1, FAA-S-8081-2; FAA-Approved Airship Flight Manual.

Objective. To determine that the applicant exhibits instructional knowledge of the elements related to post-masting, appropriate to the airship used for the practical test, by describing:

1. Engine shutdown procedures.
2. Proper securing of all controls and equipment.
3. Equipment requirements for maintaining envelope pressure.
4. Mast security relative to weather conditions.
5. Weather considerations with airship on mast.