FAA-S-8081-17A

U.S. Department
of Transportation

**Federal Aviation
Administration**

Private Pilot

Practical Test Standards

for

Lighter-Than-Air Category

November 2023

FLIGHT STANDARDS SERVICE
Washington, DC 20591

Foreword

FAA-S-8081-17A, Private Pilot Practical Test Standards for Lighter-Than-Air Category is published by the FAA to establish the standards for private pilot certification practical tests for the lighter-than-air category, balloon and airship classes. FAA inspectors and designated evaluators shall conduct practical tests in compliance with these standards. Instructors and applicants should find these standards helpful in practical test preparation.

FAA-S-8081-17A supersedes FAA-S-8081-17, Private Pilot Practical Test Standards for Lighter-Than-Air Balloon and Airship, dated June 1996.

Major Enhancements to Version FAA-S-8081-17A

- Updated References throughout
- Changed “cockpit” to “flight deck” throughout
- Changed “Computer Test Report” to “Airman Knowledge Test Report” throughout
- Introduction:
  - Updated “General Information” section
  - Revised “Practical Test Standards Description” section
  - Updated “Abbreviations” section
  - Revised “Use of the Practical Test Standards” section
  - Revised “Private Pilot — Lighter-Than-Air Practical Test Prerequisites” section
  - Revised “Aircraft and Equipment Required for the Practical Test” section
  - Removed “Metric Conversion Initiative” section
  - Revised “Use of Distractions During Practical Tests” section
  - Removed “Manufacturer’s Recommendation” section
  - Revised “Examiner Responsibility” section
  - Revised “Satisfactory Performance” section
  - Revised “Unsatisfactory Performance” section
  - Added “Aeronautical Decision-Making and Risk Management” section
- Section 1: Private Pilot Lighter-Than-Air Balloon
  - Revised Task B: Launch Over Obstacle in Area of Operation IV: Launches and Landings
  - Revised Navigation Task in Area of Operation VI: Navigation
  - Revised Task B: Emergency Equipment and Survival Gear in Area of Operation VII: Emergency Operations

Table of Contents

Introduction

General Information

The FAA has developed the PTS for use by FAA inspectors and evaluators when conducting the practical test.

Throughout this PTS the following titles will be referred to as an evaluator: ASI, pilot examiner (other than administrative pilot examiners), TCE, chief instructor, assistant chief instructor, or check instructor of pilot school holding examining authority.

Information considered directive in nature is described in this PTS in terms such as “shall” and “must,” indicating the actions are mandatory. Guidance information is described in terms such as “should” and “may,” indicating the actions are desirable or permissive, but not mandatory.

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

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

PTS Concept

14 CFR part 61 specifies the subject areas in which knowledge and skill must be demonstrated by the applicant before the issuance of a certificate. The practical test standards contain the Areas of Operation and specific Tasks in which competency shall be demonstrated. The FAA will revise this PTS whenever it is determined that changes are needed in the interest of safety. Per 14 CFR part 61, section 61.43, adherence to the practical test standards is mandatory.

PTS Description

The Private Pilot Practical Test Standards for Lighter-Than-Air Balloon and Airship include the Areas of Operation and Tasks for the issuance of an initial Private Pilot Certificate and for the addition of category and/or class ratings to that certificate.

Areas of Operation are phases of the practical test arranged in a logical sequence within this standard. They begin with Preflight Preparation and end with Postflight Procedures. The evaluator may conduct the practical test in any sequence that will result in a complete and efficient test; **however, the ground portion of the practical test must be accomplished before the flight portion.**

Tasks are specific knowledge areas, flight procedures, or maneuvers appropriate to an Area of Operation.

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

Reference identifies the publication(s) that describe(s) the Task. Descriptions of Tasks are not included in the standards because this information can be found in the current issue of the listed reference. Publications other than those listed may be used for references if their content conveys substantially the same meaning as the referenced publications.

This PTS is based on the following reference list:

14 CFR part 43	Maintenance, Preventive Maintenance, Rebuilding, and Alteration
14 CFR part 61	Certification: Pilots, Flight Instructors, and Ground Instructors
14 CFR part 71	Designation of Class A, B, C, D, and E Airspace Areas; Air Traffic Service Routes; and Reporting Points
14 CFR part 91	General Operating and Flight Rules
AC 91-71	Operation of Hot Air Balloons with Airborne Heaters
FAA-H-8083-1	Aircraft Weight and Balance Handbook
FAA-H-8083-2	Risk Management Handbook
FAA-H-8083-3	Airplane Flying Handbook
FAA-H-8083-11	Balloon Flying Handbook
FAA-H-8083-25	Pilot's Handbook of Aeronautical Knowledge
FAA-H-8083-28	Aviation Weather Handbook
AIM	Aeronautical Information Manual
NOTAM	Notice to Air Missions
Other	Pilot Operating Handbook/FAA-Approved Flight Manual
	Airship Flight Manual
	Airship Pilot Manual
	Airship Aerodynamics Technical Manual
	Balloon Flight Manual
	Balloon Digest (Balloon Federation of America)
	How To Fly A Balloon (Balloon Publishing Co.)
	Navigation Charts
	Navigation Equipment Operation Manuals
	Chart Supplements

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

The Objective lists the important elements that must be satisfactorily performed to demonstrate competency in a Task. The Objective includes:

1. specifically what the applicant must be able to do;
2. the conditions under which the Task is to be performed;
3. the acceptable standards of performance; and
4. safety considerations, when applicable.

Abbreviations/Acronyms

14 CFR	Title 14 of the Code of Federal Regulations
AC	Advisory Circular
AD	Airworthiness Directive
ADM	Aeronautical Decision Making
AELS	Aviation English Language Standard
AIM	Aeronautical Information Manual
AIRMET	Airman's Meteorological Information

AKTR	Airman Knowledge Test Report
APU	Auxiliary Power Unit
ASI	Aviation Safety Inspector
ATC	Air Traffic Control
CFIT	Controlled Flight into Terrain
CRM	Crew Resource Management
ETA	Estimated Time of Arrival
FAA	Federal Aviation Administration
FCC	Federal Communications Commission
FSO	Flight Standards Office
ID	Identification
LBG	Lighter-Than-Air, Balloon (Gas)
LBH	Hot Air Balloon
LBH	Lighter-Than-Air, Balloon (with Airborne Heater)
NOTAM	Notice to Air Missions
PDF	Portable Document Format
PIREP	Pilot Report
PTS	Practical Test Standard
SIGMET	Significant Meteorological Information
SOP	Standard Operation Procedures
SRM	Single-Pilot Resource Management
SUA	Special Use Airspace
TCE	Training Center Evaluator
TFR	Temporary Flight Restrictions
U.S.	United States
VHF	Very High Frequency
VFR	Visual Flight Rules

Use of the PTS

The PTS has been designed to evaluate competency in both knowledge and skill.

The FAA requires that all practical tests be conducted in accordance with the appropriate PTS. Applicants must be evaluated in all Tasks included in the Areas of Operation of the appropriate practical test standard unless otherwise noted.

An applicant, who holds at least a Private Pilot Certificate seeking an additional category rating and/or class rating at the private pilot level will be evaluated in the Areas of Operation and Tasks listed in the Additional Rating Task Table. At the discretion of the evaluator, an evaluation of the applicant's competence in the remaining Areas of Operation and Tasks may be conducted.

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

In preparation for each practical test, the evaluator must develop a written “plan of action” for each practical test. The “plan of action” is a tool, for the sole use of the evaluator, to be used in evaluating the applicant. The plan of action need not be grammatically correct or in any formal format. The plan of action must contain all of the required Areas of Operations and Tasks and any optional Tasks selected by the evaluator. The “plan of action” must incorporate one or more scenarios that will be used during the practical test.

The evaluator should try to include as many of the Tasks into the scenario portion of the test as possible, but maintain the flexibility to change due to unexpected situations as they arise and still result in an efficient and valid test. **Any Task selected for evaluation during a practical test is to be evaluated in its entirety.**

The evaluator is not required to follow the precise order in which the Areas of Operations and Tasks appear in this PTS. The evaluator may change the sequence or combine Tasks with similar objectives to have an orderly and efficient flow of the practical test. For example, lost procedures may be combined with radio navigation. The evaluator's “plan of action” should include the order and combination of Tasks to be demonstrated by the applicant in a manner that will result in an efficient and valid test.

The evaluator is expected to use good judgment in the performance of simulated emergency procedures. The use of the safest means for simulation is expected. Consideration must be given to local conditions (both meteorological and topographical) at the time of the test, as well as the applicant's workload and the condition of the aircraft used. **If the procedure being evaluated would jeopardize safety, it is expected that the applicant will simulate that portion of the maneuver.**

Special Emphasis Areas

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

1. positive aircraft control;
2. procedures for positive exchange of flight controls;
3. collision avoidance;
4. wake turbulence and low level windshear avoidance;
5. runway incursion avoidance;
6. CFIT;
7. ADM and risk management;
8. SRM and CRM;
9. wire strike avoidance;
10. checklist usage;
11. spatial disorientation;
12. TFR;
13. SUA;
14. aviation security; and
15. other areas deemed appropriate to any phase of the practical test.

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

Private Pilot — Lighter-Than-Air Practical Test Prerequisites

14 CFR part 61, section 61.39 and subpart E, provide practical test and certification prerequisites.

Aircraft and Equipment Requirements

14 CFR part 61, section 61.45, provides requirements for aircraft and equipment for the practical test.

Evaluator Responsibility

An evaluator is:

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

The evaluator must determine that the applicant meets AELS. An applicant for an FAA certificate or rating must be able to communicate in English in a discernible and understandable manner with ATC, pilots, and others involved in preparing an aircraft for flight and operating an aircraft in flight. This communication may or may not involve radio communications. An applicant for an FAA certificate issued in accordance with 14 CFR part 61 who cannot hear or speak due to a medical deficiency may be eligible for an FAA certificate with specific operational limitations. For additional information, reference AC 60-28, FAA English Language Standard for an FAA Certificate Issued Under 14 CFR parts 61, 63, 65, and 107, as amended.

If the applicant's ability to meet the FAA AELS comes into question before starting the practical test, the evaluator will not begin the practical test. An evaluator who is not an ASI[1] will check the box, *Referred to FSO for Aviation English Language Standard Determination,* located on the bottom of page 2 of the applicant's FAA Form 8710-1, Application for an Airman Certificate and/or Rating. The evaluator will refer the applicant to the appropriate FSO.

If the applicant's ability to meet the FAA AELS comes into question after the practical test begins, an evaluator who is not an ASI will discontinue the practical test and check the box, *Referred to FSO for Aviation English Language Standard Determination*, on the application. The evaluator will also issue an FAA form 8060-5, Notice of Disapproval Application, with the comment "Does Not Demonstrate FAA AELS" in addition to any unsatisfactory Task(s).

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

The evaluator conducting the practical test is responsible for determining that the applicant meets the acceptable standards of knowledge and skill of each Task within the appropriate practical test standard. Since there is no formal division between the "oral" and "skill" portions of the practical test, this becomes an ongoing process throughout the test. Oral questioning, to determine the applicant's knowledge of

[1] ASIs may assess an applicant's English language proficiency in accordance with FAA Order 8900.1.

Tasks and related safety factors, should be used judiciously at all times, especially during the flight portion of the practical test.

Evaluators must test to the greatest extent practicable the applicant's correlative abilities rather than mere rote enumeration of facts throughout the practical test.

If the evaluator determines that a Task is incomplete, or the outcome uncertain, the evaluator may require the applicant to repeat that Task, or portions of that Task. This provision has been made in the interest of fairness and does not mean that instruction, practice, or the repeating of an unsatisfactory task is permitted during the certification process.

Throughout the flight portion of the practical test, the evaluator must evaluate the applicant's use of visual scanning and collision avoidance procedures.

Flight Instructor Responsibility

An appropriately rated flight instructor is responsible for training the private pilot applicant to acceptable standards in all subject matter areas, procedures, and maneuvers included in the Tasks within the appropriate PTS.

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 learners. Additionally, the flight instructor must certify that the applicant is able to perform safely as a private pilot and is competent to pass the required practical test.

Throughout the applicant's training, the flight instructor is responsible for emphasizing the performance of effective visual scanning, collision avoidance, and runway incursion avoidance procedures. These areas are covered, in part, in AC 90-48, Pilots' Role in Collision Avoidance; FAA-H-8083-25, Pilot's Handbook of Aeronautical Knowledge; and the Aeronautical Information Manual.

Satisfactory Performance

14 CFR part 61, section 61.43(a), describes satisfactory completion of the practical test for a certificate or rating.

Unsatisfactory Performance

If, in the judgment of the evaluator, the applicant does not meet the standards of performance of any Task performed, the associated Area of Operation is failed and, therefore, the practical test is failed. 14 CFR part 61, section 61.43(c) – (f), provides additional for unsatisfactory performance requirements and parameters.

Typical areas of unsatisfactory performance and grounds for disqualification are:

1. Any action or lack of action by the applicant that requires corrective intervention by the evaluator to maintain safe flight.

2. Failure to use proper and effective visual scanning techniques to clear the area before and while performing maneuvers.
3. Consistently exceeding tolerances stated in the Objectives.
4. Failure to take prompt corrective action when tolerances are exceeded.

When a disapproval notice is issued, the evaluator will record the applicant's unsatisfactory performance in terms of Area of Operations and specific Task(s) not meeting the standard appropriate to the practical test conducted. The Area(s) of Operation/Task(s) not tested and the number of practical test failures must also be recorded. If the applicant fails the practical test because of a special emphasis area, the Notice of Disapproval must indicate the associated Task.

Letter of Discontinuance

When a practical test is discontinued for reasons other than unsatisfactory performance (e.g., equipment failure, weather, or illness) FAA Form 8710-1, Airman Certificate and/or Rating Application, and, if applicable, the AKTR, is to be returned to the applicant. The evaluator at that time prepares, signs, and issues a Letter of Discontinuance to the applicant. The Letter of Discontinuance should identify the Areas of Operation and their associated Tasks of the practical test that were successfully completed. The applicant should be advised that the Letter of Discontinuance must be presented to the evaluator when the practical test is resumed and made part of the certification file.

ADM, Risk Management, CRM, and SRM

Throughout the practical test, the evaluator must assess the applicant’s ability to use sound aeronautical decision-making procedures in order to identify hazards and mitigate risk. The evaluator must accomplish this requirement by developing scenarios that incorporate and combine Tasks appropriate to assessing the applicant’s risk management in making safe aeronautical decisions. For example, the evaluator may develop a scenario that incorporates weather decisions and performance planning.

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

If an applicant fails to use ADM, including CRM/SRM, as applicable in any Task, the evaluator will note that Task as failed.

Applicant's Use of Checklists

Throughout the practical test, the applicant is evaluated on the use of an appropriate checklist. Proper use is dependent on the specific Task being evaluated. The situation may be such that the use of the checklist while accomplishing the elements of the Objective would be either unsafe or impractical, especially in a single-pilot operation. In this case, a review of the checklist after the elements have been accomplished would be appropriate. Division of attention and proper visual scanning would be considered when using a checklist.

Use of Distractions During Practical Tests

Numerous studies indicate that many accidents have occurred when the pilot has been distracted during critical phases of flight. To evaluate the applicant's ability to utilize proper control technique while dividing attention both inside and/or outside the flight deck/gondola/carriage/basket, the evaluator should simulate a realistic distraction during the flight portion of the practical test to evaluate the applicant's ability to divide attention while maintaining safe flight.

Positive Exchange of Flight Controls

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

When one pilot wishes to give the other pilot control of the aircraft, they will say, “You have the flight controls.” The other pilot acknowledges immediately by saying, “I have the flight controls.” The first pilot again says, “You have the flight controls.” When control is returned to the first pilot, follow the same procedure. A visual check is recommended to verify that the exchange has occurred. There should never be any doubt as to who is flying the aircraft.

SECTION 1

PRIVATE PILOT

LIGHTER-THAN-AIR — BALLOON

Applicant's Practical Test Checklist
Private Pilot
Lighter-Than-Air—Balloon

Appointment with Evaluator

Evaluator's Name_____

Location _____

Date/Time _____

ACCEPTABLE AIRCRAFT

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

PERSONAL EQUIPMENT

- ☐ PTS
- ☐ Current Aeronautical Charts
- ☐ Computer and Plotter
- ☐ Flight Logs
- ☐ Current AIM

PERSONAL RECORDS

- ☐ Identification - Photo/Signature ID
- ☐ Pilot Certificate
- ☐ Current and Appropriate Medical Certificate, Statement or show compliance with 14CFR part 68
- ☐ Completed FAA Form 8710-1, Airman Certificate and/or Rating Application, with Instructor's Signature
- ☐ AKTR
- ☐ Pilot Logbook with Appropriate Instructor Endorsements
- ☐ FAA Form 8060-5, Notice of Disapproval Application (if applicable)
- ☐ Approved School Graduation Certificate (if applicable)
- ☐ Evaluator's Fee (if applicable)

Evaluator's Practical Test Checklist
Private Pilot
Lighter-Than-Air—Balloon

Applicant's Name _____

Location _____

Date/Time _____

I. PREFLIGHT PREPARATION

- ☐ A. Certificates and Documents
- ☐ B. Weather Information
- ☐ C. Flight Planning
- ☐ D. National Airspace System
- ☐ E. Performance and Limitations
- ☐ F. Operations of Systems
- ☐ G. Aeromedical Factors

II. PREFLIGHT PROCEDURES

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

III. AIRPORT OPERATIONS

- ☐ Radio Communications and ATC Light Signals

IV. LAUNCHES AND LANDINGS

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

V. PERFORMANCE MANEUVERS

- A. Ascents
- B. Altitude Control (Level Flight)
- C. Descents
- D. Contour Flying (LBH)
- E. Obstruction Clearance
- F. Tethering
- G. Winter Flying
- H. Mountain Flying

VI. NAVIGATION

- Navigation

VII. EMERGENCY OPERATIONS

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

VIII. POSTFLIGHT PROCEDURES

- A. Recovery
- B. Deflation and Packing
- C. Refueling (LBH)

I. AREA OF OPERATION: PREFLIGHT PREPARATION

A. TASK: CERTIFICATES AND DOCUMENTS

REFERENCES: 14 CFR parts 43, 61, 91; FAA-H-8083-11, FAA-H-8083-25; Balloon Flight Manual.

Objective. To determine that the applicant:

1. Exhibits knowledge of the elements related to certificates and documents by explaining the appropriate—

    a. pilot certificate privileges and limitations.
    b. medical fitness.
    c. pilot logbook or flight record required entries.

2. Exhibits knowledge of the elements related to certificates and documents by locating and explaining the—

    a. airworthiness and registration certificates.
    b. operating limitations, placards, instrument markings, handbooks, and manuals.
    c. weight data, including the equipment list as appropriate.
    d. airworthiness directives and compliance records, maintenance/inspection requirements and appropriate records.

B. TASK: WEATHER INFORMATION

REFERENCES: FAA-H-8083-11, FAA-H-8083-25, FAA-H-8083-28; AIM.

Objective. To determine that the applicant:

1. Exhibits knowledge of the elements related to weather information by analyzing weather reports and forecasts from various sources with emphasis on—

    a. surface wind.
    b. winds aloft.
    c. wind shear.
    d. PIREPs.
    e. SIGMETs and AIRMETs.

2. Exhibits knowledge of the elements related to weather information by explaining various atmospheric conditions and their effect on balloon flight, including—

    a. temperature and pressure variations.
    b. atmospheric stability.
    c. cloud formations.
    d. thunderstorms and associated turbulence.
    e. thermals.

f. land and sea or lake breezes.
g. orographic winds.

3. Makes a competent “go/no-go” decision based on available weather information.

C. TASK: FLIGHT PLANNING

REFERENCES: FAA-H-8083-11, FAA-H-8083-25; Navigation Charts; NOTAMs; Chart Supplements; AIM.

Objective. To determine that the applicant:

1. Exhibits knowledge of the elements related to flight planning by presenting and explaining a preplanned flight of maximum duration, appropriate to the balloon used for the flight test, as previously assigned by the evaluator. The final flight plan shall include real-time weather.
2. Uses appropriate, current aeronautical charts and appropriate, current local road/street maps.
3. Plots a course for the intended route of flight based on the winds aloft forecast.
4. Selects the appropriate VHF communication frequencies, if radio equipped.
5. Identifies airspace, obstructions, and terrain features.
6. Selects suitable landing areas.
7. Extracts and applies pertinent information from NOTAMs, Chart Supplements, and AIM as necessary.

D. TASK: NATIONAL AIRSPACE SYSTEM

REFERENCES: 14 CFR part 91; FAA-H-8083-11; Navigation Charts; AIM.

Objective. To determine that the applicant exhibits knowledge of the elements related to the National Airspace System by explaining:

1. Basic VFR Weather Minimums – for all classes of airspace.
2. Airspace classes – their boundaries, pilot certification, and equipment requirements for the following—

    a. Class A.
    b. Class B.
    c. Class C.
    d. Class D.
    e. Class E.
    f. Class G.

3. Special use airspace and other airspace areas.

E. TASK: PERFORMANCE AND LIMITATIONS

REFERENCES: FAA-H-8083-1, FAA-H-8083-11, FAA-H-8083-25; Balloon Flight Manual.

Objective. To determine that the applicant:

1. Exhibits knowledge of the elements related to performance and limitations by explaining the use of appropriate data, if available from the manufacturer, to determine performance. This shall include operational characteristics and loading, and the adverse effects of exceeding limitations.
2. Computes operating weight, maximum load, and expected envelope temperature, as related to maximum envelope temperature.
3. Determines balloon performance, considering density altitude, wind, other weather related conditions, and terrain.
4. Determines normal and maximum rates of ascent and descent, and the altitude required to arrest high rates of descent.
5. Determines envelope temperatures, including never-exceed temperature and maximum continuous temperature, if appropriate.
6. Determines whether the computed performance is within the balloon's capabilities and operating limitations.

F. TASK: OPERATION OF SYSTEMS

REFERENCES: FAA-H-8083-11; Balloon Flight Manual.

Objective. To determine that the applicant exhibits knowledge of the elements related to the operation of systems on the balloon provided for the practical test by explaining the following:

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

G. TASK: AEROMEDICAL FACTORS

REFERENCES: FAA-H-8083-11, FAA-H-8083-25; AIM.

Objective. To determine that the applicant exhibits knowledge of the elements related to aeromedical factors by explaining:

1. The symptoms, causes, effects, and corrective actions of at least three of the following—

    a. hypoxia.
    b. hyperventilation.
    c. middle ear and sinus problems.
    d. spatial disorientation.
    e. stress and fatigue.

2. The effects of alcohol and drugs, including over-the-counter drugs.
3. The effects of nitrogen excesses during scuba dives upon a pilot and/or passenger in flight.

II. AREA OF OPERATION: PREFLIGHT PROCEDURES

A. TASK: LAUNCH SITE SELECTION

REFERENCES: FAA-H-8083-11; AC 91-71; How To Fly A Balloon; Balloon Flight Manual.

Objective. To determine that the applicant:

1. Exhibits knowledge of the elements related to launch site selection.
2. Arranges to launch with adequate time to complete the flight safely considering wind, weather conditions, and landing sites.
3. Selects a launch site with emphasis on—

    a. suitable landing areas.
    b. airspace considerations.
    c. surface wind and winds aloft.
    d. accessibility.
    e. surface condition.
    f. size.
    g. hazards and obstacles in the vicinity of the site.

4. Makes a competent “go/no-go” decision considering all of the factors involved in the selection of a safe launch site.

B. TASK: CREW BRIEFING AND PREPARATION

REFERENCES: FAA-H-8083-11; Balloon Flight Manual.

Objective. To determine that the applicant:

1. Exhibits knowledge of the elements related to crew briefing and preparation.
2. Designates a crew chief, if appropriate, and assigns each crewmember specific duties and responsibilities, considering the experience level of each crewmember.
3. Briefs crewmembers in all areas of the flight, including layout and assembly; tie-off, if appropriate; inflation; in-flight; landing; recovery; and emergency procedures.
4. Establishes a common means of communication such as hand signals and/or two-way radio.
5. Describes the proposed direction of flight and the estimated time aloft.
6. Ensures that all necessary equipment is on board.
7. Supervises and coordinates all activities.
8. Completes the appropriate checklist.

C. TASK: LAYOUT AND ASSEMBLY

REFERENCES: FAA-H-8083-11; Balloon Flight Manual.

Objective. To determine that the applicant:

1. Exhibits knowledge of the elements related to layout and assembly.
2. Positions balloon properly, considering wind conditions and obstacles.
3. Checks fuel system for security, leaks, and correct fuel pressure.
4. Uses tie-off, if appropriate.
5. Assembles balloon as appropriate.
6. Completes the appropriate checklist.

D. TASK: PREFLIGHT INSPECTION

REFERENCES: FAA-H-8083-11; How To Fly A Balloon; Balloon Flight Manual.

Objective. To determine that the applicant:

1. Exhibits knowledge of the elements related to visual inspection. This shall include which items must be inspected, the reasons for checking each item, and how to detect possible defects.

2. Inspects the balloon with reference to the checklist emphasizing the—

    a. basket.
    b. fuel system.
    c. flight instruments.
    d. items.
    e. envelope.
    f. venting and/or deflation systems.

3. Verifies the balloon is in condition for safe flight.
4. Completes the appropriate checklist.

E. TASK: INFLATION

REFERENCES: FAA-H-8083-11; How To Fly A Balloon; Balloon Flight Manual.

Objective. To determine that the applicant:

1. Exhibits knowledge of the elements related to inflation.
2. Accomplishes the proper tie-off procedure, if appropriate.
3. Inflates the balloon to equilibrium as appropriate.
4. Positions and secures the vent/deflation lines.
5. Completes the appropriate checklist.

F. TASK: BASKET/GONDOLA MANAGEMENT

REFERENCES: FAA-H-8083-11; Balloon Flight Manual.

Objective. To determine that the applicant:

1. Exhibits knowledge of the elements related to basket/gondola management procedures.
2. Ensures all loose items in the basket/gondola are secured.
3. Briefs passengers on the proper boarding, in-flight, and landing behavior and procedures.
4. Organizes material and equipment in a logical, efficient manner.
5. Utilizes all appropriate checklists.

G. TASK: PRE-LAUNCH CHECK

REFERENCES: FAA-H-8083-11; Balloon Flight Manual.

Objective. To determine that the applicant:

1. Exhibits knowledge of the elements related to the pre-launch check. This shall include the reasons for checking each item and how to detect malfunctions.
2. Reviews the wind conditions, temperatures, and obstructions.
3. Divides attention inside and outside the basket/gondola.
4. Performs final instrument check.
5. Ensures that the vent/deflation lines are positioned and secured properly.
6. Determines equilibrium.
7. Accomplishes the pre-launch check and confirms that the balloon is in safe operating condition.
8. Accomplishes final coordination with the ground crew, including signals and emergency procedures.
9. Assures no conflict with traffic prior to launch.
10. Completes the appropriate checklist.

III. AREA OF OPERATION: AIRPORT OPERATIONS

TASK: RADIO COMMUNICATIONS AND ATC LIGHT SIGNALS

REFERENCES: FAA-H-8083-11, FAA-H-8083-25; AIM.

Objective. To determine that the applicant:

1. Exhibits knowledge of the elements related to radio communications and ATC light signals.
2. Selects appropriate frequencies.
3. Transmits using recommended phraseology.
4. Acknowledges radio communications and complies with instructions.
5. Interprets and complies with ATC light signals, as appropriate.

IV. AREA OF OPERATION: LAUNCHES AND LANDINGS

A. TASK: NORMAL LAUNCH

REFERENCES: FAA-H-8083-11; AC 91-71; How To Fly A Balloon; Balloon Flight Manual.

Objective. To determine that the applicant:

1. Exhibits knowledge of the elements related to a normal launch.
2. Directs ground crew to clear the area.
3. Recognizes equilibrium.
4. Uses tie-off quick release line correctly, if appropriate.
5. Recognizes presence of false lift and wind conditions.
6. Coordinates lift-off and initial ascent.
7. Completes the appropriate checklist.

B. TASK: LAUNCH OVER OBSTACLE

REFERENCES: FAA-H-8083-11; AC 91-71; Balloon Flight Manual; Balloon Digest.

Objective. To determine that the applicant:

1. Exhibits knowledge of the elements related to a launch over an obstacle.
2. Determines the height of the obstacle.
3. Considers the distance to the obstacle relative to the wind conditions.
4. Recognizes the presence of false lift.
5. Acts decisively so as to clear the obstacle safely.
6. Completes the appropriate checklist.

C. TASK: APPROACH TO LANDING

REFERENCES: FAA-H-8083-11; AC 91-71; How to Fly A Balloon; Balloon Flight Manual.

Objective. To determine that the applicant:

1. Exhibits knowledge of the elements related to an approach to landing.
2. Considers the wind conditions, landing area, obstructions, and surface, and selects the most suitable touchdown point.
3. Establishes the appropriate approach profile and rate(s) of descent.
4. Ensures that each passenger is thoroughly briefed and positioned properly in accordance with landing conditions.
5. Stows loose articles and secures equipment, as appropriate.
6. Makes a timely decision to abort the approach, if necessary.
7. Completes the appropriate checklist.

D. TASK: NORMAL LANDING

REFERENCES: FAA-H-8083-11; AC 91-71; How to Fly A Balloon; Balloon Flight Manual.

Objective. To determine that the applicant:

1. Exhibits knowledge of the elements related to a normal landing.
2. Prepares vent/deflation system for use.
3. Touches down within the designated area or aborts the landing and ascends as specified by the evaluator.
4. Uses burner controls and vent/deflation system properly to stabilize balloon on touchdown.
5. Stabilizes balloon prior to passengers exiting.
6. Completes the appropriate checklist.

E. TASK: HIGH-WIND LANDING

NOTE: If a high-wind condition does not exist, the applicant's knowledge of the TASK shall be evaluated through oral testing.

REFERENCES: FAA-H-8083-11; AC 91-71; How to Fly A Balloon; Balloon Flight Manual.

Objective. To determine that the applicant:

1. Exhibits knowledge of the elements related to a high-wind landing.
2. Identifies hazards associated with a high-wind landing.
3. Prepares vent/deflation system for use.
4. Uses burner controls and vent/deflation system to land the balloon and control ground travel.
5. Touches down within the designated area or aborts the landing and ascends as specified by the evaluator.
6. Extinguishes pilot lights at the appropriate time.
7. Completes the appropriate checklist.

V. AREA OF OPERATION: PERFORMANCE MANEUVERS

A. TASK: ASCENTS

REFERENCES: FAA-H-8083-11; AC 91-71; How To Fly A Balloon; Balloon Flight Manual.

Objective. To determine that the applicant:

1. Exhibits knowledge of the elements related to ascents.
2. Transitions from level flight to ascent, as specified by the evaluator.
3. Ascends at an appropriate rate, ±100 feet per minute.
4. Transitions from ascent to level flight at an altitude specified by the evaluator, ±100 feet.
5. Completes the appropriate checklist.

B. TASK: ALTITUDE CONTROL (LEVEL FLIGHT)

REFERENCES: FAA-H-8083-11; AC 91-71; How To Fly A Balloon; Balloon Flight Manual.

Objective. To determine that the applicant:

1. Exhibits knowledge of the elements related to altitude control.
2. Recognizes vertical movement.
3. Maintains equilibrium by smooth use of burner controls.
4. Uses instruments to assist in altitude control.
5. Maintains assigned altitudes, ±100 feet.
6. Completes the appropriate checklist.

C. TASK: DESCENTS

REFERENCES: FAA-H-8083-11; AC 91-71; How To Fly A Balloon; Balloon Flight Manual.

Objective. To determine that the applicant:

1. Exhibits knowledge of the elements related to descents.
2. Transitions from level flight to descent, as specified by the evaluator.
3. Descends at a specified rate, ±100 feet per minute.
4. Transitions from descent to level flight at an altitude specified by the evaluator, ±100 feet.
5. Completes the appropriate checklist.

D. TASK: CONTOUR FLYING (LBH)

REFERENCES: FAA-H-8083-11; AC 91-71; Balloon Flight Manual; How to Fly A Balloon.

Objective. To determine that the applicant:

1. Exhibits knowledge of the elements related to contour flying.
2. Uses all controls properly to maintain the desired altitude, based on the appropriate clearance over terrain and obstacles.
3. Considers the effects of wind gusts, wind shear, thermal activity and orographic conditions.
4. Allows adequate clearance for livestock and other animals.
5. Divides attention between balloon control, ground track, and forward surveillance.

E. TASK: OBSTRUCTION CLEARANCE

REFERENCES: FAA-H-8083-11; AC 91-71; Balloon Flight Manual.

Objective. To determine that the applicant:

1. Exhibits knowledge of the elements related to obstruction clearance.
2. Recognizes obstructions, including powerlines, and allows time to take appropriate action.
3. Uses proper procedures to avoid obstructions, including powerlines.
4. Uses proper procedures when collision is imminent.

F. TASK: TETHERING

REFERENCES: FAA-H-8083-11; Balloon Flight Manual.

Objective. To determine that the applicant exhibits knowledge of the elements related to tethering by explaining:

1. The proper recognition of wind conditions and obstructions.
2. The recognition of the effects of false lift and wind gusts.
3. The recommended tethering procedure with emphasis on utilizing an adequate number of appropriate tether lines of adequate strength in the proper location.
4. The briefing for ground crewmembers, to include crowd control.

G. TASK: WINTER FLYING

REFERENCES: FAA-H-8083-11; AC 91-71; How to Fly A Balloon; Balloon Flight Manual.

Objective. To determine that the applicant exhibits knowledge of the elements related to winter flying by explaining:

1. The proper preparation, equipment, and survival supplies necessary for flight in cold temperatures.
2. The proper methods for pressurizing fuel tanks.
3. The added concerns for fuel vaporization, leaks, and risk of fire during cold weather.

H. TASK: MOUNTAIN FLYING

REFERENCES: FAA-H-8083-11; FAA-H-8083-25; AC 91-71; How To Fly A Balloon; Balloon Flight Manual.

Objective. To determine that the applicant exhibits knowledge of the elements related to mountain flying by explaining:

1. The proper preparation, equipment, and survival supplies necessary for flight over mountainous terrain.
2. The accessibility to landing areas.
3. The recognition of cloud formations and descending air currents on the leeward side of mountains as evidence of possible turbulence.
4. The caution required in regard to windshear encounters and possible rapid weather changes.

VI. AREA OF OPERATION: NAVIGATION

A. TASK: NAVIGATION

REFERENCES: FAA-H-8083-11, FAA-H-8083-25; Balloon Flight Manual.

Objective. To determine that the applicant:

1. Exhibits knowledge of the elements related to navigation.
2. Identifies airspace and altitude restrictions.
3. Recognizes the preplanned course by reference to landmarks.
4. Identifies landmarks by relating surface features to chart symbols.
5. Verifies the balloon's position at all times.
6. Manages fuel properly.
7. Determines the duration of the flight, considering—

    a. availability of suitable landing areas.
    b. fuel consumption.
    c. wind and other atmospheric conditions.
    d. obstructions.
    e. payload.

8. Notes the differences, if any, between preflight flight planning and the actual flight.
9. Completes the appropriate checklist.

VII. AREA OF OPERATION: EMERGENCY OPERATIONS

A. TASK: SYSTEMS AND EQUIPMENT MALFUNCTIONS

REFERENCES: FAA-H-8083-11; Balloon Flight Manual.

Objective. To determine that the applicant:

1. Exhibits knowledge of the elements related to systems and equipment malfunctions appropriate to the balloon used for the practical test.
2. Analyzes the situation and takes the appropriate action for simulated emergencies, such as—

    a. pilot light flameout or failure.
    b. blast valve failure.
    c. fuel exhaustion.
    d. propane leak.
    e. envelope failure.
    f. any other systems and equipment malfunction appropriate to the balloon provided for the flight test.

3. Follows the appropriate emergency checklist.

B. TASK: EMERGENCY EQUIPMENT AND SURVIVAL GEAR

REFERENCES: FAA-H-8083-11; Balloon Flight Manual.

Objective. To determine that the applicant:

1. Exhibits knowledge of the elements related to emergency equipment and survival gear appropriate to the balloon provided for the practical test, such as—

    a. location and purpose.
    b. method of operation or use.
    c. servicing requirements.
    d. method of safe storage.
    e. equipment and survival gear appropriate for operation in various climates and topographical environments.

2. Follows the appropriate emergency checklist.

C. TASK: WATER LANDING

REFERENCES: FAA-H-8083-11; Balloon Flight Manual.

Objective. To determine that the applicant exhibits knowledge of the elements related to a water landing by explaining:

1. The emergency conditions under which water landings are necessary.
2. The effect of wind direction and speed and water current.
3. The preparation required for contact with water, to include briefing passengers.
4. The procedure to be used for actual water landing.

D. TASK: THERMAL FLIGHT

REFERENCES: FAA-H-8083-11; Balloon Flight Manual.

Objective. To determine that the applicant exhibits knowledge of the elements related to thermal flight by explaining:

1. The conditions that cause thermal activity.
2. The recognition of convective conditions and associated hazards.
3. The effects of thermal activity on balloon flight.
4. The procedures to be used upon encountering thermal activity.

VIII. AREA OF OPERATION: POSTFLIGHT PROCEDURES

A. TASK: RECOVERY

REFERENCES: FAA-H-8083-11; How to Fly A Balloon; Balloon Flight Manual.

Objective. To determine that the applicant:

1. Exhibits knowledge of the elements related to recovery.
2. Coordinates landing and recovery with landowner, as appropriate.
3. Minimizes property damage during recovery.
4. Supervises ground crew during recovery, including vehicle and spectator control.
5. Completes the appropriate checklist.

B. TASK: DEFLATION AND PACKING

REFERENCES: FAA-H-8083-11; How To Fly A Balloon; Balloon Flight Manual.

Objective. To determine that the applicant:

1. Exhibits knowledge of the elements related to deflation and packing.
2. Ensures the fuel system is secure.
3. Deflates envelope properly, considering wind conditions and obstacles.
4. Disassembles envelope and basket components, as appropriate.
5. Packs and stores envelope, basket and components, and fuel system, as appropriate.
6. Performs satisfactory postflight inspection.
7. Completes the appropriate checklist.

C. TASK: REFUELING (LBH)

REFERENCES: FAA-H-8083-11; How To Fly A Balloon; Balloon Flight Manual.

Objective. To determine that the applicant exhibits knowledge of the elements related to refueling by explaining:

1. A crewmember briefing on safety precautions.
2. The danger of explosion and burns when handling propane.
3. The need for adequate ventilation.
4. Water contamination.
5. The proper method of filling the cylinders, as appropriate.

SECTION 2

PRIVATE PILOT

LIGHTER-THAN-AIR — AIRSHIP

Practical Test Standards

Applicant's Practical Test Checklist

Private Pilot Lighter-Than-Air Airship

Appointment with Evaluator

Evaluator's Name_____

Location_____

Date/Time _____

ACCEPTABLE AIRCRAFT

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

PERSONAL EQUIPMENT

- ☐ PTS
- ☐ Current Aeronautical Charts
- ☐ Computer and Plotter
- ☐ Flight Plan and Flight Log Forms
- ☐ Current AIM, Chart Supplements, and Appropriate Publications

PERSONAL RECORDS

- ☐ Identification - Photo/Signature ID
- ☐ Pilot Certificate
- ☐ Current and Appropriate Medical Certificate or show compliance with 14CFR part 68
- ☐ Completed FAA Form 8710-1, Airman Certificate and/or Rating Application, with Instructor's Signature, if applicable
- ☐ AKTR
- ☐ Pilot Logbook with Appropriate Instructor Endorsements
- ☐ FAA Form 8060-5, Notice of Disapproval Application (if applicable)
- ☐ Approved School Graduation Certificate (if applicable)
- ☐ Evaluator 's Fee (if applicable)

Evaluator's Practical Test Checklist
Private Pilot
Lighter-Than-Air—Airship

Applicant's Name _____

Location _____

Date/Time _____

I. PREFLIGHT PREPARATION

- ☐ **A.** Certificates and Documents
- ☐ **B.** Weather Information
- ☐ **C.** Cross-Country Flight Planning
- ☐ **D.** National Airspace System
- ☐ **E.** Performance and Limitations
- ☐ **F.** Operation of Systems
- ☐ **G.** Aeromedical Factors

II. PREFLIGHT PROCEDURES

- ☐ **A.** Preflight Inspection
- ☐ **B.** Flight Deck/Gondola/Car Management
- ☐ **C.** Engine Starting
- ☐ **D.** Unmasting and Positioning for Takeoff
- ☐ **E.** Ground Handling
- ☐ **F.** Before Takeoff Check

III. AIRPORT OPERATIONS

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

IV. TAKEOFFS, LANDINGS, AND GO-AROUND

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

V. PERFORMANCE MANEUVERS

- **A.** Straight-and-Level Flight
- **B.** Ascents and Descents
- **C.** Level Turns
- **D.** In-Flight Weigh-Off
- **E.** Manual Pressure Control
- **F.** Static and Dynamic Trim

VI. GROUND REFERENCE MANEUVERS

- **A.** Rectangular Course
- **B.** Turns Around a Point

VII. NAVIGATION

- **A.** Pilotage and Dead Reckoning
- **B.** Navigation Systems and Radar Services
- **C.** Diversion
- **D.** Lost Procedures

VIII. EMERGENCY OPERATIONS

- **A.** Engine Fire During Flight
- **B.** Envelope Emergencies
- **C.** Free Ballooning
- **D.** Ditching and Emergency Landing
- **E.** Systems and Equipment Malfunctions

IX. POSTFLIGHT PROCEDURES

- **A.** Masting
- **B.** Post-Masting

I. AREA OF OPERATION: PREFLIGHT PREPARATION

A. TASK: CERTIFICATES AND DOCUMENTS

REFERENCES: 14 CFR parts 43, 61, 91; FAA-H-8083-25; Airship Flight Manual.

Objective. To determine that the applicant:

1. Exhibits knowledge of the elements related to certificates and documents by explaining the appropriate—

    a. pilot certificate privileges and limitations.
    b. medical requirements/medical certificate, class, and duration.
    c. pilot logbook or flight record required entries.

2. Exhibits knowledge of the elements related to certificates and documents by locating and explaining the—

    a. airworthiness and registration certificates.
    b. operating limitations, placards, instrument markings, handbooks, and manuals.
    c. weight and lift data, including the equipment list.
    d. airworthiness directives and compliance records, maintenance/inspection requirements, and appropriate records.

B. TASK: WEATHER INFORMATION

REFERENCES: FAA-H-8083-25, FAA-H-8083-28; AIM.

Objective. To determine that the applicant:

1. Exhibits knowledge of the elements related to weather information by analyzing weather reports and forecasts from various sources with emphasis on—

    a. PIREPs.
    b. SIGMETs and AIRMETs.
    c. wind shear reports.

2. Exhibits knowledge of the elements related to weather information by explaining various atmospheric conditions, and their effect on airship flight, including—

    a. atmospheric influence.
    b. atmospheric stability.
    c. pressure and temperature changes.
    d. terrain effect on winds.
    e. cloud formations.

3. Makes a competent “go/no-go” decision based on available weather information.

C. TASK: CROSS-COUNTRY FLIGHT PLANNING

REFERENCES: FAA-H-8083-25; Navigation Charts; Airship Flight Manual; Chart Supplements; AIM.

Objective. To determine that the applicant:

1. Exhibits knowledge of the elements related to cross-country flight planning by presenting and explaining a preplanned VFR cross-country flight of maximum duration, appropriate to the airship used for the flight test, as previously assigned by the evaluator. The final flight plan shall include real-time weather to the first fuel stop, with maximum allowable passenger and baggage loads.
2. Uses appropriate, current aeronautical charts.
3. Plots a course for the intended route of flight, considering terrain and service ceiling.
4. Identifies airspace, obstructions, and alternate airports.
5. Selects easily identifiable en route checkpoints.
6. Selects the most favorable altitudes, considering weather conditions and equipment capabilities.
7. Computes headings, flight time, and fuel requirements.
8. Selects appropriate navigation systems/facilities and communication frequencies.
9. Considers availability of facilities and ground crew at destination.
10. Extracts and applies pertinent information from NOTAMs, Chart Supplements, and other flight publications.
11. Completes a navigation log and simulates filing a VFR flight plan.

D. TASK: NATIONAL AIRSPACE SYSTEM

REFERENCES: 14 CFR parts 71, 91; FAA-H-8083-25; Navigation Charts; AIM.

Objective. To determine that the applicant exhibits knowledge of the elements related to the National Airspace System by explaining:

1. Basic VFR Weather Minimums – for all classes of airspace.
2. Airspace classes – their boundaries, pilot certification, and equipment requirements for the following—

    a. Class A.
    b. Class B.
    c. Class C.
    d. Class D.
    e. Class E.
    f. Class G.

3. Special use airspace and other airspace areas.

E. TASK: PERFORMANCE AND LIMITATIONS

REFERENCES: FAA-H-8083-1, FAA-H-8083-25; Airship Aerodynamics Technical Manual; Airship Flight Manual.

Objective. To determine that the applicant:

1. Exhibits knowledge of the elements related to performance and limitations by explaining the use of charts, tables, and appropriate data, if available from the manufacturer, to determine performance in various phases of flight, including operational characteristics and loading, and the adverse effects of exceeding limitations.
2. Computes operating weight, maximum load, and trim condition.
3. Determines airship performance under the following conditions—

    a. weight limitations.
    b. static and dynamic lift capability.
    c. effect of superheat on ballonets and percent of fullness.
    d. effect of gas purity and superheat on lift.
    e. temperature and humidity changes on performance and lift.
    f. temperature inversion on descents.
    g. leaks in ballonet(s) and envelope.
    h. average ballonet volume with respect to total envelope volume and service ceiling.
    i. loss of gross lift when above pressure height.
    j. relationship of ballonet fullness to pressure height.
4. Determines airship performance, considering the effects of the following conditions—

    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. superheat on lift.
    i. maximum rate climb and descent limitations.

F. TASK: OPERATION OF SYSTEMS

REFERENCES: FAA-H-8083-25; Airship Pilot Manual; Airship Flight Manual.

Objective. To determine that the applicant exhibits knowledge of the elements related to the operation of systems on the airship provided for the flight test by explaining at least three of the following:

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.
12. Ground support equipment.

G. TASK: AEROMEDICAL FACTORS

REFERENCES: FAA-H-8083-25; AIM.

Objective. To determine that the applicant exhibits knowledge of the elements related to aeromedical factors by explaining:

1. The symptoms, causes, effects, and corrective actions of at least three of the following—

    a. hypoxia.
    b. hyperventilation.
    c. middle ear and sinus problems.
    d. spatial disorientation.
    e. motion sickness.
    f. carbon monoxide poisoning.
    g. stress and fatigue.

2. The effects of alcohol and drugs, including over-the-counter drugs.
3. The effects of nitrogen excesses during scuba dives upon a pilot and/or passenger in flight.

II. AREA OF OPERATION: PREFLIGHT PROCEDURES

A. TASK: PREFLIGHT INSPECTION

REFERENCES: FAA-H-8083-25; Airship Pilot Manual; Airship Flight Manual.

Objective. To determine that the applicant:

1. Exhibits knowledge of the elements related to preflight inspection. This shall include which items must be inspected, the reasons for checking each item, and how to detect possible defects.
2. Inspects the airship with reference to the checklist.
3. Verifies the airship is in condition for safe flight.

B. TASK: FLIGHT DECK/GONDOLA/CAR MANAGEMENT

REFERENCES: FAA-H-8083-2, FAA-H-8083-25; Airship Flight Manual.

Objective. To determine that the applicant:

1. Exhibits knowledge of the elements related to flight deck/gondola/car management procedures.
2. Ensures all loose items in the flight deck/gondola/car and passenger area are secured.
3. Briefs passengers on the use of safety belts and emergency procedures.
4. Organizes essential material and equipment in a logical, efficient flow pattern.
5. Maintains orderly records reflecting progress of the flight, as appropriate.
6. Utilizes all appropriate checklists.

C. TASK: ENGINE STARTING

REFERENCES: FAA-H-8083-25; Airship Pilot Manual; Airship Flight Manual.

Objective. To determine that the applicant:

1. Exhibits knowledge of the elements related to engine starting. This shall include the use of an external power source and starting under various atmospheric conditions, as appropriate.
2. Observes safety precautions related to starting, considering open hangars, other aircraft, and the safety of nearby persons and property on the ramp.
3. Accomplishes the correct starting procedure including proper adjustment of engine controls.
4. Prevents movement of airship during and after start.
5. Completes the appropriate checklist.

D. TASK: UNMASTING AND POSITIONING FOR TAKEOFF

REFERENCES: Airship Pilot Manual; Airship Flight Manual.

Objective. To determine that the applicant:

1. Briefs ground crew and coordinates hand signals and voice commands.
2. Prevents airship from riding up on the mast.
3. Ensures proper envelope pressure and trim before coming off the mast.
4. Uses ground crew and airship controls properly to move away from the mast and into position for takeoff.
5. Divides attention inside and outside the flight deck/gondola/car so as to avoid possible immediate takeoff after coming off the mast.
6. Completes the appropriate checklist.

E. TASK: GROUND HANDLING

REFERENCES: Airship Pilot Manual; Airship Flight Manual.

Objective. To determine that the applicant:

1. Exhibits knowledge of the elements related to ground handling, appropriate to the airship provided for the practical test.
2. Determines the required number of crew members considering the weather conditions, the status of the airship, and the method of handling.
3. Briefs the ground crew on all pertinent phases of ground handling procedures.
4. Maintains coordination with the crew chief and the proper use of hand signals and voice commands with the crew.
5. Recognizes undesirable airship movement and takes appropriate action.
6. Maintains proper envelope pressure and trim and alertness for wind shifts.
7. Maintains proper position while controlled by the ground crew.

F. TASK: BEFORE TAKEOFF CHECK

REFERENCES: FAA-H-8083-25; Airship Pilot Manual; Airship Flight Manual.

Objective. To determine that the applicant:

1. Exhibits knowledge of the elements related to the before takeoff check.
2. Positions the airship properly to avoid hazards.
3. Divides attention inside and outside the flight deck/gondola/car.
4. Ensures that engine temperatures and pressures are suitable for run-up and takeoff.
5. Accomplishes the before takeoff check and confirms that the airship is in safe operating condition.
6. Reviews takeoff performance, wind direction and speed, expected takeoff distance, emergency procedures, and the departure procedure.
7. Ensures that the takeoff path is clear of obstacles.
8. Assures no conflict with traffic prior to takeoff.
9. Completes the appropriate checklist.

III. AREA OF OPERATION: AIRPORT OPERATIONS

A. TASK: RADIO COMMUNICATIONS AND ATC LIGHT SIGNALS

REFERENCES: FAA-H-8083-25; AIM.

Objective. To determine that the applicant:

1. Exhibits knowledge of the elements related to radio communications and ATC light signals.
2. Selects appropriate frequencies.
3. Transmits using recommended phraseology.
4. Acknowledges radio communications and complies with instructions.
5. Uses prescribed procedures following radio communications failure.
6. Interprets and complies with ATC light signals.

B. TASK: TRAFFIC PATTERNS

REFERENCES: FAA-H-8083-3, FAA-H-8083-25; AIM.

Objective. To determine that the applicant:

1. Exhibits knowledge of the elements related to traffic patterns. This shall include operations at controlled and uncontrolled airports, runway incursion and collision avoidance, wake turbulence avoidance, and wind shear.
2. Complies with traffic pattern procedures.
3. Maintains proper spacing from other traffic.
4. Corrects for wind drift to maintain the proper ground track.
5. Maintains orientation with the runway or landing area to be used.
6. Establishes a final approach at an appropriate distance from the runway or landing area.
7. Maintains the appropriate traffic pattern altitude, ±200 feet.
8. Maintains airspeed for the current static condition of the airship.
9. Completes the appropriate checklist.

C. TASK: AIRPORT AND RUNWAY MARKINGS AND LIGHTING

REFERENCES: FAA-H-8083-25; AIM.

Objective. To determine that the applicant:

1. Exhibits knowledge of the elements related to airport and runway markings and lighting.
2. Identifies and interprets airport, runway and taxiway markings.
3. Identifies and interprets airport, runway and taxiway lighting.

IV. AREA OF OPERATION: TAKEOFFS, LANDINGS, AND GO-AROUNDS

A. TASK: GROUND WEIGH-OFF

REFERENCES: Airship Pilot Manual; Airship Aerodynamics Technical Manual; Airship Flight Manual.

Objective. To determine that the applicant:

1. Exhibits knowledge of the elements related to ground weigh-off.
2. Determines the static and trim condition.
3. Maintains zero inclination and heading into the wind.
4. Prevents fore-and-aft surge.
5. Checks weigh-off and trim with neutral elevators when HANDS OFF command is given.
6. Ballasts the airship according to the conditions and type of flight contemplated without exceeding the weight limits.
7. Completes the appropriate checklist.

B. TASK: UP-SHIP TAKEOFF

REFERENCES: Airship Pilot Manual; Airship Aerodynamics Technical Manual; Airship Flight Manual.

Objective. To determine that the applicant:

1. Exhibits knowledge of the elements related to an upwind takeoff.
2. Determines heaviness limitations and weather conditions under which an up-ship takeoff may be made.
3. Ensures that sufficient ground crew are available so as to obtain adequate upward velocity.
4. Idles engines and uses the rudder as necessary during weigh-off.
5. Remains within the takeoff heaviness limits.
6. Uses proper and timely hand signals and voice commands with ground crew.
7. Applies up elevator pressure as ground crew lifts airship and transitions to a nose-up attitude keeping tail clear of the ground.
8. Applies power as the airship nears the top of its upward thrust.
9. Prevents the tail from striking the ground.
10. Increases airspeed sufficiently to carry the load dynamically.
11. Completes the appropriate checklist.

C. TASK: WHEEL TAKEOFF

REFERENCES: Airship Pilot Manual; Airship Aerodynamics Technical Manual; Airship Flight Manual.

Objective. To determine that the applicant:

1. Exhibits knowledge of the elements related to a wheel takeoff. This shall include a wheel takeoff under various degrees of heaviness, including maximum heavy conditions.
2. Determines the approximate takeoff roll and ensures that the area is clear and sufficient, considering wind conditions and field surface.
3. Positions the airship to utilize the maximum available takeoff area and maintains trim.
4. Uses the proper hand signals and voice commands with the ground crew.
5. Applies power slowly, in a timely manner.
6. Attains sufficient airspeed to carry the load dynamically while on the wheel.
7. Uses elevators to assist the airship in lifting dynamically.
8. Maintains directional control and the proper inclination to keep the tail off the ground.
9. Completes the appropriate checklist.

D. TASK: APPROACH AND LANDING

REFERENCES: Airship Pilot Manual; Airship Aerodynamics Technical Manual; Airship Flight Manual.

Objective. To determine that the applicant:

1. Exhibits knowledge of the elements related to an approach and landing, including light and heavy airships.
2. Accomplishes static weigh-off prior to commencing the approach.
3. Adjusts trim, as necessary, for landing, considering weight and condition of air.
4. Coordinates flight and power controls, as necessary.
5. Makes smooth and gradual approach maintaining direction and angle of descent.
6. Recognizes and adheres to waveoff signals.
7. Lands at a speed appropriate for approaching the ground crew.
8. Reverses thrust, if applicable.
9. Completes the appropriate checklists.

E. TASK: GO-AROUND

REFERENCES: Airship Pilot Manual; Airship Aerodynamics Technical Manual; Airship Flight Manual.

Objective. To determine that the applicant:

1. Makes a timely decision to discontinue the approach to landing.
2. Uses correct procedures for a light or heavy airship, as appropriate.
3. Coordinates use of power and flight controls to effect a smooth transition to a climb attitude.
4. Completes the appropriate checklist.

V. AREA OF OPERATION: PERFORMANCE MANEUVERS

A. TASK: STRAIGHT-AND-LEVEL FLIGHT

REFERENCES: Airship Pilot Manual; Airship Aerodynamics Technical Manual; Airship Flight Manual.

Objective. To determine that the applicant

1. Exhibits knowledge of the elements related to straight-and-level flight.
2. Uses the flight controls in a smooth, coordinated manner with minimum pitching and yawing.
3. Adjusts and maintains dynamic trim.
4. Maintains the specified altitude, ±200 feet and the specified heading, ±20°.

B. TASK: ASCENTS AND DESCENTS

REFERENCES: Airship Pilot Manual; Airship Aerodynamics Technical Manual; Airship flight Manual.

Objective. To determine that the applicant:

1. Exhibits knowledge of the elements related to ascents and descents, including limitations.
2. Ascends and descends while keeping the gas pressure within operating limits.
3. Demonstrates proper pressure control and makes smooth altitude changes.
4. Controls rates of ascent and descent, ±300 feet per minute.

C. TASK: LEVEL TURNS

REFERENCES: Airship Pilot Manual; Airship Aerodynamics Technical Manual; Airship Flight Manual.

Objective. To determine that the applicant:

1. Exhibits knowledge of the elements related to level turns.
2. Enters, maintains, and rolls out of level turns with smooth, coordinated control application.
3. Uses elevators and rudders properly to control effects of rolling tendency, loss of dynamic lift.
4. Maintains the specified altitude, ±200 feet and rolls out on the assigned heading, ±20°.

D. TASK: IN-FLIGHT WEIGH-OFF

REFERENCES: Airship Pilot Manual; Airship Aerodynamics Technical Manual; Airship Flight Manual.

Objective. To determine that the applicant:

1. Exhibits knowledge of the elements related to in-flight weigh-off.
2. Steers the airship into the wind in level flight at a minimum altitude of at least 500 feet AGL.
3. Reduces the power to the specified airspeed and stabilizes the airship.
4. Determines if the airship is being affected by updrafts or downdrafts.
5. Neutralizes the elevator and rudder controls.
6. Observes the attitude of the airship and pressure differential in the ballonets.
7. Determines trim and static condition.
8. Adjusts trim properly.

E. TASK: MANUAL PRESSURE CONTROL

REFERENCES: Airship Pilot Manual; Airship Aerodynamics Technical Manual; Airship Flight Manual.

Objective. To determine that the applicant:

1. Exhibits knowledge of the elements related to manual pressure control.
2. Controls the pressure manually as recommended by the manufacturer to a predetermined valve(s) setting.
3. Monitors operation of pressure valves and system.
4. Maintains a constant altitude, ±200 feet.

F. TASK: STATIC AND DYNAMIC TRIM

REFERENCES: Airship Flight Manual; Airship Pilot Manual; Airship Aerodynamics Technical Manual.

Objective. To determine that the applicant:

1. Exhibits knowledge of the elements related to static and dynamic trim.
2. Establishes static trim for various weight conditions.
3. Establishes dynamic trim for various flight conditions.

VI. AREA OF OPERATION: GROUND REFERENCE MANEUVERS

A. TASK: RECTANGULAR COURSE

REFERENCES: FAA-H-8083-3; Airship Pilot Manual; Airship Flight Manual.

Objective. To determine that the applicant:

1. Exhibits knowledge of the elements related to a rectangular course.
2. Selects a suitable altitude and ground reference.
3. Plans the maneuver so as to enter at traffic pattern altitude, at an appropriate distance from the selected reference area.
4. Applies adequate wind drift correction during straight-and-turning flight to maintain a constant ground track around the rectangular reference area.
5. Divides attention between coordinated airship control and the ground track.
6. Maintains altitude, ±200 feet.

B. TASK: TURNS AROUND A POINT

REFERENCES: FAA-H-8083-3; Airship Pilot Manual; Airship Flight Manual.

Objective. To determine that the applicant:

1. Exhibits knowledge of the elements related to turns around a point.
2. Selects the ground reference point.
3. Plans the maneuver so as to enter at 600 to 1,000 feet AGL at an appropriate distance from the reference point.
4. Applies adequate wind drift correction to track a constant radius circle around the selected reference point.
5. Divides attention between airship control and the ground track, and maintains coordinated flight.
6. Maintains altitude, ±200 feet.

VII. AREA OF OPERATION: NAVIGATION

A. TASK: PILOTAGE AND DEAD RECKONING

REFERENCES: FAA-H-8083-25; Airship Pilot Manual; Airship Flight Manual.

Objective. To determine that the applicant:

1. Exhibits knowledge of the elements related to pilotage and dead reckoning.
2. Follows the preplanned course solely by visual reference to landmarks.
3. Identifies landmarks by relating the surface features to chart symbols.
4. Navigates by means of precomputed headings, groundspeed, and elapsed time.
5. Makes a reasonable estimate of heading, groundspeed, arrival time, and fuel consumption to the destination.
6. Corrects for, and records, the differences between preflight fuel, groundspeed, and heading calculations and those determined en route.
7. Verifies the airship's position within 3 nautical miles of the flight planned route at all times.
8. Arrives at the en route checkpoints or destination within 5 minutes of the ETA.
9. Maintains the appropriate altitude, ±200 feet and established heading, ±20°.
10. Completes all appropriate checklists.

B. TASK: NAVIGATION SYSTEMS AND RADAR SERVICES

REFERENCES: FAA-H-8083-25; Airship Flight Manual, Navigation Equipment Operation Manuals.

Objective. To determine that the applicant:

1. Exhibits knowledge of the elements related to navigation systems and radar services.
2. Selects and identifies the appropriate navigation system/facility.
3. Locates the airship's position using radials, bearings, or coordinates, as appropriate.
4. Intercepts and tracks a given radial or bearing, if appropriate.
5. Recognizes and describes the indication of station passage, if appropriate.
6. Recognizes signal loss and takes appropriate action.
7. Uses proper communication procedures when utilizing ATC radar services.
8. Maintains the appropriate altitude, ±200 feet.

C. TASK: DIVERSION

REFERENCES: FAA-H-8083-25; Airship Flight Manual.

Objective. To determine that the applicant:

1. Exhibits knowledge of the elements related to diversion.
2. Selects an appropriate alternate airport and route.
3. Diverts promptly toward the alternate airport.
4. Makes a reasonable estimate of heading, groundspeed, arrival time, and fuel consumption to the alternate airport.
5. Maintains the appropriate altitude, ±200 feet and established heading, ±20°.

D. TASK: LOST PROCEDURES

REFERENCES: FAA-H-8083-25; Airship Pilot Manual; Airship Flight Manual.

Objective. To determine that the applicant:

1. Exhibits knowledge of the elements related to lost procedures.
2. Selects the best course of action when given a lost situation.
3. Maintains the original or an appropriate heading and climbs, if necessary.
4. Identifies the nearest concentration of prominent landmarks.
5. Uses navigation systems/facilities and/or contacts an appropriate ATC facility for assistance.

VIII. AREA OF OPERATION: EMERGENCY OPERATIONS

A. TASK: ENGINE FIRE DURING FLIGHT

REFERENCES: FAA-H-8083-3, FAA-H-8083-25; Airship Pilot Manual; Airship Flight Manual.

Objective. To determine that the applicant exhibits knowledge of the elements related to engine fire during flight by explaining the procedures used for:

1. Applying full power in an attempt to blow out the fire in the affected engine.
2. Extinguishing the fire.
3. Shutting down the engine, using the checklist, if the fire persists.
4. Preparing to land at the earliest opportunity.

B. TASK: ENVELOPE EMERGENCIES

REFERENCES: Airship Pilot Manual; Airship Flight Manual.

Objective. To determine that the applicant exhibits knowledge of the elements related to envelope emergencies by explaining the procedures used for:

1. A puncture or rip in the gas envelope and/or in a ballonet.
2. An excessive helium loss.
3. Rain /icing on the envelope.
4. Emergency valve operations.
5. Emergency air-to-helium operations.

C. TASK: FREE BALLOONING

REFERENCES: Airship Pilot Manual; Airship Flight Manual.

Objective. To determine that the applicant:

1. Exhibits knowledge of the elements related to free ballooning.
2. Assesses airship static condition and determines ballast needs.
3. Establishes equilibrium in a timely manner.
4. Turns off all nonessential electrical equipment.
5. Determines cause of engine failure and attempts restart.
6. Selects suitable landing site and establishes communications with the crew.
7. Uses minimum helium valving and ballast dumping during descent.
8. Secures loose equipment.
9. Completes the appropriate emergency checklist.

D. TASK: DITCHING AND EMERGENCY LANDING

REFERENCES: Airship Pilot Manual; Airship Flight Manual.

Objective. To determine that the applicant:

1. Exhibits knowledge of the elements related to ditching and emergency landing.
2 Simulates jettisoning ballast, considering potential fire hazard when dumping fuel.
3. Instructs passengers in safety procedures.
4. Ensures life jackets are on correctly, if ditching.
5. Secures loose equipment.
6. Simulates securing all systems to minimize chance of fire or other damage.
7. Completes the appropriate emergency checklist.

E. TASK: SYSTEMS AND EQUIPMENT MALFUNCTIONS

REFERENCES: FAA-H-8083-25; Airship Flight Manual.

NOTE: The evaluator shall 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:

1. Exhibits knowledge of the elements related to systems and equipment malfunctions appropriate to the airship used for the practical test.
2. Takes appropriate action for simulated emergencies such as—

    a. Control system/actuator malfunction.
    b. Fuel starvation.
    c. Electrical system malfunction.
    d. Propeller malfunction.
    e. Pressure system malfunction.
    f. Engine or nacelle fire.
    g. APU fire.

IX. AREA OF OPERATION: POSTFLIGHT PROCEDURES

A. TASK: MASTING

REFERENCES: Airship Pilot Manual; Airship Flight Manual.

Objective. To determine that the applicant:

1. Exhibits knowledge of the elements related to masting.
2. Maintains coordination with crew chief through use of proper hand signals and voice commands.
3. Remains in control of airspeed and positions airship properly.
4. Coordinates use of power and flight controls.
5. Places airship in proper trim and ballast when approaching the mast.
6. Completes the appropriate checklist.

B. TASK: POST-MASTING

REFERENCES: Airship Pilot Manual; Airship Flight Manual.

Objective. To determine that the applicant:

1. Exhibits knowledge of the elements related to post-masting, appropriate to the airship used for the practical test.
2. Uses proper engine shutdown procedures.
3. Complies with equipment requirements for maintaining envelope pressure.
4. Ensures mast security relative to weather conditions.
5. Gives consideration to weather with the airship on the mast.
6. Completes the appropriate checklist.