

FLIGHT TEST GUIDE



**PRIVATE and
COMMERCIAL PILOT
Free Balloon....**



1976

**U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION**

AC 61-62A

FLIGHT TEST GUIDE

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OF TRANSPORTATION
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FLIGHT STANDARDS SERVICE**

Preface

This flight test guide, AC 61-62A, has been prepared by Flight Standards Service of the Federal Aviation Administration to assist the applicant in preparing for the flight test for the Private Pilot or Commercial Pilot Certificate with a lighter-than-air category and free balloon class rating under Federal Aviation Regulations Part 61. It furnishes reference material for use by instructor pilots, while preparing students for the flight tests. It contains information and guidance concerning the pilot operations, procedures, and maneuvers relevant to the flight test required for those certificates. A suggested flight test checklist is included for the convenience of those who may find such a checklist useful.

In addition to providing help to both the applicant and the instructor, this guide will be useful to FAA Inspectors and designated pilot examiners in the conduct and standardization of flight tests. Persons using this guide in connection with free balloon pilot training and flight tests should also refer to the applicable *Federal Aviation Regulations*, *Airman's Information Manual*, pertinent advisory circulars, and training publications recommended by the Balloon Federation of America.

Comments regarding this guide may be directed to the U.S. Department of Transportation, Federal Aviation Administration, Flight Standards National Field Office, AFS-590, P.O. Box 25082, Oklahoma City, Oklahoma 73125.

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APPLICANT'S FLIGHT TEST CHECKLIST
(Suggested)

APPOINTMENT WITH INSPECTOR

OR EXAMINER: Name _____

Time/Date _____

ACCEPTABLE FREE BALLOON, BASIC
EQUIPMENT AND DOCUMENTS

ALL BALLOONS (REQUIRED)

- ☐ Compass
- ☐ Altimeter
- ☐ Vertical Speed Indicator
- ☐ Aircraft Documents:
 - Airworthiness Certificate
 - Registration Certificate
 - Operating Limitations
- ☐ Aircraft Maintenance Records:
 - Airworthiness Inspections
- ☐ FCC Station License (if radio is used)

HOT AIR BALLOON

- ☐ Fuel Quantity Gauge
- ☐ Envelope Temperature Indicator

PERSONAL EQUIPMENT (Recommended)

- ☐ Current Aeronautical Chart
- ☐ Protective Head Gear
- ☐ Heat-resistant Gloves (Hot Air Balloon)
- ☐ 10" Crescent Wrench (Hot Air Balloon)
- ☐ Striker-igniter (Hot Air Balloon)

PERSONAL RECORDS (Required)

- ☐ Pilot Certificate
- ☐ Medical Statement
- ☐ Signed Recommendation
- ☐ Written Test Results (AC Form 8080-2)
- ☐ Logbook With Instructor's Endorsement
- ☐ Notice of Disapproval of Application, FAA
Form 8060-5 (if applicable)
- ☐ Approved School Graduation Certificate
(if applicable)
- ☐ FCC Radiotelephone Operator Permit (if
radio is used)
- ☐ Examiner's Fee (if applicable)

GENERAL INFORMATION

PILOT TRAINING AND CERTIFICATION CONCEPT

Part 61 of the Federal Aviation Regulations was revised and upgraded to reflect the increased complexity of the modern aircraft as well as the operating environment. Rather than merely duplicating on the flight test the maneuvers used for training, this training and certification concept requires that the applicant receive instruction in and demonstrate competency in *all pilot operations* listed in pertinent sections of Part 61. A pilot operation, as used herein, is a group of related procedures and maneuvers involving skills and knowledge required to safely and efficiently function as a pilot. The specific procedures and maneuvers used to teach the pilot operations are not listed in Part 61. Instead, the instructor is permitted to select procedures and maneuvers from recognized training publications pertinent to the certificate or rating sought. The instructor indicates by logbook endorsement that the applicant has demonstrated competency in all the required pilot operations and is considered qualified to pass the flight test. On the flight test, the exam-

iner* selects the procedures and maneuvers to be performed by the applicant to show competency in each required pilot operation.

USE OF THIS GUIDE

The pilot operations in this flight test guide, indicated by Roman numerals, are required by Part 61—§ 61.107 for the private pilot and § 61.127 for the commercial pilot. The guide is intended only to outline appropriate pilot operations and the minimum standards for the performance of each procedure or maneuver which will be accepted by the examiner as evidence of the pilot's competency. It is not intended that the applicant be tested on every procedure or maneuver within each pilot operation, but only those considered necessary by the examiner to determine competency in each pilot operation. Procedures and maneuvers listed apply to all free balloons, except where indicated.

When, in the judgment of the examiner, certain demonstrations are impractical, competency may be determined by oral testing.

This guide contains an **Objective** for each required pilot operation. Under each pilot operation, pertinent procedures or maneuvers are listed with **Descriptions** and **Acceptable Performance Guidelines**.

* The word "examiner" is used hereafter in this guide to denote either the Federal Aviation Administration Inspector or designated pilot examiner who conducts an official flight test.

This guide contains an **Objective** for each required pilot operation. Under each pilot operation, pertinent procedures or maneuvers are listed with **Descriptions** and **Acceptable Performance Guidelines**.

1. The **Objective** states briefly the purpose of each pilot operation required on the flight test.
2. The **Description** provides information on what may be asked of the applicant regarding the selected procedure or maneuver. The procedures or maneuvers listed have been found most effective in demonstrating the objective of that particular pilot operation.
3. The **Acceptable Performance Guidelines** include the factors which will be taken into account by the examiner in deciding whether the applicant has met the objective of the pilot operation. Any procedure or action, or the lack thereof, which requires the intervention of the examiner to maintain safe flight will be disqualifying.

Emphasis will be placed on procedures, knowledge, and maneuvers which are most critical to a safe performance as a balloon pilot. During the entire flight test, evaluation of the applicant's performance will be based primarily on his use of good operating practices and sound judgment in avoiding critical situations. Emphasis will also be placed on

necessary precautions at launch and recovery sites to avoid endangering spectators or damaging property.

The applicant will be expected to know the meaning and significance of the terms important to the balloon pilot, such as:

Equilibrium

Superheat

False lift

Never-exceed envelope temperature

Maximum continuous envelope temperature

If the flight test is taken in a hot air free balloon equipped with an airborne heater or in a hot air free balloon without an airborne heater, the applicant's certificate will contain an endorsement restricting his pilot privileges to the type balloon used for the flight test. Part 61 (revised) outlines the procedures for removal of these restrictions.

GENERAL PROCEDURES FOR FLIGHT TESTS

The ability of an applicant for a private or commercial pilot certificate, or for an aircraft rating on that certificate, to perform the required pilot operations is based on the following:

1. Executing procedures and maneuvers within the aircraft's performance capabilities and limitations, including use of the aircraft's systems.

3. Piloting the aircraft with smoothness and accuracy.
4. Exercising judgment.
5. Applicant's application of aeronautical knowledge.
6. Demonstrating mastery of the aircraft in such a manner that the successful outcome of a procedure or maneuver is never seriously in doubt.

If any of the required pilot operations is failed, the applicant fails the flight test. The examiner or the applicant may discontinue the test at any time when the failure of a required pilot operation makes the applicant ineligible for the certificate or rating sought. If the test is discontinued, the applicant is entitled to credit for only those entire pilot operations that were successfully performed.

FLIGHT TEST PREREQUISITES

Applicants for the free balloon pilot flight test are required by Federal Aviation Regulations to have: (1) passed the appropriate free balloon pilot written test within 24 months before the date of the flight test, (2) the applicable instruction and aeronautical experience prescribed for the pilot certificate sought, (3) a written statement certifying that they have no known medical defect that makes them unable to fly a free balloon, (4) reached at least 16 years of age for a private pilot or

18 years of age for a commercial pilot, and (5) a written statement from an appropriately certificated and rated commercial pilot certifying that applicants were given flight instruction in preparation for the flight test within 60 days preceding the date of application and are competent to pass the test and have a satisfactory knowledge of the subject areas in which a deficiency is indicated by the applicant's FAA airman written test report.

The applicants are required by § 61.45 to provide an airworthy balloon for the flight test.

PILOT OPERATIONS

Procedures/Maneuvers

I. RIGGING, INFLATING, AND MOORING

Objective

To determine that the applicant can competently prepare the balloon for flight, determine its airworthiness, and can follow recovery procedures after flight.

Procedures/Maneuvers

A. Layout and Recovery of Equipment

1. Description The applicant may be asked to demonstrate the procedures for the deployment and recovery of the envelope, basket, suspension lines, and burner assembly, if applicable. During these procedures, the applicant should take precautions to prevent damage to equipment and should inspect all equipment for airworthiness. The use of a checklist is recommended.

2. Acceptable Performance Guidelines The applicant shall demonstrate a thorough knowledge of the proper procedures for the layout and recovery of equipment. Failure to follow accepted safety precautions or failure to recognize unairworthy conditions shall be disqualifying.

B. Rigging

1. Description The applicant may be asked to demonstrate the procedures and sequence for assembling and adjusting the balloon components, installation and checking of the instrument package, and the stowage of equipment. The use of a checklist is recommended.

2. Acceptable Performance Guidelines

The applicant shall demonstrate a thorough knowledge of the proper procedures for the rigging of equipment. Failure to assure that all components are securely assembled or failure to check the safetying of the deflation device shall be disqualifying.

C. Inflation

1. Description The applicant may be asked to demonstrate the procedures for inflating the balloon to proper buoyancy, taking proper precautions to avoid fire hazards.

2. Acceptable Performance Guidelines

The applicant shall demonstrate a thorough knowledge of the inflation procedures, and be knowledgeable of equipment and gases being used. Any action that creates a hazard to personnel or equipment shall be disqualifying.

D. Mooring

1. Description The applicant may be asked to demonstrate a recommended method of securing the balloon in position prior to and after flight.

2. Acceptable Performance Guidelines

The applicant shall demonstrate a thorough knowledge of proper mooring techniques, as appropriate to the balloon being used.

II. GROUND AND FLIGHT CREW BRIEFING

Objective

To determine that the applicant knows the essential duties of the ground and flight crews, and can competently explain, supervise, and coordinate their activities.

Procedures/Maneuvers

A. Hand Signals

1. Description The applicant may be asked to demonstrate the standard visual signals used in ballooning.

2. Acceptable Performance Guidelines

The applicant shall have a thorough knowledge of the signals used for normal and emergency balloon operations.

B. Ground Crew Duties

1. Description The applicant may be asked to select a competent ground crew, brief them on their duties, and supervise and coordinate their activities.

2. Acceptable Performance Guidelines

The applicant's performance shall be evaluated on the criteria used in ground crew selection, deployment, and on the accuracy and completeness of the briefing. Failure to

competently supervise and coordinate the activities of the crew shall be disqualifying.

C. Flight Crew Duties

1. Description The applicant may be asked to select a competent flight crew, brief them on their duties, and supervise and coordinate their activities.

2. Acceptable Performance Guidelines

The applicant's performance shall be evaluated on the criteria used in ground crew selection, deployment, and on the accuracy and completeness of the briefing. Failure to competently supervise and coordinate the activities of the crew shall be disqualifying.

III. ASCENTS

Objective

To determine that the applicant can accomplish an ascent to a preselected height and can maintain that height.

Procedures/Maneuvers

1. Description The applicant may be asked to demonstrate the proper procedures and techniques for a weigh-off, and for an ascent at an acceptable rate to the height specified by the examiner. In addition, an explanation of the techniques and precautions to be used in various atmospheric and launch-site conditions may be requested.

2. Acceptable Performance Guidelines

Performance shall be evaluated on the applicant's knowledge and use of procedures and techniques for accomplishing the weigh-off, ascent, level-off, and maintenance of altitude. Any action that creates a hazard to personnel or equipment shall be disqualifying.

IV. DESCENTS

Objective

To determine that the applicant can accomplish a descent to a preselected height and can maintain that height.

Procedures/Maneuvers

1. Description The applicant may be asked to demonstrate the proper procedures and techniques for a descent at an acceptable rate to the height specified by the examiner.

2. Acceptable Performance Guidelines Performance shall be evaluated on the applicant's knowledge and use of procedures and techniques for accomplishing the descent, level-off, and maintenance of altitude. Any action that creates a hazard to personnel or equipment shall be disqualifying.

V. LANDINGS

Objective

To determine that the applicant can select a suitable landing site and can safely and competently perform various types of landings.

Procedures/Maneuvers

1. Description The applicant may be asked to select a landing site and demonstrate the proper procedures and techniques for an approach and landing at that site. In addition, a demonstration of an aborted landing may be requested.

In a gas balloon, the applicant should properly coordinate the use of gas and ballast; and all landing devices such as the trail rope and rip panel should be used as necessary.

In a hot air balloon equipped with an airborne heater, the proper use of the heater should be demonstrated. The applicant should also demonstrate the use of all landing devices such as the trail rope, maneuvering vent, and deflation port, if the balloon is so equipped.

2. Acceptable Performance Guidelines
Performance shall be evaluated on the applicant's knowledge and use of procedures, techniques, and all landing devices for accomplishing a safe landing at the selected site. Any action that creates a hazard to personnel or equipment shall be disqualifying.

VI. OPERATION OF AIRBORNE HEATER (Hot Air Balloon)

Objective

To determine that the applicant can start and operate the balloon's airborne heater in a safe and efficient manner both on the ground and in flight.

Procedures/Maneuvers

A. Ground Operation of Heater

1. Description The applicant may be asked to demonstrate the procedures for checking the heater system for fuel quantity, leaks, proper ignition, operation, and adjustments.

2. Acceptable Performance Guidelines Performance shall be evaluated on the applicant's ability to properly perform the necessary ground checks for the heater. Any action that creates a hazard to personnel or equipment shall be disqualifying.

B. Inflight Operation of Heater

1. Description The applicant may be asked to demonstrate the proper inflight heater procedures and techniques for controlling the balloon in ascents, level flight, descents, and landings.

2. Acceptable Performance Guidelines Performance shall be evaluated on the applicant's ability to accurately ascend, maintain level flight, descend, and land, as requested by the examiner.

VII. EMERGENCY OPERATIONS

Objective

To determine that the applicant can react promptly and correctly to emergencies which may occur during flight.

Procedures/Maneuvers

A. Emergency Use of Ripcord

1. Description The applicant may be asked to demonstrate a knowledge of the use of the ripcord in an emergency situation involving obstacles or a high-wind condition.

2. Acceptable Performance Guidelines Performance shall be evaluated on the applicant's knowledge of procedures, judgment, and timely use of the ripcord.

B. Terminal Velocity Descent (Hot Air Balloon with Airborne Heater)

1. Description The applicant may be asked to demonstrate recognition of a terminal velocity descent, ability to check the descent with the heater and recover with a minimum loss of altitude.

2. Acceptable Performance Guidelines Performance shall be evaluated on the applicant's prompt recognition of the terminal velocity descent and how the heater is used to check the descent. Allowing the envelope temperature to exceed the maximum allowable or never-exceed temperature shall be disqualifying.

C. Heater Malfunctions (Hot Air Balloon with Airborne Heater)

1. Description The applicant may be asked to demonstrate knowledge of corrective actions for heater malfunctions such as fuel

starvation, fuel flow obstructions, loss of pilot light, or jammed regulators.

2. Acceptable Performance Guidelines

The applicant shall correctly analyze heater difficulties and take proper action. Failure to have a striker-igniter, or other acceptable means for relighting the heater aboard the aircraft shall be disqualifying.

See information highlighted below

c. The following AC's will be replaced by FAA-S-8081-1, Private Pilot Practical Test Standards, 5/17/84: (This publication is for sale and is listed in Appendix III of this checklist). *Note: AC 61-54A is canceled.

*AC 61-54A Private Pilot Airplane Flight Test Guide, 4/18/75.

AC 61-59A Private and Commercial Pilot Helicopter Flight Test Guide, 3/3/77.

AC 61-60 Private and Commercial Pilot Gyroplane, Flight Test Guide, (May 1973).

AC 61-61A Private and Commercial Pilot-Glider-Flight Test Guide, 12/3/76.

AC 61-62A Private and Commercial Pilot-Free Balloon-Flight Test Guide, 12/17/76.

AC 61-63 Flight Test Guide, Private and Commercial Pilot Lighter-Than Air Airship, 5/23/74.

d. The following AC's will be replaced by FAA-S-8081-2, Commercial Pilot Practical Test Standards, 7/85, effective 8/1/86: (This publication is for sale and is listed in Appendix III of this checklist).

AC 61-55A Commercial Pilot - Airplane, 4/25/75.

AC 61-59A Private and Commercial Pilot Helicopter Flight Test Guide, 3/3/77.

AC 61-60 Private and Commercial Pilot Gyroplane, Flight Test Guide, (May 1973).

AC 61-61A Private and Commercial Pilot-Glider-Flight Test Guide, 12/3/76.

AC 61-62A Private and Commercial Pilot-Free Balloon-Flight Test Guide, 12/17/76.

AC 61-63 Flight Test Guide, Private and Commercial Pilot Lighter-Than Air Airship, 5/23/74.

3. Additions. The following advisory circulars are added to the list:

AC 00-2YY Advisory Circular Checklist, 10/15/85.

AC 00-44W Status of Federal Aviation Regulations, 7/15/85.

AC 00-45C Aviation Weather Services, 6/12/85.

AC 20-36Q Index of Articles (Materials, Parts, Processes, and Appliances) Certified Under the Technical Standard Order, 7/16/85.

AC 20-53A Protection of Airplane Fuel Systems Against Fuel Vapor Ignition Due to Lighting, 4/12/85.

AC 20-110-B Index of Aviation Technical Standard Orders, 4/12/85.

AC 21-15D Announcement of Availability - Aircraft, Aircraft Engines and Propeller Type Certificate Data Sheets and Specifications, (2/85).

AC 21-22 Injury Criteria for Human Exposure to Impact, 6/20/85.

AC 21.303-2F Announcement of Availability - Parts Manufacturer Approvals - 1984 (Microfiche).

AC 23-3 Structural Substantiation of Secondary Structures, 9/5/85.

AC 23.679-1 Control System Locks, 7/25/85.

AC 23 955-1 Substantiating Flow Rates and Pressures in Fuel Systems of Small Airplanes, 7/3/85.

AC 23.959-1 Unsuitable Fuel Test Procedures For Small Airplanes, 1/14/85.

AC 23.1521-1 Approval of Automobile Gasoline (Autogas) in Lieu of Aviation Gasoline (Avgas) in Small Airplanes With Reciprocating Engines, 1/25/85.

AC 25.1455-1 Waste Water/Potable Drain System Certification, 3/11/85.

AC 27-1 Certification of Normal Category Rotorcraft, 8/29/85.

AC 39-6K Announcement of Availability - Summary of Airworthiness Directives, 6/4/85.

AC 61-84B Role of Preflight Preparation, 3/18/85.

AC 61-96 Announcement of Availability: FAA-S-8081-2, Commercial Pilot Practical Test Standards, 7/22/85.

AC 65-13H FAA Inspection Authorization Directory, 6/7/85.

AC 90-42D Traffic Advisory Practices at Airports Without Operating Control Towers, 4/15/85.

AC 90-43F Operations Reservations for High Density Traffic Airports (HDTA's), 4/22/85.

AC 90-85 Severe Weather Avoidance Plan (SWAP), 4/1/85.

AC 90-86 Announcement of Availability: North Atlantic MNPS Airspace Operations Manual, Fourth Edition, 7/19/85.

AC 91-62 Use of Child/Infant Seats In Aircraft, 2/26/85.

AC 91-63 Temporary Flight Restrictions (TFR), 4/15/85.

AC 91-64 Use of Remote Altimeter Settings in Instrument Approach Procedures, 4/23/85.

AC 99-1B Security Control of Air Traffic, 8/2/85.

AC 120-42 Extended Range Operation With Two-Engine Airplanes, 6/6/85.

AC 150/5000-4B Announcement of Availability - Airport Research and Technical Reports, 2/11/85.

AC 150/5000-5A Designated U.S. Airports Serving International Air Traffic, 5/16/85.

AC 150/5070-6A Airport Master Plans, 6/85.

AC 150/5100-14A Architectural, Engineering, and Planning Consultant Services for Airport Grant Projects, 2/7/85.

AC 150/5100-16 Airport Improvement Program Grant Assurance Number One - General Federal Requirements, 7/22/85.

AC 150/5200-12A Fire Department Responsibility in Protecting Evidence at the Scene of an Aircraft Accident, 4/8/85.

AC 150/5200-23A Airport Snow and Ice Control, 1/25/85.

AC 150/5210-5A Painting, Marking, and Lighting of Vehicles Used on an Airport, 1/30/85.

AC 150/5210-6C Aircraft Fire and Rescue Facilities and Extinguishing Agents, 1/28/85.

AC 150/5220-14A Airport Fire and Rescue Vehicle Specification Guide, 2/25/85.

AC 150/5300-4B, Chg. 8 Utility Airports - Air Access to National Transportation, 7/3/85.

AC 150/5300-9A Predesign, Prebid, and Preconstruction Conferences for Airport Grant Projects, 5/1/85.

AC 150/5300-12, Chg. 1 Airport Design Standards - Transport Airports, 3/14/85.

AC 150/5340-5B, Chg. 1 Segmented Circle Airport Marker System, 2/25/85.