

FAA-S-8081-3



U.S. Department
of Transportation

**Federal Aviation
Administration**

RECREATIONAL PILOT

Practical Test Standards

for

AIRPLANE

ROTORCRAFT

APRIL 1989

**FLIGHT STANDARDS SERVICE
Washington, DC 20591**

RECREATIONAL PILOT

Practical Test Standards

1989

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FOREWORD

This Recreational Pilot Practical Test Standards book has been published by the Federal Aviation Administration (FAA) to establish the standards for the recreational pilot certification practical tests for airplanes and rotorcraft. FAA inspectors and designated pilot examiners will conduct practical tests in compliance with these standards. Flight instructors and applicants will find these standards helpful in practical test preparation.

D. C. Beaudette

Acting Director, Flight Standards Service

INTRODUCTION

The Aviation Standards National Field Office of the FAA has developed this book to be used as a standard by FAA inspectors and designated pilot examiners when conducting recreational pilot airmen practical tests. Flight instructors are expected to use this book in preparing applicants for practical tests.

This book contains standards that set forth the practical test requirements for recreational pilot certification in airplane and rotorcraft category aircraft.

This book may be purchased from:

Superintendent of Documents

U.S. Government Printing Office

Washington, DC 20402

The FAA gratefully acknowledges the valuable input by organizations and individuals in the promotion and development of this book.

Comments about this book should be sent to:

U.S. Department of Transportation

Federal Aviation Administration

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Practical Test Standard Concept

Federal Aviation Regulations (FAR's) specify the areas in which knowledge and skill must be demonstrated by the applicant before the issuance of a pilot certificate or rating. The FAR's provide the flexibility to permit the FAA to publish practical test standards containing specific TASKS (procedures and maneuvers) in which pilot competency must be demonstrated. The FAA will add, delete, or revise TASKS whenever it is determined that changes are needed in the interest of safety. Adherence to provisions of the regulations and the practical test standards is mandatory for the evaluation of pilot applicants.

Flight Instructor Responsibility

An appropriately rated flight instructor is responsible for training the student to the acceptable standards as outlined in the objective of each TASK within the appropriate recreational pilot practical test standard. The flight instructor must certify that the applicant is able to perform safely as a pilot and is competent to pass the required practical test for the certificate or rating sought.

Examiner\1 Responsibility

The examiner who conducts the practical test is responsible for determining that the applicant meets standards outlined in the objective of each TASK within the appropriate practical test standard. The examiner shall meet this responsibility by accomplishing an ACTION that is appropriate for each TASK. For each TASK that involves "knowledge only" elements, the examiner will orally quiz the applicant on those elements. For each TASK that involves both "knowledge and skill" elements, the examiner will orally quiz the applicant regarding knowledge elements and ask the applicant to perform the skill elements. The examiner will determine that the applicant's knowledge and skill meets the objective in all required TASKS. Oral testing may be used at any time during the practical test.

1/The word "examiner" is used throughout this book to denote either the FAA inspector or FAA designated pilot examiner who conducts an official flight test.

Practical Test Book Description

This book contains the following Recreational Pilot Practical Test Standards:

Section 1 Airplane, Single-Engine Land

Section 2 Airplane, Single-Engine Sea

Section 3 Rotorcraft, Helicopter

Section 4 Rotorcraft, Gyroplane

The AREAS OF OPERATION listed throughout each practical test standard contain phases of flight arranged in a logical sequence of occurrence, beginning with flight preparation and ending with the conclusion of the flight. The examiner, however, may conduct the practical test in any sequence he/she desires provided that sequence results in a complete and efficient test.

The TASKS are procedures and maneuvers appropriate to an AREA OF OPERATION. The AIRCRAFT CATEGORIES AND CLASSES appropriate to the TASKS are abbreviated in capital letters within parentheses immediately following each TASK. The meaning of each abbreviation follows:

ASEL Airplane, Single-Engine Land

ASES Airplane, Single-Engine Sea

RH Rotorcraft, Helicopter

RG Rotorcraft, Gyroplane

The number after the pilot operation relates that TASK to the regulatory requirements.

The 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 listed references. Publications other than those listed may be used for references if their content conveys substantially the same meaning as the referenced publications.

References upon which this practical test book is based include:

FAR Part 61 Certification: Pilots and Flight Instructors

FAR Part 91 General Operating and Flight Rules

AC 00-6 Aviation Weather

AC 00-45 Aviation Weather Services

AC 61-13 Basic Helicopter Handbook

AC 61-21 Flight Training Handbook

AC 61-23 Pilot's Handbook of Aeronautical Knowledge

AC 61-84 Role of Preflight Preparation

AC 67-2 Medical Handbook for Pilots

AC 91-13 Cold Weather Operation of Aircraft

AC 91-55 Reduction of Electrical Systems Failure Following Engine Starting

AIM Airman's Information Manual

NOTE: The latest revision of the references cited should be used.

The OBJECTIVE lists, in sequence, the important elements that must be satisfactorily performed to demonstrate competency in a TASK. The OBJECTIVE includes:

- (1) specifically what the applicant should be able to do.
- (2) the conditions under which the TASK is to be performed, and
- (3) the minimum acceptable standards of performance.

THE FOLLOWING EXAMPLE ILLUSTRATES THE FORMAT OF THE STANDARD:

I. AREA OF OPERATION:

PREFLIGHT PREPARATION

A. TASK: CERTIFICATES AND DOCUMENTS (ASEL)

PILOT OPERATION - 1

REFERENCES: FAR Parts 61 and 91; AC 61-21, AC 61-23; Pilot's Operating Handbook and FAA-Approved Airplane Flight Manual.

Objective. To determine that the applicant:

1. Exhibits knowledge by explaining the appropriate -
 - a. recreational pilot privileges and limitations.
 - b. medical certificate, class, and duration.
 - c. personal pilot logbook or flight record.
2. Exhibits knowledge by locating and explaining the significance and importance of the -
 - a. airworthiness and registration certificates.
 - b. operating limitations, handbooks, and manuals.
 - c. weight and balance data.
 - d. maintenance requirements and appropriate records, preventive maintenance, and maintenance that may be performed by the pilot.

Use of the Practical Test Book

The FAA requires that each practical test be conducted in strict compliance with the appropriate practical test standards for the issuance of a pilot certificate or rating. When using the practical test book, the examiner must evaluate the applicant's knowledge and skill in sufficient depth to determine that the standards of performance listed for all TASKS are met.

When the examiner determines, during the performance of one TASK, that the knowledge and skill objective of another TASK is met, it may not be necessary to require the performance of the other TASK.

When the demonstration of a TASK is not practicable; e.g., operations over a congested area or unsuitable terrain, a demonstration that does not conform to the manufacturer's recommendations, or for other valid reasons, competency should be evaluated by oral testing.

The examiner is not expected to follow the precise order in which the AREAS OF OPERATION and TASKS appear in each standard. The examiner may change the order, or in some instances combine TASKS to conserve time. Examiners should develop a plan of action that includes the order and combination of TASKS to be demonstrated by the applicant in a manner that will result in an efficient and valid test. It is of utmost importance that the examiner accurately evaluates the applicant's ability to perform safely as a pilot.

Examiners will place special emphasis upon areas of aircraft operation which are most critical to flight safety. Among these areas are precise aircraft control and sound judgment in decision making. Although these areas may not be shown under each TASK, they are essential to flight safety and will receive careful evaluation throughout the practical test. If these areas are shown in the OBJECTIVE, additional emphasis will be placed on them. **THE EXAMINER WILL ALSO EMPHASIZE STALL/SPIN AWARENESS, SPATIAL DISORIENTATION, COLLISION AVOIDANCE, WAKE TURBULENCE AVOIDANCE, LOW-LEVEL WIND SHEAR, CHECKLIST USAGE, AND OTHER AREAS AS DIRECTED BY FUTURE EDITIONS OF THIS BOOK.**

Use of Distractions During Practical Tests

Numerous studies indicate that many accidents have occurred when the pilot's attention has been distracted during various phases of flight. Many accidents have resulted from engine failure during takeoffs and landings where safe flight was possible if the pilot had used correct control technique and divided attention properly.

Distractions that have been found to cause problems are:

- (1) preoccupation with situations inside or outside the cockpit;
- (2) maneuvering to avoid other traffic; or
- (3) maneuvering to clear obstacles during takeoffs, climbs,

approaches, or landings.

To strengthen this area of pilot training and evaluation, the examiner will provide realistic distractions throughout the flight portion of the practical test. Many distractions may be used to evaluate the applicant's ability to divide attention while maintaining safe flight. Some examples of distractions are:

- (1) simulated engine failure;
- (2) identifying a field suitable for emergency landings;
- (3) identifying features or objects on the ground;
- (4) reading the outside air temperature gauge;
- (5) removing objects from the glove compartment or map case;
- (6) questioning by the examiner.

Practical Test Prerequisites

An applicant for a practical test is required by FAR's to:

- (1) pass the appropriate pilot written test since the beginning of the 24th month before the month in which the flight test is taken;
- (2) obtain the applicable instruction and aeronautical experience prescribed for the pilot certificate or rating sought;
- (3) possess a current medical certificate appropriate to the certificate or rating sought;
- (4) meet the age requirement for the issuance of the certificate or rating sought; and
- (5) obtain a written statement from an appropriately certificated flight instructor certifying that the applicant has been given flight instruction in preparation for the practical test within 60 days preceding the date of application. The statement shall also state that the instructor finds the applicant competent to pass the practical test, and that the applicant has satisfactory knowledge of the subject area(s) in which a deficiency was indicated by the airman written test report.

Aircraft and Equipment Requirements for the Practical Test

The applicant is required to provide an appropriate and airworthy aircraft for the practical test. The aircraft must be

equipped for and its operating limitations must not prohibit the pilot operation required on the test.

Satisfactory Performance

The ability of an applicant to perform the required TASKS is based on:

- (1) executing TASKS within the aircraft's performance capabilities and limitations, including use of the aircraft systems;
- (2) executing emergency procedures and maneuvers appropriate to the aircraft;
- (3) piloting the aircraft with smoothness and accuracy;
- (4) exercising good judgment;
- (5) applying aeronautical knowledge; and
- (6) showing mastery of the aircraft within the standards outlined in this book, with the successful outcome of a TASK never seriously in doubt.

Unsatisfactory Performance

If, in the judgment of the examiner, the applicant does not meet the standards of performance of any TASK performed, the associated PILOT OPERATION is failed, and therefore, the practical test is failed. The examiner or applicant may discontinue the test any time after the failure of a PILOT OPERATION makes the applicant ineligible for the certificate or rating sought. The test will be continued ONLY with the consent of the applicant. The applicant is entitled credit for only those TASKS satisfactorily performed. During a retest, however, and at the discretion of the examiner, any TASK may be re-evaluated, including those previously passed.

The tolerances stated in the OBJECTIVE represent the minimum performance expected in good flying conditions.

Consistently exceeding tolerances stated in the objective or failure to take prompt corrective action when tolerances are exceeded, is unsatisfactory performance.

Any action, or lack thereof, by the applicant which requires corrective intervention by the examiner to maintain safe flight

will be disqualifying. It is vitally important that the applicant uses proper and effective scanning techniques to clear the area before performing maneuvers. Ineffective performance in these areas will be disqualifying.

Recording Unsatisfactory Performance

The term PILOT OPERATION is used in regulations to denote areas (procedures and maneuvers) in which the applicant must demonstrate competency prior to being issued a pilot certificate. This practical test book uses the terms AREA OF OPERATION and TASK to denote areas in which competency must be demonstrated. When a disapproval notice is issued, the examiner will record the applicant's unsatisfactory performance in terms of PILOT OPERATIONS appropriate to the practical test conducted.

SECTION 1

AIRPLANE

SINGLE-ENGINE LAND

(ASEL)

Practical Test Standard

FAA-S-81-3

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I. AREA OF OPERATION:

PREFLIGHT PREPARATION

A. TASK: CERTIFICATES AND DOCUMENTS (ASEL)

PILOT OPERATION - 1

REFERENCES: FAR Parts 61 and 91; AC61-21, AC61-23; Pilot's Operating Handbook and FAA-Approved Airplane Flight Manual.

Objective. To determine that the applicant:

1. Exhibits knowledge by explaining the appropriate

a. pilot certificate privileges and limitations.

- b. medical certificate and expiration.
 - c. personal pilot logbook or flight record.
2. Exhibits knowledge by locating and explaining the significance and importance of airplane
- a. airworthiness and registration certificates.
 - b. operating limitations, handbooks, or manuals.
 - c. weight and balance data.
 - d. maintenance requirements and appropriate records.

B. TASK: OBTAINING WEATHER INFORMATION (ASEL)

PILOT OPERATION - 1

REFERENCES: AC00-6, AC00-45, AC61-21, AC61-23, AC61-84.

Objective. To determine that the applicant:

1. Exhibits knowledge of aviation weather information by obtaining, reading, and analyzing
- a. weather reports and forecasts.
 - b. weather charts.
 - c. pilot weather reports.
 - d. SIGMETs and AIRMETs, including wind-shear reports.
 - e. Notices to Airmen.
2. Makes a competent go/no-go decision based on the available weather information.

C. TASK: DETERMINING PERFORMANCE AND LIMITATIONS (ASEL)

PILOT OPERATION - 1

REFERENCES: AC61-21, AC61-23, AC61-84; Pilot's Operating Handbook and FAA-Approved Airplane Flight Manual.

Objective. To determine that the applicant:

1. Exhibits knowledge by explaining airplane weight and balance, performance, and limitations, including adverse aerodynamic effects of exceeding the limits.
2. Uses the available and appropriate performance charts, tables, and data.
3. Computes the weight and balance and determines that the weight and center of gravity will be within limits during all phases of the flight.
4. Calculates airplane performance, considering density altitude, wind, terrain, and other pertinent conditions.
5. Describes the effect of atmospheric conditions on airplane performance.
6. Makes a competent decision on whether the required performance is within the operating limitation of the airplane.

D. TASK: AIRPLANE SYSTEMS (ASEL)

PILOT OPERATION - 1

REFERENCES: AC61-21; Pilot's Operating Handbook and FAA-Approved Airplane Flight Manual.

Objective. To determine that the applicant exhibits knowledge by explaining the airplane systems as appropriate:

1. Primary flight controls and trim.
2. Wing flaps, leading edge devices, and spoilers.
3. Flight instruments.
4. Landing gear
 - a. brakes and tires.

b. nosewheel or tailwheel steering.

5. Engine

a. controls and indicators.

b. induction, carburetion, and injection.

c. exhaust.

6. Propeller.

7. Fuel system

a. tanks, pumps, controls, and indicators.

b. fueling procedures.

c. normal operation.

8. Hydraulic system

a. controls and indicators.

b. pumps and regulators.

c. normal operation.

9. Electrical system

a. controls and indicators.

b. alternators or generators.

c. battery, ground power.

d. normal operation.

10. Environmental system

a. heating.

b. ventilation.

c. controls and indicators.

11. Ice prevention and elimination.

12. Vacuum system.

E. TASK: AEROMEDICAL FACTORS (ASEL)

PILOT OPERATION - 1

REFERENCES: AC61-21, AC67-2; AIM.

Objective. To determine that the applicant:

1. Exhibits knowledge of the elements related to aeromedical factors, including the symptoms, effects, and corrective action of
 - a. hypoxia.
 - b. hyperventilation.
 - c. middle ear and sinus problems.
 - d. spatial disorientation.
 - e. motion sickness.
 - f. carbon monoxide poisoning.
2. Exhibits knowledge of the effects of alcohol and drugs, and the relationship to flight safety.
3. Exhibits knowledge of nitrogen excesses during scuba dives, and how this affects a pilot during flight.

F. TASK: VISUAL INSPECTION (ASEL)

PILOT OPERATION-1

REFERENCES: AC61-21; Pilot's Operating Handbook and FAA-Approved Airplane Flight Manual.

Objective. To determine that the applicant:

1. Exhibits knowledge of airplane visual inspection by explaining the reasons for checking all items.
2. Inspects the airplane by following a checklist.
3. Determines that the airplane is in condition for safe flight emphasizing
 - a. fuel quantity, grade, and type.
 - b. fuel contamination safeguards.

- c. fuel venting.
- d. oil quantity, grade, and type.
- e. fuel, oil, and hydraulic leaks.
- e. flight controls.
- f. structural damage.
- g. exhaust.
- h. tiedowns, control locks, and wheel chocks removal.
- i. ice and frost removal.
- j. security of baggage, cargo, and equipment.

G. TASK: COCKPIT MANAGEMENT (ASEL)

PILOT OPERATION - 1

REFERENCE: AC61-21.

Objective. To determine that the applicant:

1. Exhibits knowledge of cockpit management by explaining related safety and efficiency factors.
2. Organizes and arranges the material and equipment in an efficient manner.
3. Ensures that the safety belts and shoulder harnesses are fastened.
4. Adjusts and locks the foot pedals or pilot's seat to a safe position, and ensures full control movement.
5. Briefs the occupants on the use of safety belts and emergency procedures.

H. TASK: ENGINE START (ASEL)

PILOT OPERATION -

REFERENCES: AC61-21, AC61-23, AC91-13, AC91-55; Pilot's Operating Handbook and FAA-Approved Airplane Flight Manual.

Objective. To determine that the applicant:

1. Exhibits knowledge by explaining engine starting procedures, including starting under various atmospheric conditions.
2. Performs all the items on the before-starting and starting checklists.
3. Accomplishes a safe starting procedure with emphasis on
 - a. positioning the airplane to avoid creating hazards.
 - b. determining that the area is clear.
 - c. adjusting the engine controls.
 - d. setting the brakes.
 - e. preventing undesirable airplane movement after engine start.
 - f. avoiding excessive engine RPM and temperatures.
 - g. checking the engine instruments after engine start.-

I. TASK: TAXI (ASEL)

PILOT OPERATION -

REFERENCE: AC61-21.

Objective. To determine that the applicant:

1. Exhibits knowledge by explaining safe taxi procedures.
2. Adheres to signals and clearances and follows the proper taxi route.
3. Performs a brake check immediately after the airplane begins moving.
4. Controls taxi speed without excessive use of brakes.

5. Recognizes and avoids hazards.
6. Positions the controls for the existing wind conditions.
7. Avoids creating hazards to persons or property.

J. TASK: PRETAKEOFF CHECK (ASEL)

PILOT OPERATION - 1

REFERENCES: AC61-21; Pilot's Operating Handbook and FAA-Approved Airplane Flight Manual.

Objective. To determine that the applicant:

1. Exhibits knowledge of the pretakeoff check by explaining the reasons for checking the items.
2. Positions the airplane to avoid creating hazards.
3. Divides attention inside and outside of the cockpit.
4. Ensures that the engine temperature is suitable for runup and takeoff.
5. Follows the checklist.
6. Adjusts each control or switch as prescribed by the checklist.
7. Ensures that the airplane is in safe operating condition emphasizing
 - a. flight controls and instruments.
 - b. engine and propeller operation.
 - c. seat adjustment and lock.
 - d. safety belts and shoulder harnesses fastened and adjusted.
 - e. doors and windows secured.
8. Reviews the critical takeoff performance airspeeds and distances.
9. Describes takeoff emergency procedures.

II. AREA OF OPERATION:

AIRPORT AND TRAFFIC PATTERN OPERATION

A. TASK: AIRPORT AND RUNWAY MARKING AND LIGHTING (ASEL)

PILOT OPERATION - 2

REFERENCES: AC61-21; AIM.

Objective. To determine that the applicant:

1. Exhibits knowledge by explaining airport and runway markings and lighting aids.
2. Identifies and interprets airport, runway, and taxiway marking aids.
3. Identifies and interprets airport lighting aids.

B. TASK: TRAFFIC PATTERN OPERATION (ASEL)

PILOT OPERATION - 2

REFERENCES: AC61-21, AC61-23; AIM.

Objective. To determine that the applicant:

1. Exhibits knowledge by explaining traffic pattern procedures at uncontrolled airports, including collision and wind-shear avoidance.
2. Follows the established traffic pattern procedures according to instructions or rules.
3. Corrects for wind drift to follow the appropriate ground track.
4. Maintains proper spacing from other traffic.
5. Maintains traffic pattern altitude, +/-100 feet.

6. Maintains desired airspeed, +/-10 knots.
7. Completes the prelanding cockpit checklist.
8. Maintains orientation with the runway in use.
9. Completes a turn to final approach at least one-fourth mile from the approach end of the runway.

C. TASK: POSTFLIGHT PROCEDURE (ASEL)

PILOT OPERATION - 2

REFERENCES: AC61-21, AC61-23, Pilot's Operating Handbook and FAA-Approved Airplane Flight Manual.

Objective. To determine that the applicant:

1. Exhibits knowledge by explaining the elements of after-landing procedures, including parking, temperature stabilization, shutdown, securing, and postflight inspection.
2. Selects the designated or suitable parking area, considering wind conditions and obstructions.
3. Parks the airplane properly.
4. Follows the checklist for engine shutdown, cockpit securing, and deplaning passenger.
5. Secures the airplane properly.
6. Performs a satisfactory postflight inspection.

D. TASK: RADIO COMMUNICATIONS (ASEL)

PILOT OPERATION - 2

REFERENCES: AC61-21, AC61-23; AIM.

NOTE: For the applicant whose airplane IS NOT radio equipped, this task will be orally tested ONLY. For the applicant whose airplane IS radio equipped, this task may be simulated in flight by the examiner.

Objective. To determine that the applicant:

1. Exhibits knowledge by explaining two-way radio communication procedures recommended for use at uncontrolled airports.
2. Selects the frequencies appropriate for the facilities to be used (UNICOM, FSS, or Flight Watch facilities).
3. Transmits requests and reports using recommended standard phraseology.
4. Receives, acknowledges, and complies with radio communications.

III. AREA OF OPERATION:

NORMAL TAKEOFF AND LANDING

A. TASK: NORMAL AND CROSSWIND TAKEOFF (ASEL)

PILOT OPERATION - 8

REFERENCE: AC61-21.

Objective. To determine that the applicant:

1. Exhibits knowledge by explaining the elements of normal and crosswind takeoffs, including airspeeds, configurations, and emergency procedures.
2. Verifies the wind direction.
3. Aligns the airplane on the runway centerline.
4. Applies full aileron deflection in the proper direction, where crosswind exists.
5. Advances the throttle smoothly to maximum allowable power.
6. Checks the engine instruments.

7. Maintains directional control on the runway centerline.
8. Adjusts aileron deflection during acceleration (crosswind conditions).
9. Rotates at the recommended¹ airspeed, accelerates to V_y , and establishes wind-drift correction (crosswind conditions).

¹The term "recommended" refers to the manufacturer's recommendation. If the manufacturer's recommendation is not available, the description contained in AC61-21 will be used.

10. Establishes the pitch attitude for V_y and maintains V_y , +/-10 knots.
11. Retracts the wing flaps as recommended or at a safe altitude.
12. Maintains takeoff power to a safe maneuvering altitude.
13. Maintains a straight track over the extended runway centerline until a turn is required.
14. Completes after-takeoff checklist.

B. TASK: GO-AROUND (ASEL)

PILOT OPERATION - 8

REFERENCE: AC61-21.

Objective. To determine that the applicant:

1. Exhibits knowledge by explaining the elements of the go-around procedure, including making timely decisions, recommended airspeeds, drag effect of wing flaps, and coping with undesirable pitch and yaw tendencies.
2. Makes a timely decision to go around from a rejected landing.
3. Applies takeoff power and establishes the proper pitch attitude to attain the recommended airspeed.
4. Retracts the wing flaps as recommended or at a safe

altitude.

5. Trims the airplane and climbs at V_y , ± 10 knots, and tracks the appropriate traffic pattern.

C. TASK: NORMAL AND CROSSWIND LANDING (ASEL)

PILOT OPERATION - 8

REFERENCE: AC61-21.

Objective. To determine that the applicant:

1. Exhibits knowledge by explaining the elements of normal and crosswind landings, including crosswind limitations, airspeeds, configurations, and related safety factors.
2. Maintains the proper ground track on final approach.
3. Establishes the approach and landing configuration and power required.
4. Maintains the recommended approach airspeed, ± 5 knots.
5. Makes smooth, timely, and correct control application during the final approach and transition from the approach to landing roundout.
6. Touches down smoothly at approximate stalling speed, beyond and within 500 feet of a specified point, with no appreciable drift, and airplane longitudinal axis aligned with the runway centerline.
7. Maintains directional control, increasing aileron deflection into the wind, as necessary, during the after-landing roll.

IV. AREA OF OPERATION:

MAXIMUM PERFORMANCE TAKEOFF AND LANDING

A. TASK: SHORT-FIELD TAKEOFF (ASEL)

PILOT OPERATION - 7

REFERENCE: AC61-21.

Objective. To determine that the applicant:

1. Exhibits knowledge by explaining the elements of a short-field takeoff, including the significance of appropriate airspeeds and configurations, emergency procedures, and the expected performance for existing operating conditions.
2. Selects the recommended wing flap setting.
3. Positions the airplane at the beginning of the takeoff runway aligned on the runway centerline.
4. Advances the throttle smoothly to maximum allowable power.
5. Maintains directional control on the runway centerline.
6. Rotates at the recommended airspeed and accelerates to V_x .
7. Climbs at V_x or recommended airspeed, +5, -0 knots until obstacle is cleared, or until at least 50 feet above the surface, then accelerates to V_y and maintains V_y , +/-10 knots.
8. Retracts the wing flaps as recommended or at a safe altitude.
9. Maintains takeoff power to a safe maneuvering altitude.
10. Maintains a straight track over the extended runway centerline until a turn is required.
11. Completes after-landing checklist.

B. TASK: SHORT-FIELD LANDING (ASEL)

PILOT OPERATION - 7

REFERENCE: AC61-21.

Objective. To determine that the applicant:

1. Exhibits knowledge by explaining the elements of a short-field landing, including airspeeds, configurations, and related safety factors.
2. Considers obstructions, landing surface, and wind conditions.

3. Selects a suitable touchdown point.
4. Establishes the short-field landing configuration, airspeed, and descent angle.
5. Maintains control of the descent rate and the recommended airspeed, +/-5 knots, along the extended runway centerline.
6. Touches down beyond and within 200 feet of a specified point, with minimum float and no appreciable drift and airplane longitudinal axis aligned with the runway centerline.
7. Maintains directional control during the after-landing roll.
8. Applies braking and controls, as necessary, to stop in the shortest distance, consistent with safety.

C. TASK: SOFT-FIELD TAKEOFF (ASEL)

PILOT OPERATION - 7

REFERENCE: AC61-21.

Objective. To determine that the applicant:

1. Exhibits knowledge by explaining the elements of a soft-field takeoff, including the significance of appropriate airspeeds and configurations, emergency procedures, and hazards associated with climbing at an airspeed less than V_x .
2. Selects the recommended wing flap setting.
3. Taxies onto the takeoff surface at a speed consistent with safety.
4. Aligns the airplane on takeoff path without stopping and advances the throttle smoothly to maximum allowable power.
5. Adjusts and maintains a pitch attitude which transfers the weight from the wheels to the wings as rapidly as possible.
6. Maintains directional control on the center of the takeoff path.
7. Lifts off at the lowest possible airspeed and remains in ground effect while accelerating.

8. Accelerates to and maintains V_x , +5, -0 knots, if obstructions must be cleared, otherwise to V_y , +/-10 knots.
9. Retracts the wing flaps as recommended or at a safe altitude.
10. Maintains takeoff power to a safe maneuvering altitude.
11. Maintains a straight track over the center of the extended takeoff path until a turn is required.
12. Completes after-takeoff checklist.

D. TASK: SOFT-FIELD LANDING (ASEL)

PILOT OPERATION - 7

REFERENCE: AC61-21.

Objective. To determine that the applicant:

1. Exhibits knowledge by explaining the elements of a soft-field landing procedure, including airspeeds, configurations, operations on various surfaces, and related safety factors.
2. Evaluates obstructions, landing surface, and wind conditions.
3. Establishes the recommended soft-field approach and landing configuration and airspeed.
4. Maintains recommended airspeed, +/-5 knots, along the extended runway centerline.
5. Touches down smoothly at minimum descent rate and groundspeed with no appreciable drift and airplane longitudinal axis aligned with runway centerline.
6. Maintains directional control during the after-landing roll.
7. Maintains proper position of flight controls and sufficient speed to taxi on soft surface.

V. AREA OF OPERATION:

FLIGHT AT CRITICALLY SLOW AIRSPEED

A. TASK: STALL - POWER-ON (ASEL)

PILOT OPERATION - 5

REFERENCE: AC61-21.

Objective. To determine that the applicant:

1. Exhibits knowledge by explaining the aerodynamic factors and flight situations that may result in stallpower-on, including proper recovery procedures, and hazards of stalling during uncoordinated flight.
2. Selects an entry altitude that will allow a recovery to be completed no lower than 1,500 feet AGL.
3. Establishes takeoff or normal climb configuration.
4. Establishes takeoff or climb airspeed before applying takeoff or climb power (reduced power may be used to avoid excessive pitch-up during entry only).
5. Establishes and maintains a pitch attitude straight ahead that will induce a stall.
6. Establishes and maintains a pitch attitude that will induce a stall in a turn with a bank angle of 20° , $\pm 10^{\circ}$.
7. Applies proper control to maintain coordinated flight.
8. Recognizes the indications of a stall and promptly recovers with a minimum loss of altitude by simultaneously decreasing the angle of attack, leveling the wings, and adjusting the power as necessary to regain normal flight attitude.
9. Avoids a secondary stall.
10. Retracts the wing flaps and establishes straight-and-level flight.

B. TASK: STALL - POWER-OFF (ASEL)

PILOT OPERATION - 5

REFERENCE: AC61-21.

Objective. To determine that the applicant:

1. Exhibits knowledge by explaining the aerodynamic factors and flight situations that may result in stallpower-off, including proper recovery procedures, and hazards of stalling during uncoordinated flight.
2. Selects an entry altitude that will allow a recovery to be completed no lower than 1,500 feet AGL.
3. Establishes the normal approach or landing configuration and airspeed with the throttle closed or at a reduced power setting.
4. Establishes a straight glide or a gliding turn with a bank angle of 30° , $\pm 10^{\circ}$, in coordinated flight.
5. Establishes and maintains a landing pitch attitude that will induce a stall.
6. Recognizes the indications of a stall and promptly recovers with a minimum loss of altitude by simultaneously decreasing the angle of attack, leveling the wings, and adjusting the power as necessary to regain normal flight attitude.
7. Avoids a secondary stall.
8. Retracts the wing flaps and establishes straight-and-level flight.

C. TASK: MANEUVERING DURING SLOW FLIGHT (ASEL)

PILOT OPERATION - 5

REFERENCE: AC61-21.

Objective. To determine that the applicant:

1. Exhibits knowledge by explaining the flight characteristics and controllability associated with maneuvering during slow flight.
2. Selects an entry altitude that will allow the maneuver to be performed no lower than 1,500 feet AGL.
3. Establishes and maintains slow flight during coordinated straight and turning flight in various configurations and bank angles.

4. Maintains the desired altitude, +/-100 feet.
5. Maintains the specified heading during straight flight, +/-10°.
6. Maintains the specified bank angle, +/-10°, during turning flight.
7. Maintains an airspeed of 10 knots above stall speed, +/-5 knots.

D. TASK: CONSTANT-ALTITUDE TURN (ASEL)

PILOT OPERATION - 5

REFERENCE: AC61-21.

Objective. To determine that the applicant:

1. Exhibits knowledge by explaining the performance factors associated with constant-altitude turns, including increased load factors, power required, and overbanking tendency.
2. Selects an altitude that will allow the maneuver to be performed no lower than 1,500 feet AGL.
3. Establishes an airspeed which does not exceed airplane design maneuvering airspeed.
4. Enters a 360° turn, maintaining a bank angle of 40° to 50°, in coordinated flight.
5. Divides attention between airplane control and orientation.
6. Rolls out at the desired heading, +/-10°.
7. Maintains the desired altitude, +/-200 feet.

VI. AREA OF OPERATION:

FLIGHT MANEUVERING BY REFERENCE TO GROUND OBJECTS

A. TASK: RECTANGULAR COURSE (ASEL)

PILOT OPERATION - 3

REFERENCE: AC61-21.

Objective. To determine that the applicant:

1. Exhibits knowledge by explaining wind-drift correction in straight and turning flight and the relationship of the rectangular course to airport traffic patterns.
2. Selects a suitable reference area.
3. Enters a left or right pattern at a desired distance from the selected reference area and at 600 to 1,000 feet AGL.
4. Divides attention between airplane control and ground track, and maintains coordinated flight control.
5. Applies the necessary wind-drift corrections during straight and turning flight to track a uniform distance outside the selected reference area.
6. Maintains the desired altitude, +/-100 feet.
7. Maintains the desired airspeed, +/-10 knots.
8. Avoids bank angles in excess of 45°.
9. Reverses course as directed by the examiner.

B. TASK: "S-TURNS" ACROSS A ROAD (ASEL)

PILOT OPERATION - 3

REFERENCE: AC61-21.

Objective. To determine that the applicant:

1. Exhibits knowledge by explaining the procedures associated with "S-turns," and wind-drift correction throughout the maneuver.
2. Selects a suitable ground reference line.
3. Enters perpendicular to the selected reference line at 600 to 1,000 feet AGL.

4. Divides attention between airplane control and ground track, and maintains coordinated flight control.
5. Applies the necessary wind-drift correction to track a constant radius turn on each side of the selected reference line.
6. Reverses the direction of turn directly over the selected reference line.
7. Maintains the desired altitude, +/-100 feet.
8. Maintains the desired airspeed, +/-10 knots.
9. Avoids bank angles in excess of 45°.

C. TASK: TURNS AROUND A POINT (ASEL)

PILOT OPERATION - 3

REFERENCE: AC61-21.

Objective. To determine that the applicant:

1. Exhibits knowledge by explaining the procedures associated with turns around a point and wind-drift correction throughout the maneuver.
2. Selects a suitable ground reference point.
3. Enters a left or right turn at a desired distance from the selected reference point at 600 to 1,000 feet AGL.
4. Divides attention between airplane control and ground track, and maintains coordinated flight control.
5. Applies the necessary wind-drift corrections to track a constant radius turn around the selected reference point.
6. Maintains the desired altitude, +/-100 feet.
7. Maintains the desired airspeed, +/-10 knots.

VII. AREA OF OPERATION:

NAVIGATION

A. TASK: PILOTAGE (ASEL)

PILOT OPERATION - 4

REFERENCES: AC61-21, AC61-23.

Objective. To determine that the applicant:

1. Exhibits knowledge by explaining pilotage techniques and procedures.
2. Follows the preplanned course solely by visual reference to landmarks, with the aid of a magnetic compass.
3. Identifies landmarks by relating the surface features to chart symbols.
4. Verifies airplane position within 3 nautical miles at all times.
5. Maintains the selected altitudes, +/-200 feet.
6. Maintains the appropriate power setting for the desired airspeed.
7. Maintains the desired heading, +/-10°.
8. Follows the climb, cruise, and descent checklists.
9. Requests in-flight weather information and uncontrolled airport traffic advisories, as necessary, and properly operates the transponder. (Note: These requirements may be simulated in flight by the examiner when testing the applicant whose airplane IS radio or transponder equipped, and will be orally tested ONLY for the applicant whose airplane IS NOT radio or transponder equipped.)

B. TASK: DIVERSION (ASEL)

PILOT OPERATION - 4

REFERENCES: AC61-21, AC61-23.

Objective. To determine that the applicant:

1. Exhibits knowledge by explaining the procedures for diverting to an alternate airport, including the recognition of conditions requiring a diversion.

2. Selects an alternate airport and route.
3. Proceeds promptly toward the alternate airport.
4. Makes a reasonable estimate of heading and fuel consumption.
5. Maintains the appropriate altitude, +/-200 feet and the desired airspeed, +/-10 knots.

C. TASK: LOST PROCEDURE (ASEL)

PILOT OPERATION - 4

REFERENCES: AC61-21, AC61-23.

Objective. To determine that the applicant:

1. Exhibits knowledge by explaining lost procedures, including the following items
 - a. maintaining the original or an appropriate heading, identifying landmarks, and climbing, if necessary or possible.
 - b. proceeding to and identifying the nearest concentration of prominent landmarks.
 - c. planning a precautionary landing if deteriorating visibility and/or fuel exhaustion is imminent.
2. Selects the best course of action when given a lost situation.

VIII. AREA OF OPERATION:

EMERGENCY OPERATION

A. TASK: SYSTEMS AND EQUIPMENT MALFUNCTIONS (ASEL)

PILOT OPERATION - 6

REFERENCES: AC61-21; Pilot's Operating Handbook and FAA-Approved Airplane Flight Manual.

Objective. To determine that the applicant:

1. Exhibits knowledge, as appropriate, by explaining causes, indications, and pilot actions for various systems and equipment malfunctions.
2. Analyzes the situation and takes appropriate action for simulated emergencies such as
 - a. partial power loss.
 - b. rough running engine or overheat.
 - c. carburetor or induction icing.
 - d. loss of oil pressure.
 - e. fuel starvation.
 - f. engine compartment fire.
 - g. electrical system malfunction.
 - h. flap malfunction.
 - i. door opening in flight.
 - j. trim inoperative.
 - k. other malfunctions.

**B. TASK: EMERGENCY APPROACH AND LANDING (SIMULATED)
(ASEL)**

PILOT OPERATION - 6

REFERENCE: AC612-1.

Objective. To determine that the applicant:

1. Exhibits knowledge by explaining approach and landing procedures to be used in various emergencies.
2. Establishes and maintains the recommended best-glide airspeed and configuration during simulated emergencies.
3. Selects a suitable landing area within gliding distance.

4. Plans and follows a flight pattern to the selected landing area, considering altitude, wind, terrain, obstructions, and other factors.
5. Follows an appropriate emergency checklist.
6. Attempts to determine the reason for the simulated malfunction.
7. Maintains correct control of the airplane.

C. TASK: RADIO COMMUNICATIONS (ASEL)

PILOT OPERATION - 6

REFERENCE: AIM.

NOTE: For the applicant whose airplane IS NOT radio or transponder equipped, this task will be orally tested ONLY. For the applicant whose airplane IS radio or transponder equipped, this task may be simulated in flight by the examiner.

Objective. To determine that the applicant:

1. Exhibits knowledge by explaining radio communications or transponder operation procedures to be used in the event an emergency occurs.
2. Selects the appropriate emergency radio frequency (121.5MHz) and/or adjusts transponder to appropriate emergency code.
3. Understands that two-way radio communications and/or radar coverage may not be available.

PRACTICAL TEST CHECKLIST

(ASEL)

(SUGGESTED)

APPLICANT'S NAME

EXAMINER'S NAME

DATE

TYPE CHECK

I. PREFLIGHT PREPARATION

- A. Certificates and Documents
- B. Obtaining Weather Information
- C. Determining Performance and Limitations
- D. Airplane Systems
- E. Aeromedical Factors
- F. Visual Inspection
- G. Cockpit Management
- H. Engine Start
- I. Taxi
- J. Pretakeoff Check

II. AIRPORT AND TRAFFIC PATTERN OPERATION

- A. Airport and Runway Marking and Lighting
- B. Traffic Pattern Operation
- C. Postflight Procedure
- D. Radio Communications

III. NORMAL TAKEOFF AND LANDING

- A. Normal and Crosswind Takeoff
- B. Go-Around
- C. Normal and Crosswind Landing

IV. MAXIMUM PERFORMANCE TAKEOFF AND LANDING

- A. Short-Field Takeoff

B. Short-Field Landing

C. Soft-Field Takeoff

D. Soft-Field Landing

V. FLIGHT AT CRITICALLY SLOW AIRSPEED

A. Stall - Power-On

B. Stall - Power-Off

C. Maneuvering During Slow Flight

D. Constant-Altitude Turn

VI. FLIGHT MANEUVERING BY REFERENCE TO GROUND OBJECTS

A. Rectangular Course

B. "S-Turns" Across a Road

C. Turns Around a Point

VII. NAVIGATION

A. Pilotage

B. Diversion

C. Lost Procedure

VIII. EMERGENCY OPERATION

A. Systems and Equipment Malfunctions

B. Emergency Approach and Landing (Simulated)

C. Radio Communications

APPLICANT'S PRACTICAL TEST CHECKLIST

(SUGGESTED)

APPOINTMENT WITH INSPECTOR OR EXAMINER:

NAME

TIME/DATE

ACCEPTABLE AIRCRAFT

Aircraft Documents:

Airworthiness Certificate

Registration Certificate

Operating Limitations

Aircraft Maintenance Records:

Airworthiness Inspections

PERSONAL EQUIPMENT

Current Aeronautical Charts

Current AIM

PERSONAL RECORDS

Student Pilot Certificate

Medical Certificate

Completed FAA Form 8710-1, Airman Certificate and/or
Rating Application

AC Form 80-2, Airman Written Test Report

Logbook with Instructor's Endorsement

Notice of Disapproval (if applicable)

Approved School Graduation Certificate (if applicable)

Examiner's Fee (if applicable)

SECTION 2

AIRPLANE

SINGLE-ENGINE SEA

(ASES)

Practical Test Standard

FAA-S-81-3

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FAA-S-81-3

I. AREA OF OPERATION: PREFLIGHT PREPARATION

- A. TASK: CERTIFICATES AND DOCUMENTS (ASES)

PILOT OPERATION - 1

REFERENCES: FAR Parts 61 and 91; AC61-21, AC61-23; Seaplane

Handbook or Manual.

Objective. To determine that the applicant:

1. Exhibits knowledge by explaining the appropriate
 - a. pilot certificate privileges and limitations.
 - b. medical certificate and expiration.
 - c. personal pilot logbook or flight record.
2. Exhibits knowledge by locating and explaining the significance and importance of seaplane
 - a. airworthiness and registration certificates.
 - b. operating limitations, handbooks, or manuals.
 - c. weight and balance data.
 - d. maintenance requirements and appropriate records.

B. TASK: OBTAINING WEATHER INFORMATION (ASES)

PILOT OPERATION - 1

REFERENCES: AC00-6, AC00-45, AC61-21, AC61-23, AC61-84.

Objective. To determine that the applicant:

1. Exhibits knowledge of aviation weather information by obtaining, reading, and analyzing
 - a. weather reports and forecasts.
 - b. weather charts.
 - c. pilot weather reports.
 - d. SIGMETs and AIRMETs, including wind-shear reports.
 - e. Notices to Airmen.
2. Makes a competent go/no-go decision based on the available weather information.

C. TASK: WATER AND SEAPLANE CHARACTERISTICS (ASES)

PILOT OPERATION - 1

REFERENCES: AC61-21; Seaplane Handbook or Manual.

Objective. To determine that the applicant:

1. Exhibits knowledge by explaining the characteristics of a water surface as affected by features such as
 - a. size and location.
 - b. direction or strength of water current.
 - c. presence of debris.
 - d. protected or unprotected areas.
 - e. effect of surface wind.
 - f. sandbars, islands, or shoals.
 - g. other features.
2. Exhibits knowledge by explaining float or hull construction and their effect on seaplane performance.
3. Exhibits knowledge by explaining the causes of porpoising and skipping and pilot action to prevent or correct these occurrences.

D. TASK: SEAPLANE BASES, RULES, AND AIDS TO MARINE NAVIGATION (ASES)

PILOT OPERATION - 1

REFERENCES: FAR Part 91; AC61-21; Rules of the Road; Aids to Marine Navigation.

Objective. To determine that the applicant:

1. Exhibits knowledge by explaining
 - a. how to locate and identify seaplane bases on charts or directories.

b. the operating restrictions at various seaplane bases.

c. the differences between operations at various geographical locations.

2. Exhibits knowledge by explaining right-of-way, steering, and sailing rules pertinent to seaplane operation on the surface.

3. Exhibits knowledge by explaining the purpose and identification of marine navigation aids such as buoys, beacons, lights, and sound signals.

E. TASK: DETERMINING PERFORMANCE AND LIMITATIONS (ASES)

PILOT OPERATION - 1

REFERENCES: AC61-21, AC61-23, AC61-84; Seaplane Handbook or Manual.

Objective. To determine that the applicant:

1. Exhibits knowledge by explaining seaplane weight and balance, performance, and limitations, including adverse aerodynamic effects of exceeding the limits.

2. Uses the available and appropriate performance charts, tables, and data.

3. Computes the weight and balance and determines that the weight and center of gravity will be within limits during all phases of the flight.

4. Calculates seaplane performance, considering density altitude, wind, terrain, and other pertinent conditions.

5. Describes the effects of atmospheric conditions on seaplane performance.

6. Makes a competent decision on whether the required performance is within seaplane capability and operating limitations.

F. TASK: SEAPLANE SYSTEMS (ASES)

PILOT OPERATION - 1

REFERENCES: AC61-21; Seaplane Handbook or Manual.

Objective. To determine that the applicant exhibits knowledge by explaining seaplane systems, as appropriate:

1. Primary flight controls and trim.
2. Wing flaps, leading edge devices, and spoilers.
3. Flight instruments.
4. Floats or hull.
5. Engine
 - a. controls and indicators.
 - b. induction, carburetion, or injection.
 - c. exhaust.
6. Propeller.
7. Fuel system
 - a. tanks, pumps, controls, and indicators.
 - b. fueling procedures.
 - c. normal operation.
8. Hydraulic system
 - a. controls and indicators.
 - b. pumps and regulators.
 - c. normal operation.
9. Electrical system
 - a. controls and indicators.
 - b. alternators or generators.
 - c. battery, ground power.
 - d. normal operation.

10. Environmental system

a. heating.

b. ventilation.

c. controls and indicators.

11. Ice prevention and elimination.

12. Vacuum system.

G. TASK: AEROMEDICAL FACTORS (ASES)

PILOT OPERATION - 1

REFERENCES: AC61-21, AC67-2; AIM.

Objective. To determine that the applicant:

1. Exhibits knowledge of the elements related to aeromedical factors, including the symptoms, effects, and corrective action of

a. hypoxia.

b. hyperventilation.

c. middle ear and sinus problems.

d. spatial disorientation.

e. motion sickness.

f. carbon monoxide poisoning.

2. Exhibits knowledge of the effects of alcohol and drugs, and the relationship to flight safety.

3. Exhibits knowledge of nitrogen excesses during scuba dives, and how this affects a pilot during flight.

H. TASK: VISUAL INSPECTION (ASES)

PILOT OPERATION - 1

REFERENCES: AC61-21; Seaplane Handbook or Manual.

Objective. To determine that the applicant:

1. Exhibits knowledge of seaplane visual inspection by explaining the reasons for checking all items.
2. Inspects the seaplane by following a checklist.
3. Determines that the seaplane is in condition for safe flight emphasizing
 - a. fuel quantity, grade, and type.
 - b. fuel contamination safeguards.
 - c. oil quantity, grade, and type.
 - d. fuel, oil, and hydraulic leaks.
 - e. flight controls and water rudder.
 - f. structural damage.
 - g. exhaust system.
 - h. float or hull inspection, including water removal.
 - i. ice and frost removal.
 - j. tiedowns and control lock removal.
 - k. security of baggage, cargo, and equipment.

I. TASK: COCKPIT MANAGEMENT (ASES)

PILOT OPERATION - 1

REFERENCE: AC61-21.

Objective. To determine that the applicant:

1. Exhibits knowledge of cockpit management by explaining related safety and efficiency factors.
2. Organizes and arranges the material and equipment in an efficient manner.
3. Ensures that the safety belts and shoulder harnesses are fastened.

4. Adjusts and locks the foot pedals or pilot's seat to a safe position and ensures full control movement.

5. Briefs the occupants on the use of safety belts and emergency procedures.

J. TASK: ENGINE START (ASES)

PILOT OPERATION - 1

REFERENCES: AC61-21, AC91-3, AC91-55; Seaplane Handbook or Manual.

Objective. To determine that the applicant:

1. Exhibits knowledge by explaining engine starting procedures, including starting under various atmospheric conditions.
2. Performs all items on the before-starting checklist.
3. Accomplishes safe starting procedures with emphasis on
 - a. positioning the seaplane to avoid creating hazards, and to ensure a suitable taxi route.
 - b. determining that the area is clear.
 - c. adjusting the engine controls.
 - d. preventing undesirable seaplane movement after engine start.
 - e. avoiding excessive engine RPM and temperatures.
 - f. checking engine instruments after engine start.

K. TASK: TAXI (ASES)

PILOT OPERATION - 1

REFERENCES: AC61-21; Seaplane Handbook or Manual.

Objective. To determine that the applicant:

1. Exhibits knowledge by explaining safe taxi procedures, including the prevention and correction of porpoising and

skipping.

2. Plans and follows the most favorable course, considering existing winds, water currents, water conditions, and hazards.
3. Controls taxi speed.
4. Positions the controls for existing wind conditions.
5. Uses water rudder effectively.
6. Avoids excessive water spray on the propeller.
7. Taxies straight and performs 180 and 360 turns in idle, plowing, and step positions.
8. Takes action to prevent and correct porpoising or skipping.
9. Avoids creating hazards to persons or property.

L. TASK: SAILING (ASES)

PILOT OPERATION - 1

REFERENCES: AC61-21; Seaplane Handbook or Manual.

Objective. To determine that the applicant:

1. Exhibits knowledge by explaining the techniques used in sailing.
2. Recognizes the conditions and situations when sailing would be used.
3. Plans and follows most favorable course toward a point, considering the effect of wind, water currents, water conditions, and hazards.
4. Uses flight controls, flaps, doors, water rudder, and power to follow the desired course.
5. Changes direction from downwind to crosswind.
6. Controls seaplane speed, as required, for the conditions.

M. TASK: PRETAKEOFF CHECK (ASES)

PILOT OPERATION - 1

REFERENCES: AC61-21; Seaplane Handbook or Manual.

Objective. To determine that the applicant:

1. Exhibits knowledge of the pretakeoff check by explaining the reasons for checking the items.
2. Positions the seaplane to avoid creating hazards.
3. Divides attention inside and outside of the cockpit.
4. Ensures that the engine temperatures and pressures are suitable for runup and takeoff.
5. Follows the checklist.
6. Positions each control or switch as prescribed by the checklist.
7. Ensures that the seaplane is in safe operating condition emphasizing
 - a. flight controls and instruments.
 - b. engine and propeller operation.
 - c. seat adjustment and lock.
 - d. safety belts and shoulder harnesses fastened and adjusted.
 - e. doors and windows secured.
 - f. water rudder and landing gear positioned.
8. Reviews critical takeoff performance airspeeds and takeoff distances.
9. Describes takeoff emergency procedures.
10. Ensures that takeoff area is free from hazards.

II. AREA OF OPERATION: SEAPLANE BASE AND TRAFFIC PATTERN OPERATION

A. TASK: SEAPLANE BASE AND LANDING AREA MARKING (ASES)

PILOT OPERATION - 2

REFERENCES: AC61-21; AIM.

Objective. To determine that the applicant:

1. Exhibits knowledge by explaining seaplane base and landing area marking.
2. Identifies and interprets seaplane base and landing area marking.

B. TASK: TRAFFIC PATTERN OPERATION (ASES)

PILOT OPERATION - 2

REFERENCES: AC61-21, AC61-23; AIM.

Objective. To determine that the applicant:

1. Exhibits knowledge by explaining traffic pattern procedures at uncontrolled airports, including collision and wind-shear avoidance.
2. Follows the established traffic pattern procedures consistent with instructions or rules.
3. Corrects for wind drift to follow the appropriate ground track.
4. Maintains proper spacing from other traffic.
5. Maintains the traffic pattern altitude, +/-100 feet.
6. Maintains the desired airspeed, +/-10 knots.
7. Completes the prelanding cockpit checklist.
8. Maintains orientation with the landing area in use.
9. Completes a turn to final approach at least one-fourth mile from the approach end of the landing area.

C. TASK: ANCHORING (ASES)

PILOT OPERATION - 2

REFERENCES: AC61-21; Seaplane Handbook or Manual.

Objective. To determine that the applicant:

1. Exhibits knowledge by explaining the procedure used to anchor the seaplane.
2. Selects a suitable area for anchoring, considering seaplane movement, water depth, tides, wind, and weather changes.
3. Uses an adequate number of anchors and lines of sufficient strength and length to ensure seaplane security.

D. TASK: DOCKING AND MOORING (ASES)

PILOT OPERATION - 2

REFERENCES: AC61-21; Seaplane Handbook or Manual.

Objective. To determine that the applicant:

1. Exhibits knowledge by explaining the procedures used to dock or moor the seaplane.
2. Approaches the dock or mooring buoy in the proper direction and at a suitable speed, considering obstructions, wind, and water currents.
3. Docks or moors the seaplane to ensure seaplane security.

E. TASK: BEACHING (ASES)

PILOT OPERATION - 2

REFERENCES: AC61-21; Seaplane Handbook or Manual.

Objective. To determine that the applicant:

1. Exhibits knowledge by explaining the procedures used to beach the seaplane.
2. Selects a suitable area for beaching, considering water depth and currents, tides, wind, and weather changes.

3. Approaches the beach in the proper direction and at a suitable speed, considering the beach condition.

4. Beaches the seaplane and ensures seaplane security.

F. TASK: RAMPING (ASES)

PILOT OPERATION - 2

REFERENCES: AC61-21; Seaplane Handbook or Manual.

Objective. To determine that the applicant:

1. Exhibits knowledge by explaining the procedures used to ramp the seaplane.
2. Approaches the ramp in the proper direction and at a suitable speed, considering winds and water currents.
3. Ramps the seaplane ensuring proper alignment and position.

G. TASK: POSTFLIGHT PROCEDURE (ASES)

PILOT OPERATION - 2

REFERENCES: AC61-21, AC61-23; Seaplane Handbook or Manual.

Objective. To determine that the applicant:

1. Exhibits knowledge by explaining the elements of after-landing procedures, including parking, temperature stabilization, shutdown, securing, and postflight inspection.
2. Selects the designated or suitable parking area, considering wind conditions and obstructions.
3. Parks the seaplane properly.
4. Follows the recommended procedure for engine shutdown, cockpit securing, and deplaning passenger.
5. Secures the seaplane properly.
6. Performs a satisfactory postflight inspection.

H. TASK: RADIO COMMUNICATIONS (ASES)

PILOT OPERATION - 2

REFERENCES: AC61-21, AC61-23; AIM.

NOTE: For the applicant whose seaplane IS NOT radio equipped, this task will be orally tested ONLY. For the applicant whose seaplane IS radio equipped, this task may be simulated in flight by the examiner.

Objective. To determine that the applicant:

1. Exhibits knowledge by explaining two-way radio communication procedures recommended for use at uncontrolled seaports/airports.
2. Selects the frequencies appropriate for the facilities to be used (UNICOM, FSS, or Flight Watch facilities).
3. Transmits requests and reports using recommended standard phraseology.
4. Receives, acknowledges, and complies with radio communications.

III. AREA OF OPERATION: TAKEOFF AND LANDING

A. TASK: NORMAL AND CROSSWIND TAKEOFF (ASES)

PILOT OPERATION - 8

REFERENCES: AC61-21, Seaplane Handbook or Manual.

Objective. To determine that the applicant:

1. Exhibits knowledge by explaining the elements of normal and crosswind takeoffs, including airspeeds, configurations, and emergency procedures.
2. Verifies the wind direction.
3. Selects the recommended wing flap setting, if appropriate.

\1The term ``recommended" refers to the manufacturer's recommendation. If this recommendation is non-existent, the description in AC6121 or any other appropriate material may be used.

4. Clears the area before takeoff.
5. Aligns the seaplane with the desired takeoff path.
6. Applies full aileron deflection in the proper direction, where a crosswind exists.
7. Advances the throttle smoothly to maximum allowable power.
8. Checks the engine instruments.
9. Avoids excessive water spray on the propeller.
10. Establishes and maintains the most efficient planing attitude and corrects for porpoising and skipping.
11. Maintains directional control.
12. Adjusts aileron deflection as necessary during acceleration (crosswind condition).
13. Lifts off at the recommended airspeed and accelerates to V_y , and establishes wind-drift correction (crosswind condition).
14. Establishes the pitch attitude for V_y , and maintains V_y , +/-10 knots.
15. Retracts the wing flaps as recommended or at a safe altitude.
16. Maintains takeoff power to a safe maneuvering altitude.
17. Maintains straight track over the extended takeoff path or remains over the water until at a safe altitude.
18. Completes after-takeoff checklist.

B. TASK: GO-AROUND (ASES)

PILOT OPERATION - 8

REFERENCES: AC61-21; Seaplane Handbook or Manual.

Objective. To determine that the applicant:

1. Exhibits knowledge by explaining the elements of a go-around procedure, including making a timely decision, recommended airspeeds, drag effect of wing flaps, and coping with undesirable pitch and yaw tendencies.
2. Makes a timely decision to go around.
3. Applies takeoff power and establishes the proper pitch attitude to attain the recommended airspeed.
4. Retracts the wing flaps as recommended or at a safe altitude.
5. Trims the seaplane and climbs at V_y , +/-10 knots, and maintains the proper track.

C. TASK: NORMAL AND CROSSWIND LANDING (ASES)

PILOT OPERATION - 8

REFERENCES: AC61-21; Seaplane Handbook or Manual.

Objective. To determine that the applicant:

1. Exhibits knowledge by explaining the elements of normal and crosswind landings, including crosswind limitations, airspeeds, configurations, and related safety factors.
2. Selects the most suitable approach path and landing area, considering surrounding terrain, water condition and depth, debris, and wind.
3. Selects the most suitable crosswind technique to use, considering existing conditions (crosswind conditions).
4. Maintains the proper track on final approach.
5. Establishes the approach and landing configuration and power required.
6. Maintains the recommended approach airspeed, +/-5 knots.
7. Makes smooth, timely, and correct control application during final approach and transition from approach to landing attitude.
8. Contacts the water at the recommended airspeed and with the correct pitch attitude and proper wind-drift correction

during touchdown and landing completion (crosswind conditions).

9. Remains on-the-step after touchdown or assumes idling position.

D. TASK: GLASSY WATER TAKEOFF (ASES)

PILOT OPERATION - 8

REFERENCES: AC61-21; Seaplane Handbook or Manual.

Objective. To determine that the applicant:

1. Exhibits knowledge by explaining the elements of a glassy water takeoff, including airspeeds, configurations, and emergency procedures.
2. Selects the recommended wing flap setting.
3. Clears the area before takeoff.
4. Aligns the seaplane with the desired takeoff path.
5. Advances the throttle smoothly to maximum allowable power.
6. Checks engine instruments.
7. Avoids excessive water spray on the propeller.
8. Establishes and maintains the most efficient planing attitude and corrects for porpoising, skipping, and unusual increase in water drag.
9. Maintains directional control.
10. Lifts off at the recommended airspeed and accelerates to V_y , avoiding inadvertent water contact after lift-off.
11. Establishes the pitch attitude for V_y , and maintains V_y , +/-10 knots.
12. Retracts the wing flaps as recommended or at a safe altitude.
13. Maintains takeoff power to a safe maneuvering altitude.
14. Maintains straight flight along the extended takeoff path or remains over the water until at a safe altitude.

15. Completes after-takeoff checklist.

E. TASK: GLASSY WATER LANDING (ASES)

PILOT OPERATION - 8

REFERENCES: AC61-21; Seaplane Handbook or Manual.

Objective. To determine that the applicant:

1. Exhibits knowledge by explaining the elements of a glassy water landing, including deceptive characteristics of glassy water.
2. Selects the most suitable approach path and landing area, considering surrounding terrain, water depth, and debris.
3. Maintains the proper track on final approach.
4. Establishes the approach and landing configuration and power required.
5. Maintains the recommended approach airspeed, +/-5 knots.
6. Makes smooth, timely, and correct flight control and power application to maintain a stabilized approach pitch attitude and rate of descent.
7. Contacts the water in the stabilized approach pitch attitude and assumes the idling position.

F. TASK: ROUGH WATER TAKEOFF (ASES)

PILOT OPERATION - 8

REFERENCES: AC61-21; Seaplane Handbook or Manual.

Objective. To determine that the applicant:

1. Exhibits knowledge by explaining the elements of a rough water takeoff, including airspeeds, configurations, limitations, and emergency procedures.
2. Selects the recommended wing flap setting.
3. Selects and clears the most suitable area for takeoff,

considering water surface condition.

4. Aligns the seaplane with the desired takeoff path.
5. Advances the throttle smoothly to maximum allowable power.
6. Checks engine instruments.
7. Avoids excessive water spray on the propeller.
8. Establishes and maintains the most efficient planing attitude and corrects for porpoising, skipping, or excessive bouncing.
9. Maintains directional control.
10. Lifts off at the recommended airspeed and accelerates to V_y .
11. Establishes the pitch attitude for V_y , +/-10 knots.
12. Retracts the wing flaps as recommended or at a safe altitude.
13. Maintains takeoff power to a safe maneuvering altitude.
14. Maintains a straight track over the extended takeoff path or remains over the water until at a safe altitude.
15. Completes after-takeoff checklist.

G. TASK: ROUGH WATER LANDING (ASES)

PILOT OPERATION - 8

REFERENCES: AC61-21; Seaplane Handbook or Manual.

Objective. To determine that the applicant:

1. Exhibits knowledge by explaining the elements of a rough water landing, including airspeeds, configurations, and related safety factors.
2. Selects the most suitable approach path and landing area, considering surrounding terrain, water condition and depth, debris, and wind.
3. Maintains the proper track on final approach.

4. Establishes the approach and landing configuration and power required.
5. Maintains the recommended approach airspeed, 5 knots.
6. Makes smooth, timely, and correct control application during final approach and transition from approach to landing attitude.
7. Contacts the water with the correct pitch attitude and adjusts power, as necessary.

H. TASK: MAXIMUM PERFORMANCE TAKEOFF (ASES)

PILOT OPERATION - 7

REFERENCES: AC61-21; Seaplane Handbook or Manual.

Objective. To determine that the applicant:

1. Exhibits knowledge by explaining the elements of a maximum performance takeoff, including airspeeds, configurations, and emergency procedures.
2. Selects the recommended wing flap setting.
3. Selects and clears the most suitable course for takeoff, considering the size of the takeoff area and obstacles.
4. Establishes and maintains planing phase downwind and corrects for porpoising and skipping.
5. Avoids excessive water spray on the propeller.
6. Makes a step turn into the wind at the proper speed and appropriate radius.
7. Advances the throttle smoothly to maximum allowable power.
8. Checks the engine instruments.
9. Lifts off at the recommended airspeed and accelerates to V_x .
10. Maintains climb at V_x , +5, -0 knots, until obstacle is cleared, or at least 50 feet above the surface, then accelerates to V_y , and maintains V_y , +/-10 knots.
11. Retracts the wing flaps as recommended or at a safe

altitude.

12. Maintains takeoff power to a safe maneuvering altitude.

13. Completes after-takeoff checklist.

I. TASK: MAXIMUM PERFORMANCE LANDING (ASES)

PILOT OPERATION - 7

REFERENCES: AC61-21; Seaplane Handbook or Manual.

Objective. To determine that the applicant:

1. Exhibits knowledge by explaining the elements of a maximum performance landing, including airspeeds, configurations, and related safety factors.
2. Selects the most suitable approach path and landing area, considering surrounding terrain, water condition and depth, debris, and wind.
3. Maintains the proper track on final approach.
4. Establishes the recommended maximum performance airspeed, configuration, and descent angle.
5. Maintains precise control of descent rate and the recommended airspeed, +/-5 knots.
6. Makes smooth, timely, and correct control application during final approach and transition from approach to landing attitude.
7. Contacts the water at the minimum safe airspeed beyond and within 200 feet of a designated point.

IV. AREA OF OPERATION: FLIGHT AT CRITICALLY SLOW AIRSPEED

A. TASK: STALL - POWER-ON (ASES)

PILOT OPERATION - 5

REFERENCE: AC61-21.

Objective. To determine that the applicant:

1. Exhibits knowledge by explaining the aerodynamic factors and flight situations that may result in stallpower-on, including proper recovery procedures, and hazards of stalling during uncoordinated flight.
2. Selects an entry altitude that will allow a recovery to be completed no lower than 1,500 feet AGL.
3. Establishes takeoff or a normal climb configuration.
4. Establishes takeoff or climb airspeed before applying takeoff or climb power. (Reduced power may be used to avoid excessive pitch-up during entry only.)
5. Establishes and maintains a pitch attitude straight ahead that will induce a stall.
6. Establishes and maintains a pitch attitude that will induce a stall in a turn with a bank angle of 20° , $\pm 10^{\circ}$.
7. Applies proper control to maintain coordinated flight.
8. Recognizes the indications of a stall and promptly recovers with a minimum loss of altitude by simultaneously decreasing the angle of attack, leveling the wings, and adjusting the power as necessary to regain normal flight attitude.
9. Avoids a secondary stall.
10. Retracts the wing flaps and establishes straight-and-level flight.

B. TASK: STALLPOWER-OFF (ASES)

PILOT OPERATION - 5

REFERENCE: AC61-21.

Objective. To determine that the applicant:

1. Exhibits knowledge by explaining the aerodynamic factors and flight situations that may result in stallpower-off,

including proper recovery procedures and hazards of stalling during uncoordinated flight.

2. Selects an entry altitude that will allow a recovery to be completed no lower than 1,500 feet AGL.
3. Establishes the normal approach or landing configuration and airspeed, with throttle closed or at a reduced power setting.
4. Establishes a straight glide or a gliding turn with a bank angle of 30° , $\pm 10^{\circ}$, in coordinated flight.
5. Establishes and maintains a landing pitch attitude that will induce a stall.
6. Recognizes the indications of a stall and promptly recovers with a minimum loss of altitude by simultaneously decreasing the angle of attack, leveling the wings, and adjusting the power as necessary to regain normal flight attitude.
7. Avoids a secondary stall.
8. Retracts the wing flaps and establishes straight-and-level flight.

C. TASK: MANEUVERING DURING SLOW FLIGHT (ASES)

PILOT OPERATION - 5

REFERENCE: AC61-21.

Objective. To determine that the applicant:

1. Exhibits knowledge by explaining the flight characteristics and controllability associated with maneuvering during slow flight.
2. Selects an entry altitude that will allow the maneuver to be performed no lower than 1,500 feet AGL.
3. Establishes and maintains slow flight during coordinated straight and turning flight in various configurations and bank angles.
4. Maintains the desired altitude, ± 100 feet.
5. Maintains the specified heading during straight flight, $\pm 10^{\circ}$.
6. Maintains the specified bank angle, $\pm 10^{\circ}$, during

turning flight.

7. Maintains an airspeed of 10 knots above stall speed, +/-5 knots.

D. TASK: CONSTANT-ALTITUDE TURN (ASES)

PILOT OPERATION - 5

REFERENCE: AC61-21.

Objective. To determine that the applicant:

1. Exhibits knowledge by explaining the performance factors associated with constant-altitude turns, including increased load factors, power required, and overbanking tendency.
2. Selects an altitude that will allow the maneuver to be performed no lower than 1,500 feet AGL.
3. Establishes an airspeed which does not exceed seaplane design maneuvering airspeed.
4. Enters a 360° turn, maintaining a bank angle of 40° to 50° in coordinated flight.
5. Divides attention between seaplane control and orientation.
6. Rolls out at the desired heading, +/-10°.
7. Maintains the desired altitude, 200 feet.

V. AREA OF OPERATION: FLIGHT MANEUVERING BY REFERENCE TO GROUND OBJECTS

A. TASK: RECTANGULAR COURSE (ASES)

PILOT OPERATION - 3

REFERENCE: AC61-21.

Objective. To determine that the applicant:

1. Exhibits knowledge by explaining wind-drift correction in straight and turning flight and the relationship of the rectangular course to seaport/airport traffic patterns.
2. Selects a suitable reference area.
3. Enters a left or right pattern at a desired distance from the selected reference area and at 600 to 1,000 feet AGL.
4. Divides attention between seaplane control and ground track, and maintains coordinated flight control.
5. Applies the necessary wind-drift corrections during straight and turning flight to track a uniform distance outside the selected reference area.
6. Maintains the desired altitude, +/-100 feet.
7. Maintains the desired airspeed, +/-10 knots.
8. Avoids bank angles in excess of 45°.
9. Reverses course as directed by the examiner.

B. TASK: "S-TURNS" ACROSS A ROAD (ASES)

PILOT OPERATION - 3

REFERENCE: AC61-21.

Objective. To determine that the applicant:

1. Exhibits knowledge by explaining the procedures associated with "S-turns," and wind-drift correction throughout the maneuver.
2. Selects a suitable ground reference line.
3. Enters perpendicular to the selected reference line at 600 to 1,000 feet AGL.
4. Divides attention between seaplane control and ground track, and maintains coordinated flight control.
5. Applies the necessary wind-drift correction to track a constant radius turn on each side of the selected reference line.
6. Reverses the direction of turn directly over the

selected reference line.

7. Maintains the desired altitude, + /-100 feet.
8. Maintains the desired airspeed, +/-10 knots.
9. Avoids bank angles in excess of 45°.

C. TASK: TURNS AROUND A POINT (ASES)

PILOT OPERATION - 3

REFERENCE: AC61-21.

Objective. To determine that the applicant:

1. Exhibits knowledge by explaining the procedures associated with turns around a point and wind-drift correction throughout the maneuver.
2. Selects a suitable ground reference point.
3. Enters a left or right turn at a desired distance from the selected reference point at 600 to 1,000 feet AGL.
4. Divides attention between seaplane control and ground track, and maintains coordinated flight control.
5. Applies the necessary wind-drift corrections to track a constant radius turn around the selected reference point.
6. Maintains the desired altitude, +/-100 feet.
7. Maintains the desired airspeed, +/-10 knots.

VI. AREA OF OPERATION: NAVIGATION

A. TASK: PILOTAGE (ASES)

PILOT OPERATION - 4

REFERENCES: AC61-21, AC61-23.

Objective. To determine that the applicant:

1. Exhibits knowledge by explaining pilotage techniques and procedures.
2. Follows the preplanned course solely by visual reference to landmarks, with the aid of a magnetic compass.
3. Identifies landmarks by relating the surface features to chart symbols.
4. Verifies seaplane position within 3 nautical miles at all times.
5. Maintains the selected altitudes, +/-200 feet.
6. Maintains the appropriate power setting for the desired airspeed.
7. Maintains the desired heading, +/-10°.
8. Follows the climb, cruise, and descent checklists.
9. Requests in-flight weather information and uncontrolled seaport/airport traffic advisories, as necessary, and properly operates the transponder. (Note: These requirements may be simulated in flight by the examiner when testing the applicant whose seaplane IS radio or transponder equipped, and will be orally tested ONLY for the applicant whose seaplane IS NOT radio or transponder equipped.)

B. TASK: DIVERSION (ASES)

PILOT OPERATION - 4

REFERENCES: AC61-21, AC61-23.

Objective. To determine that the applicant:

1. Exhibits knowledge by explaining the procedures for diverting to an alternate seaplane base, including the recognition of conditions requiring a diversion.
2. Selects an alternate seaplane base and route.
3. Proceeds promptly toward the alternate seaplane base.

4. Makes a reasonable estimate of heading and fuel consumption.
5. Maintains the appropriate altitude, +/-200 feet, and the desired airspeed, +/-10 knots.

C. TASK: LOST PROCEDURE (ASES)

PILOT OPERATION - 4

REFERENCES: AC61-21, AC61-23.

Objective. To determine that the applicant:

1. Exhibits knowledge by explaining lost procedures, including the following items
 - a. maintaining the original or an appropriate heading, identifying landmarks, and climbing, if necessary or possible.
 - b. proceeding to and identifying the nearest concentration of prominent landmarks.
 - c. planning a precautionary landing if deteriorating visibility and/or fuel exhaustion is imminent.
2. Selects the best course of action when given a lost situation.

VII. AREA OF OPERATION: EMERGENCY OPERATION

A. TASK: SYSTEMS AND EQUIPMENT MALFUNCTIONS (ASES)

PILOT OPERATION - 6

REFERENCES: AC61-21; Seaplane Handbook or Manual.

Objective. To determine that the applicant:

1. Exhibits knowledge, as appropriate, by explaining causes, indications, and pilot actions for various systems and equipment malfunctions.
2. Analyzes the situation and takes prompt action for simulated emergencies such as
 - a. partial power loss.

- b. rough running engine or overheat.
- c. loss of oil pressure.
- d. carburetor or induction icing.
- e. fuel starvation.
- f. engine compartment fire.
- g. electrical system malfunction.
- h. flap malfunction.
- i. door opening in flight.
- j. trim inoperative.
- k. other malfunctions.

**B. TASK: EMERGENCY APPROACH AND LANDING (SIMULATED)
(ASES)**

PILOT OPERATION - 6

REFERENCE: AC61-21. Objective. To determine that the applicant:

1. Exhibits knowledge by explaining approach and landing procedures to be used in various emergencies.
2. Establishes and maintains the recommended best-glide airspeed and configuration during simulated emergencies.
3. Selects a suitable landing area within gliding distance.
4. Plans and follows a flight pattern to the selected landing area, considering water conditions, altitude, wind, terrain, obstructions, and other factors.
5. Follows an appropriate emergency checklist.
6. Attempts to determine the reason for the (simulated) malfunction.
7. Maintains correct control of the seaplane.

C. TASK: RADIO COMMUNICATIONS (ASES)

PILOT OPERATION - 6

REFERENCE: AIM.

NOTE: For the applicant whose seaplane IS NOT radio or transponder equipped, this task will be orally tested ONLY. For the applicant whose seaplane IS radio or transponder equipped, this task may be simulated in flight by the examiner.

Objective. To determine that the applicant:

1. Exhibits knowledge by explaining radio communications or transponder operation procedures to be used in the event an emergency occurs.
2. Selects the appropriate emergency radio frequency (121.5MHz) and/or adjusts transponder to appropriate emergency code.
3. Understands that two-way radio communications and/or radar coverage may not be available.

PRACTICAL TEST CHECKLIST

(ASES)

(SUGGESTED)

APPLICANT'S NAME

EXAMINER'S NAME

DATE

TYPE CHECK

I. PREFLIGHT PREPARATION

- A. Certificates and Documents
 - B. Obtaining Weather Information
 - C. Water and Seaplane Characteristics
 - D. Seaplane Bases, Rules, and Aids to Marine Navigation
 - E. Determining Performance and Limitations
 - F. Seaplane Systems
 - G. Aeromedical Factors
 - H. Visual Inspection
 - I. Cockpit Management
 - J. Engine Start
 - K. Taxi
 - L. Sailing
 - M. Pretakeoff Check
- II. SEAPLANE BASE AND TRAFFIC PATTERN OPERATION
- A. Seaplane Base and Landing Area Marking
 - B. Traffic Pattern Operation
 - C. Anchoring
 - D. Docking and Mooring
 - E. Beaching
 - F. Ramping
 - G. Postflight Procedure
 - H. Radio Communications
- III. TAKEOFF AND LANDING
- A. Normal and Crosswind Takeoff
 - B. Go-Around
 - C. Normal and Crosswind Landing

- D. Glassy Water Takeoff
- E. Glassy Water Landing
- F. Rough Water Takeoff
- G. Rough Water Landing
- H. Maximum Performance Takeoff
- I. Maximum Performance Landing

IV. FLIGHT AT CRITICALLY SLOW AIRSPEED

- A. Stall - Power-On
- B. Stall - Power-Off
- C. Maneuvering During Slow Flight
- D. Constant-Altitude Turn

V. FLIGHT MANEUVERING BY REFERENCE TO GROUND OBJECTS

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

VI. NAVIGATION

- A. Pilotage
- B. Diversion
- C. Lost Procedure

VII. EMERGENCY OPERATION

- A. Systems and Equipment Malfunctions
- B. Emergency Approach and Landing (Simulated)
- C. Radio Communications

APPLICANT'S PRACTICAL TEST CHECKLIST

(SUGGESTED)

APPOINTMENT WITH INSPECTOR OR EXAMINER:

NAME

TIME/DATE

ACCEPTABLE AIRCRAFT

Aircraft Documents:

Airworthiness Certificate

Registration Certificate

Operating Limitations

Aircraft Maintenance Records:

Airworthiness Inspections

PERSONAL EQUIPMENT

Current Aeronautical Charts

Current AIM

PERSONAL RECORDS

Student Pilot Certificate

Medical Certificate

Completed FAA Form 8710-1, Airman Certificate and/or
Rating Application

AC Form 80-2, Airman Written Test Report

Logbook with Instructor's Endorsement

Notice of Disapproval (if applicable)

Approved School Graduation Certificate (if applicable)

Examiner's Fee (if applicable)

SECTION 3

ROTORCRAFT-HELICOPTER

(RH)

Practical Test Standard

FAA-S-81-3

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FAA-S-81-3

I. AREA OF OPERATION: PREFLIGHT PREPARATION

A. TASK: CERTIFICATES AND DOCUMENTS (RH)

PILOT OPERATION - 1

REFERENCES: FAR Parts 61 and 91; AC61-23; Helicopter Flight Manual.

Objective. To determine that the applicant:

1. Exhibits knowledge by explaining the appropriate
 - a. pilot certificate privileges and limitations.
 - b. medical certificate and expiration.
 - c. personal pilot logbook or flight record.
2. Exhibits knowledge by locating and explaining the significance and importance of helicopter
 - a. airworthiness and registration certificates.
 - b. operating limitations, handbooks, or manuals.
 - c. equipment list.
 - d. weight and balance data.

e. maintenance requirements and appropriate records.

B. TASK: OBTAINING WEATHER INFORMATION (RH)

PILOT OPERATION - 1

REFERENCES: AC00-6, AC00-45, AC61-23, AC61-84.

Objective. To determine that the applicant:

1. Exhibits knowledge of aviation weather information by obtaining, reading, and analyzing
 - a. weather reports and forecasts.
 - b. weather charts.
 - c. pilot weather reports.
 - d. SIGMETs and AIRMETs, including wind-shear reports.
 - e. Notices to Airmen.
2. Makes a proper go/no-go decision based on the available weather information.

C. TASK: DETERMINING PERFORMANCE AND LIMITATIONS (RH)

PILOT OPERATION - 1

REFERENCES: AC61-21, AC61-23, AC61-84; Helicopter Flight Manual.

Objective. To determine that the applicant:

1. Exhibits knowledge by explaining helicopter weight and balance, performance, limitations, and retreating blade stall characteristics, including adverse aerodynamic effects of exceeding the limits.
2. Uses the available and appropriate performance charts, tables, and data.
3. Computes the weight and balance and determines if the weight and center of gravity will be within limits during all

phases of the flight.

4. Calculates helicopter performance, considering density altitude, wind, terrain, and other pertinent conditions.
5. Describes the effect of atmospheric conditions on helicopter performance.
6. Makes a proper decision on whether the required performance is within the operating limitation of the helicopter.

D. TASK: HELICOPTER SYSTEMS (RH)

PILOT OPERATION - 1

REFERENCES: AC61-3, AC61-21; Helicopter Flight Manual.

Objective. To determine that the applicant exhibits knowledge of helicopter equipment and systems by explaining, as appropriate, the following:

1. Primary flight controls,
2. Flight, engine instruments,
3. Landing gear,
4. Engine, transmission system;
5. Rotor, antitorque system;
6. Fuel, oil system;
7. Hydraulic system;
8. Electrical system;
9. Environmental system; and
10. Ice prevention and elimination.

E. TASK: AEROMEDICAL FACTORS (RH)

PILOT OPERATION - 1

REFERENCES: AC61-21, AC67-2; AIM.

Objective. To determine that the applicant:

1. Exhibits knowledge of the elements related to aeromedical factors, including the symptoms, effects, and corrective action of
 - a. hypoxia.
 - b. hyperventilation.
 - c. middle ear and sinus problems.
 - d. spatial disorientation.
 - e. motion sickness.
 - f. carbon monoxide poisoning.
2. Exhibits knowledge of the effects of alcohol and drugs, and the relationship to flight safety.
3. Exhibits knowledge of nitrogen excesses during scuba dives, and how this affects a pilot during flight.

F. TASK: VISUAL INSPECTION (RH)

PILOT OPERATION - 1

REFERENCES: AC61-3; Helicopter Flight Manual.

Objective. To determine that the applicant:

1. Exhibits knowledge of helicopter visual inspection by explaining the reasons for checking the items.
2. Inspects the helicopter by following the checklist.
3. Determines that the helicopter is in condition for safe flight, emphasizing
 - a. fuel quantity, grade, and type.
 - b. fuel contamination safeguards.
 - c. oil quantity, grade, and type.

- d. fuel, oil, and hydraulic leaks.
- e. flight controls.
- f. structural damage.
- g. rotor blade tiedown and removal.
- h. ice and frost removal.
- i. security of baggage, cargo, and equipment.

G. TASK: COCKPIT MANAGEMENT (RH)

PILOT OPERATION - 1

REFERENCE: AC61-3.

Objective. To determine that the applicant:

1. Exhibits knowledge of cockpit management by explaining related safety and efficiency factors.
2. Organizes and arranges the material and equipment in a manner that makes it readily available.
3. Ensures that the safety belts and shoulder harnesses are fastened.
4. Adjusts and locks the antitorque pedals or pilot's seat to a safe position and ensures full control movement.
5. Briefs the occupants on the use of safety belts and emergency procedures.

H. TASK: ENGINE START (RH)

PILOT OPERATION - 1

REFERENCES: AC61-21, AC91-3, AC91-55; Helicopter Flight Manual.

Objective. To determine that the applicant:

1. Exhibits knowledge by explaining engine starting procedures, including starting under various atmospheric conditions.
2. Performs all the items on the before-starting and starting checklist.
3. Accomplishes a safe starting procedure, placing emphasis on
 - a. positioning the helicopter to avoid creating hazards.
 - b. determining that the area is clear.
 - c. adjusting the flight controls and friction settings.
 - d. setting the brakes, if so equipped.
 - e. preventing undesirable helicopter movement after the engine start.
 - f. avoiding hot starts, engine overspeed, and observing cooling limitations.
 - g. checking engine instruments and caution/warning systems.

I. TASK: PRETAKEOFF CHECK (RH)

PILOT OPERATION - 1

REFERENCES: AC61-3; Helicopter Flight Manual.

Objective. To determine that the applicant:

1. Exhibits knowledge of the pretakeoff check by explaining the reasons for checking the items.
2. Positions the helicopter to avoid creating hazards.
3. Divides attention inside and outside the cockpit.
4. Ensures that the engine temperatures and pressures are suitable for runup and takeoff.
5. Follows the checklist.

6. Positions each control or switch as prescribed by the checklist.

7. Ensures that the helicopter is in safe operating condition, emphasizing

a. flight controls and friction settings.

b. instruments in normal operating range.

c. engine and rotor operation.

d. antitorque pedals/seat adjusted and secured.

e. safety belts and shoulder harnesses fastened and adjusted.

f. doors secured.

8. Reviews takeoff performance and emergency procedure.

II. AREA OF OPERATION: AIRPORT, HELIPORT, AND TRAFFIC PATTERN OPERATION

A. TASK: AIRPORT AND HELIPORT MARKING AND LIGHTING (RH)

PILOT OPERATION - 2

REFERENCES: AC61-21; AIM.

Objective. To determine that the applicant:

1. Exhibits knowledge by explaining airport and heliport marking and lighting aids.

2. Identifies and interprets airport, heliport, and taxiway marking aids.

3. Identifies and interprets airport and heliport lighting aids.

B. TASK: VERTICAL TAKEOFF (RH)

PILOT OPERATIONS - 2 and 3

REFERENCES: AC61-3; Helicopter Flight Manual.

Objective. To determine that the applicant:

1. Exhibits knowledge by explaining the elements of a vertical takeoff to a hover.
2. Ascends to and maintains the recommended\1 hovering altitude under existing wind conditions by

1\The term, ``recommended" refers to the manufacturer's recommendation. If the manufacturer's recommendation is not available, the description contained in AC 613 will be used.

- a. establishing and maintaining RPM within normal limits.
 - b. keeping forward and sideward movement to a minimum, with no aft movement.
 - c. maintaining a stationary position over a surface reference point.
 - d. maintaining desired heading, +/-15°.
3. Checks engine instruments and flight controls while hovering to ensure intended flight profile.

C. TASK: VERTICAL LANDING (RH)

PILOT OPERATIONS - 2 and 3

REFERENCES: AC61-3; Helicopter Flight Manual.

Objective. To determine that the applicant:

1. Exhibits knowledge by explaining the elements of a vertical landing from a hover.
2. Descends from recommended hovering altitude to a landing during headwind, tailwind, and crosswind conditions by
 - a. maintaining RPM within normal limits.
 - b. establishing and maintaining a constant rate of descent.
 - c. landing within 2 feet of the designated touchdown point, with minimum forward and sideward movement, and no aft movement.
 - d. maintaining desired heading, +/-15°.

3. Lowers collective pitch to the full-down position after the landing gear is firmly on the surface.

D. TASK: NORMAL AND CROSSWIND DEPARTURE (RH)

PILOT OPERATION - 2

REFERENCES: AC61-3; Helicopter Flight Manual.

Objective. To determine that the applicant:

1. Exhibits knowledge by explaining the elements of normal and crosswind departures from a hover.
2. Maintains RPM within normal limits.
3. Accelerates to the normal climb airspeed and establishes proper climb power setting. (Takeoff operations should be conducted, considering the suggestions shown on the Helicopter Height-Velocity Diagram, if appropriate.)
4. Maintains the desired heading, $\pm 15^\circ$
5. Corrects properly for crosswind during the takeoff leg.

E. TASK: TRAFFIC PATTERN OPERATION (RH)

PILOT OPERATION - 2

REFERENCES: FAR Part 91; AC61-21, AC61-23; AIM; Helicopter Flight Manual.

Objective. To determine that the applicant:

1. Exhibits knowledge by explaining traffic pattern procedures at uncontrolled airports and heliports, including collision and wind-shear avoidance.
2. Follows established traffic pattern procedures consistent with instructions or rules.
3. Corrects for wind drift to follow the appropriate ground track.
4. Maintains adequate spacing from other traffic.
5. Maintains RPM within normal limits.

6. Maintains recommended traffic pattern altitude, +/-100 feet.
7. Maintains desired airspeed, +/-15 knots.
8. Maintains desired heading, +/-15°.
9. Completes prelanding cockpit check at the proper position in the traffic pattern.
10. Maintains orientation throughout the traffic pattern.

F. TASK: GO-AROUND (RH)

PILOT OPERATION - 2

REFERENCES: AC61-3, AC61-21; Helicopter Flight Manual.

Objective. To determine that the applicant:

1. Exhibits knowledge by explaining the elements of a go-around procedure, including making timely decisions, correct action, and coping with low RPM and yaw tendencies.
2. Makes a go-around when one becomes necessary.
3. Applies necessary power and establishes the proper aircraft attitude to attain recommended climb airspeed.
4. Trims the helicopter and climbs at recommended airspeed, 10 knots, and maintains the desired track.

G. TASK: NORMAL AND CROSSWIND APPROACH (RH)

PILOT OPERATION - 2

REFERENCES: AC61-3; Helicopter Flight Manual.

Objective. To determine that the applicant:

1. Exhibits knowledge by explaining the elements of normal and crosswind approaches to a hover.
2. Maintains RPM within normal limits.
3. Establishes a descent at the recommended airspeed and approach angle.

4. Maintains the proper approach angle and rate of closure to the point of transition to a hover.
5. Makes a smooth transition to a hover (recommended hovering altitude, +/-2 feet).
6. Terminates the approach within 3 feet of the designated point.
7. Corrects for crosswind and maintains a straight ground track.

H. TASK: MAXIMUM PERFORMANCE TAKEOFF (RH)

PILOT OPERATION - 2

REFERENCE: AC61-3.

Objective. To determine that the applicant:

1. Exhibits knowledge by explaining a maximum performance takeoff and climb.
2. Maintains RPM within normal limits.
3. Uses a predetermined maximum power setting.
4. Establishes appropriate forward climbing attitude.
5. Transitions to normal climb at approximately 50 feet AGL.
6. Maintains ground track aligned with takeoff direction.
7. Maintains desired heading, +/-10°.
8. Corrects properly for crosswind.

I. TASK: STEEP APPROACH (RH)

PILOT OPERATION - 2

REFERENCE: AC61-3.

Objective. To determine that the applicant:

1. Exhibits knowledge by explaining the elements of a steep approach.
2. Maintains RPM within normal limits.
3. Establishes a descent at the recommended airspeed and approach angle.
4. Maintains a ground track aligned with the landing direction.
5. Maintains the proper approach angle and rate of closure to the point of transition to a hover.
6. Makes a smooth transition to a hover.
7. Terminates the approach within 5 feet of a designated point.
8. Corrects properly for crosswind.

J. TASK: SLOPE OPERATION (RH)

PILOT OPERATION - 3

REFERENCES: AC61-3; Helicopter Flight Manual.

Objective. To determine that the applicant:

1. Exhibits knowledge by explaining the elements of slope operations.
2. Selects a suitable slope, considering wind effect and obstructions.
3. Hovers laterally toward the slope, aligning the longitudinal axis of the helicopter parallel to the slope, avoiding turning the tail upslope.
4. Makes a smooth, positive descent, with a headwind component, to a cross-slope touchdown.
5. Recognizes when the slope is too steep and abandons the landing prior to using full lateral cyclic.
6. Avoids movement downslope.
7. Makes a smooth lift-off from the slope to a stabilized hover parallel to the slope.

8. Moves laterally away from the slope and avoids turning the tail upslope.

9. Maintains desired heading, $\pm 5^\circ$, during slope landings and takeoffs.

10. Maintains RPM within normal limits throughout slope operations.

K. TASK: POSTFLIGHT PROCEDURE (RH)

PILOT OPERATION - 2

REFERENCES: AC61-3; Helicopter Flight Manual.

Objective. To determine that the applicant:

1. Exhibits knowledge by explaining the elements of after-landing procedures, including parking, temperature stabilization, shutdown, securing, and postflight inspection.
2. Selects the designated or suitable parking area, considering wind conditions and obstructions.
3. Parks the helicopter properly.
4. Follows the checklist for engine shutdown, cockpit securing, and deplaning passenger.
5. Secures the helicopter properly.
6. Performs a satisfactory postflight inspection.

L. TASK: RADIO COMMUNICATIONS (RH)

PILOT OPERATION - 2

REFERENCES: AC61-21, AC61-23; AIM.

NOTE: For the applicant whose helicopter IS NOT radio equipped, this task will be orally tested ONLY. For the applicant whose helicopter IS radio equipped, this task may be simulated in flight by the examiner.

Objective. To determine that the applicant:

1. Exhibits knowledge by explaining two-way radio communication procedures recommended for use at uncontrolled heliports/airports.
2. Selects the frequencies appropriate for the facilities to be used (UNICOM, FSS, or Flight Watch facilities).
3. Transmits requests and reports using recommended standard phraseology.
4. Receives, acknowledges, and complies with radio communications.

III. AREA OF OPERATION: MANEUVERING BY GROUND REFERENCE

A. TASK: SURFACE TAXI (RH)

PILOT OPERATION - 3

REFERENCES: AC61-3; Helicopter Flight Manual.

NOTE: Considering equipment, the examiner may test this TASK orally.

Objective. To determine that the applicant:

1. Exhibits knowledge by explaining surface taxi procedures.
2. Taxies the helicopter from one point to another under headwind, crosswind, and downwind conditions, with the landing gear in contact with the surface by
 - a. establishing and maintaining RPM within normal limits.
 - b. maintaining a speed no greater than a brisk walk.
 - c. maintaining desired ground track, +/-2 feet.
 - d. maintaining desired headings, +/-10°.

B. TASK: HOVER TAXI (RH)

PILOT OPERATION - 3

REFERENCES: AC61-3; AIM; Helicopter Flight Manual.

Objective. To determine that the applicant:

1. Exhibits knowledge by explaining the elements of hover taxi procedures.
2. Hover taxies around a square, rectangle, or other ground reference, demonstrating forward, sideward, and rearward hovering and hovering turns.
3. Maintains RPM within normal limits.
4. Maintains desired ground track, +/-3 feet, on straight legs.
5. Maintains constant rate of turn at pivot points.
6. Turns to desired headings and maintains those headings, +/-15°.
7. Maintains position within 3 feet of each pivot point during turns.
8. Makes 90°, 180°, and 360° pivoting turns, stopping within +/-15° of desired heading.
9. Maintains the recommended hovering altitude, +/-2 feet.

C. TASK: AIR TAXI (RH)

PILOT OPERATION - 3

REFERENCES: AC61-3; AIM.

Objective. To determine that the applicant:

1. Exhibits knowledge by explaining the elements of air taxi procedures.
2. Air taxies from one point to another.

3. Maintains RPM within normal limits.
4. Maintains recommended airspeed and altitude\1.

1\See AIM for airspeed/altitude description of air taxi.

IV. AREA OF OPERATION: HIGH ALTITUDE OPERATION (SIMULATED), RAPID DECELERATION

A. TASK: RUNNING TAKEOFF (RH)

PILOT OPERATION - 5

REFERENCES: AC61-3; Helicopter Flight Manual.

Objective. To determine that the applicant:

1. Exhibits knowledge by explaining the elements of running takeoffs, including situations requiring this procedure.
2. Maintains RPM within normal limits.
3. Uses a predetermined power setting below that required to hover. (1" to 2" MP or 5 percent torque less than hover power may be used to simulate maximum power available.)
4. Initiates forward accelerating movement on the surface, maintaining a straight ground run and heading, +/-15°.
5. Transitions to flight with little or no pitching.
6. Climbs to and maintains an altitude not to exceed 10 feet AGL while accelerating toward climb airspeed.
7. Climbs to approximately 50 feet AGL, then adjusts power to recommended climb setting.
8. Corrects for crosswind to maintain straight ground track.

B. TASK: RUNNING LANDING (RH)

PILOT OPERATION - 5

REFERENCES: AC61-3; Helicopter Flight Manual.

Objective. To determine that the applicant:

1. Exhibits knowledge by explaining the elements of shallow approaches and running landings, including situations requiring this procedure.
2. Maintains RPM within normal limits.
3. Establishes descent at the recommended airspeed and proper approach angle.
4. Maintains the proper approach angle and the recommended airspeed to a point approximately 50 feet AGL.
5. Makes a smooth transition from descent to surface contact while still in translational lift, using less than hover power. (1" to 2" MP or 5 percent torque less than hover power may be used to simulate maximum power available.)
6. Contacts the surface in a level attitude, beyond and within 50 feet of a designated spot.
7. Corrects properly for crosswind, maintaining the landing gear parallel with the ground track throughout the ground run.

C. TASK: RAPID DECELERATION (RH)

PILOT OPERATION - 5

REFERENCES: AC61-3; Helicopter Flight Manual.

Objective. To determine that the applicant:

1. Exhibits knowledge by explaining the elements of rapid deceleration.
2. Initiates the maneuver properly.
3. Decelerates and terminates in a stationary hover at recommended hovering altitude.
4. Maintains heading, + /15°.

5. Maintains RPM within normal limits.

V. AREA OF OPERATION: NAVIGATION

A. TASK: PILOTAGE (RH)

PILOT OPERATION - 4

REFERENCES: AC61-21, AC61-23.

Objective. To determine that the applicant:

1. Exhibits knowledge by explaining pilotage techniques and procedures.
2. Follows the preplanned course solely by visual reference to landmarks, with the aid of a magnetic compass.
3. Identifies landmarks by relating the surface features to chart symbols.
4. Verifies helicopter position within 3 nautical miles at all times.
5. Maintains selected altitudes, +/-200 feet.
6. Maintains appropriate power setting for the desired airspeed.
7. Maintains desired heading, +/-10°.
8. Follows the climb, cruise, and descent checklists.
9. Requests in-flight weather information and uncontrolled heliport/airport traffic advisories, as necessary, and properly operates the transponder. (Note: These requirements may be simulated in flight by the examiner when testing the applicant whose helicopter IS radio or transponder equipped, and will be orally tested ONLY for the applicant whose helicopter IS NOT radio or transponder equipped.)

B. TASK: DIVERSION (RH)

PILOT OPERATION - 4

REFERENCE: AC61-21.

Objective. To determine that the applicant:

1. Exhibits knowledge by explaining the procedures for diverting to an alternate airport/heliport, including the recognition of conditions requiring a diversion.
2. Selects an alternate airport/heliport and route.
3. Proceeds promptly toward the alternate airport/heliport.
4. Makes a reasonable estimate of heading and fuel consumption.
5. Maintains the appropriate altitude, +/-200 feet, and desired airspeed, +/-15 knots.

C. TASK: LOST PROCEDURE (RH)

PILOT OPERATION - 4

REFERENCE: AC6121.

Objective. To determine that the applicant:

1. Exhibits knowledge by explaining lost procedures, including the following items
 - a. maintaining the original or an appropriate heading, identifying landmarks, and climbing, if possible and necessary.
 - b. proceeding to and identifying the nearest concentration of prominent landmarks.
 - c. planning a precautionary landing if deteriorating visibility and/or fuel exhaustion is imminent.
2. Selects the best course of action when given a lost situation.

VI. AREA OF OPERATION: EMERGENCY OPERATION

A. TASK: SYSTEMS AND EQUIPMENT MALFUNCTIONS (RH)

PILOT OPERATION - 6

REFERENCES: AC61-3; Helicopter Flight Manual.

Objective. To determine that the applicant:

1. Exhibits knowledge, as appropriate, by explaining causes, indications, and pilot actions for various systems and equipment malfunctions.
2. Takes appropriate action in response to simulated malfunctions, such as
 - a. carburetor or induction icing.
 - b. fuel starvation.
 - c. smoke in cockpit.
 - d. engine compartment fire.
 - e. electrical system malfunction.
 - f. hydraulic system malfunction.
 - g. trim inoperative.
 - h. other malfunctions outlined in the flight manual.

B. TASK: POWER FAILURE AT A HOVER (SIMULATED) (RH)

PILOT OPERATION - 6

REFERENCES: AC61-3; Helicopter Flight Manual.

Objective. To determine that the applicant:

1. Exhibits knowledge by explaining the procedures to use when power failure occurs at a hover.
2. Establishes either a stationary or forward hover into the wind at recommended RPM.
3. Performs hovering autorotation when the examiner simulates power failure.
4. Touches down with acceptable forward movement, minimum sideward movement, no aft movement, and without excessive loads on the landing gear.
5. Maintains heading, $\pm 10^\circ$.

C. TASK: POWER FAILURE AT ALTITUDE (SIMULATED) (RH)

PILOT OPERATION - 6

REFERENCES: AC61-3; Helicopter Flight Manual.

NOTE: Simulated power failures will be given ONLY over favorable terrain where an actual touchdown could be made, should one become necessary. In addition, simulated power failures will not be given where an autorotative descent might constitute a violation of Federal Aviation Regulations. **THE EXAMINER WILL DIRECT THE APPLICANT TO TERMINATE THIS TASK IN A POWER RECOVERY AT AN ALTITUDE HIGH ENOUGH TO ASSURE THAT A SAFE TOUCHDOWN COULD BE ACCOMPLISHED IN THE EVENT OF AN ACTUAL POWER FAILURE.**

Objective. To determine that the applicant:

1. Exhibits knowledge by explaining autorotation entry, maneuvering, and landing procedures following power failure at altitude.
2. Enters autorotation promptly when an examiner simulates power failure by
 - a. lowering the collective pitch, as necessary, to maintain rotor RPM within acceptable limits, and
 - b. establishing the recommended autorotation airspeed.
3. Flies autorotation pattern by
 - a. selecting a suitable landing area;
 - b. establishing an autorotation pattern appropriate for position, altitude, and wind conditions;
 - c. maintaining rotor RPM within normal limits;
 - d. maintaining proper pedal trim; and
 - e. arriving at the selected area with proper altitude, landing attitude, and acceptable rotor RPM and groundspeed.
4. Terminates the autorotation as directed by the examiner by performing a proper power recovery.

D. TASK: ANTITORQUE SYSTEM FAILURE (SIMULATED) (RH)

PILOT OPERATION - 6

REFERENCES: AC61-3; Helicopter Flight Manual.

NOTE: At the discretion of the examiner, this TASK may be orally tested.

Objective. To determine that the applicant:

1. Exhibits knowledge by explaining antitorque system failure procedures while hovering and at altitude.
2. Recognizes simulated antitorque failure in a hover or in cruising flight and takes immediate and proper action.

E. TASK: SETTLING-WITH-POWER (RH)

PILOT OPERATION - 6

REFERENCES: AC61-3; Helicopter Flight Manual.

NOTE: At the discretion of the examiner, this TASK may be orally tested.

Objective. To determine that the applicant:

1. Exhibits knowledge by explaining the conditions which cause settling-with-power and procedures used to recover to normal flight.
2. Demonstrates settling-with-power entry.
3. Recovers immediately and correctly at first indications of settling-with-power.

F. TASK: LOW ROTOR RPM RECOVERY (RH)

PILOT OPERATION - 6

REFERENCES: AC61-3; Helicopter Flight Manual.

NOTE: At the discretion of the examiner, this TASK may be

orally tested for helicopters with a governed engine.

Objective. To determine that the applicant:

1. Exhibits knowledge by explaining the conditions which cause low rotor RPM and the procedure used to recover.
2. Recognizes low rotor RPM and takes immediate and proper recovery action.

G. TASK: DYNAMIC ROLLOVER (RH)

PILOT OPERATION - 6

REFERENCES: AC97; Helicopter Flight Manual.

NOTE: This TASK will be orally tested ONLY.

Objective. To determine that the applicant:

1. Exhibits knowledge by explaining helicopter lateral rolling tendencies during certain ground operations.
2. Understands the interaction between tail rotor thrust, crosswind, slope, center of gravity, and cyclic and collective pitch control in contributing to dynamic rollover.
3. Understands preventive flight technique during takeoffs, landings, and slope operations.

H. TASK: GROUND RESONANCE (RH)

PILOT OPERATION - 6

REFERENCES: AC61-3; Helicopter Flight Manual.

NOTE: This TASK will be orally tested ONLY.

Objective. To determine that the applicant:

1. Exhibits knowledge by explaining the hazards associated with ground resonance.
2. Understands the conditions that contribute to ground

resonance.

3. Understands preventive flight technique during takeoffs, landings, and slope operations, if appropriate.

I. TASK: RADIO COMMUNICATIONS (RH)

PILOT OPERATION - 6

REFERENCE: AIM.

NOTE: For the applicant whose helicopter IS NOT radio or transponder equipped, this task will be orally tested ONLY. For the applicant whose helicopter IS radio or transponder equipped, this task may be simulated in flight by the examiner.

Objective. To determine that the applicant:

1. Exhibits knowledge by explaining radio communications or transponder operation procedures to be used in the event an emergency occurs.
2. Selects the appropriate emergency radio frequency (121.5MHz) and/or adjusts transponder to appropriate emergency code.
3. Understands that two-way radio communications and/or radar coverage may not be available.

PRACTICAL TEST CHECKLIST

(RH)

(SUGGESTED)

APPLICANT'S NAME

EXAMINER'S NAME

DATE

TYPE CHECK

I. PREFLIGHT PREPARATION

- A. Certificates and Documents
- B. Obtaining Weather Information
- C. Determining Performance and Limitations
- D. Helicopter Systems
- E. Aeromedical Factors
- F. Visual Inspection
- G. Cockpit Management
- H. Engine Start
- I. Pretakeoff Check

II. AIRPORT, HELIPORT, AND TRAFFIC PATTERN OPERATION

- A. Airport and Heliport Marking and Lighting
- B. Vertical Takeoff
- C. Vertical Landing
- D. Normal and Crosswind Departure
- E. Traffic Pattern Operation
- F. Go-Around
- G. Normal and Crosswind Approach
- H. Maximum Performance Takeoff
- I. Steep Approach
- J. Slope Operation
- K. Postflight Procedure
- L. Radio Communications

III. MANEUVERING BY GROUND REFERENCE

- A. Surface Taxi
- B. Hover Taxi

C. Air Taxi

IV. HIGH ALTITUDE OPERATION (SIMULATED), RAPID DECELERATION

A. Running Takeoff

B. Running Landing

C. Rapid Deceleration

V. NAVIGATION

A. Pilotage

B. Diversion

C. Lost Procedure

VI. EMERGENCY OPERATION

A. Systems and Equipment Malfunctions

B. Power Failure at a Hover (Simulated)

C. Power Failure at Altitude (Simulated)

D. Antitorque System Failure (Simulated)

E. Settling-With-Power

F. Low Rotor RPM Recovery

G. Dynamic Rollover

H. Ground Resonance

I. Radio Communications

APPLICANT'S PRACTICAL TEST CHECKLIST

(SUGGESTED)

APPOINTMENT WITH INSPECTOR OR EXAMINER:

NAME

TIME/DATE

ACCEPTABLE AIRCRAFT

Aircraft Documents:

Airworthiness Certificate

Registration Certificate

Operating Limitations

Aircraft Maintenance Records:

Airworthiness Inspections

PERSONAL EQUIPMENT

Current Aeronautical Charts

Current AIM

PERSONAL RECORDS

Student Pilot Certificate

Medical Certificate

Completed FAA Form 8710, Airman Certificate and/or
Rating Application

AC Form 802, Airman Written Test Report

Logbook with Instructor's Endorsement

Notice of Disapproval (if applicable)

Approved School Graduation Certificate (if applicable)

Examiner's Fee (if applicable)

SECTION 4

ROTORCRAFT-GYROPLANE

(RG)

Practical Test Standard

FAA-S-81-3

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FAA-S-81-3

I. AREA OF OPERATION: PREFLIGHT PREPARATION

A. TASK: CERTIFICATES AND DOCUMENTS (RG)

PILOT OPERATION -

REFERENCES :FAR Parts 61 and 91; AC61-21, AC61-23; Gyroplane Flight Manual.

Objective. To determine that the applicant:

1. Exhibits knowledge by explaining the appropriate
 - a. pilot certificate, privileges, and limitations.
 - b. medical certificate and expiration.
 - c. personal pilot logbook or flight record.
2. Exhibits knowledge by locating and explaining the significance and importance of gyroplane
 - a. airworthiness and registration certificates.
 - b. operating limitations, handbooks, or manuals.
 - c. weight and balance data.
 - d. maintenance requirements and appropriate records.

B. TASK: OBTAINING WEATHER INFORMATION (RG)

PILOT OPERATION -

REFERENCES: AC00-6, AC00-45, AC61-21, AC61-23, AC61-84.

Objective. To determine that the applicant:

1. Exhibits knowledge of aviation weather information by obtaining, reading, and analyzing
 - a. weather reports and forecasts.

- b. weather charts.
 - c. pilot weather reports.
 - d. SIGMETs and AIRMETs, including wind-shear reports.
 - e. Notices to Airmen.
2. Makes a proper go/no-go decision based on the available weather information.

C. TASK: DETERMINING PERFORMANCE AND LIMITATIONS (RG)

PILOT OPERATION - 1

REFERENCES: AC61-84; Gyroplane Flight Manual.

Objective. To determine that the applicant:

1. Exhibits knowledge by explaining gyroplane weight and balance, performance, limitations, and retreating blade stall characteristics, including adverse effects of exceeding the limits.
2. Uses the available and appropriate performance charts, tables, and data.
3. Computes the weight and balance, and determines that the weight and center of gravity will be within limits during all phases of the flight.
4. Calculates gyroplane performance, considering density altitude, wind, terrain, and other pertinent conditions.
5. Describes the effect of atmospheric conditions on gyroplane performance.
6. Makes a proper decision on whether the required performance is within the operating limitation of the gyroplane.

D. TASK: GYROPLANE SYSTEMS (RG)

PILOT OPERATION - 1

REFERENCES: AC61-3, AC61-21; Gyroplane Flight Manual.

Objective. To determine that the applicant exhibits knowledge of gyroplane equipment and systems by explaining, as appropriate, the following:

1. Primary flight controls;
2. Flight, engine instruments;
3. Landing gear;
4. Engine, transmission systems;
5. Rotor system;
6. Fuel, oil system;
7. Hydraulic system;
8. Electrical system;
9. Environmental system; and
10. Ice prevention and elimination.

E. TASK: AEROMEDICAL FACTORS (RG)

PILOT OPERATION - 1

REFERENCES: AC61-21, AC67-2; AIM.

Objective. To determine that the applicant:

1. Exhibits knowledge of the elements related to aeromedical factors, including the symptoms, effects, and corrective action of
 - a. hypoxia.
 - b. hyperventilation.
 - c. middle ear and sinus problems.
 - d. spatial disorientation.

- e. motion sickness.
 - f. carbon monoxide poisoning.
2. Exhibits knowledge of the effects of alcohol and drugs, and the relationship to flight safety.
 3. Exhibits knowledge of nitrogen excesses during scuba dives, and how this affects a pilot during flight.

F. TASK: VISUAL INSPECTION (RG)

PILOT OPERATION - 1

REFERENCES: Gyroplane Flight Manual.

Objective. To determine that the applicant:

1. Exhibits knowledge of gyroplane visual inspection by explaining the reasons for checking the items.
2. Inspects the gyroplane by following a checklist.
3. Determines that the gyroplane is in condition for safe flight, emphasizing
 - a. fuel quantity, grade, and type.
 - b. fuel contamination safeguards.
 - c. oil quantity, grade, and type.
 - d. fuel, oil, and hydraulic leaks.
 - e. location of fuel and oil filters and battery.
 - f. dampers, strut extensions, tire inflation, and blade condition.
 - g. flight controls.
 - h. structural damage.
 - i. tiedown, control lock, and wheel chock removal.
 - j. ice and frost removal.

k. security of baggage, cargo, and equipment.

G. TASK: COCKPIT MANAGEMENT (RG)

PILOT OPERATION - 1

REFERENCE: Gyroplane Flight Manual.

Objective. To determine that the applicant:

1. Exhibits knowledge of cockpit management by explaining related safety and efficiency factors.
2. Organizes and arranges the material and equipment in a manner that makes it readily available.
3. Ensures that safety belts and shoulder harnesses are fastened.
4. Adjusts and locks the rudder pedals or pilot's seat to a safe position and assures full control movement.
5. Briefs the passenger on the use of safety belts and emergency procedures.

H. TASK: ENGINE START (RG)

PILOT OPERATION - 1

REFERENCES: AC9-13, AC91-55; Gyroplane Flight Manual.

Objective. To determine that the applicant:

1. Exhibits knowledge by explaining engine start procedures, including starting under various atmospheric conditions.
2. Performs all the items on the before-starting and starting checklist.
3. Accomplishes a safe starting procedure, placing emphasis on

- a. positioning the gyroplane to avoid creating hazards.
- b. determining that the area is clear.
- c. adjusting the engine controls.
- d. setting the brakes.
- e. preventing undesirable gyroplane movement after engine start.
- f. avoiding excessive engine RPM and temperatures.
- g. checking the engine instruments after engine start.

I. TASK: TAXI (RG)

PILOT OPERATION - 1

REFERENCE: Gyroplane Flight Manual.

Objective. To determine that the applicant:

1. Exhibits knowledge by explaining taxi procedures.
2. Adheres to signals and clearances and follows proper taxi route.
3. Performs brake check immediately after the gyroplane begins moving.
4. Controls taxi speed without excessive use of brakes.
5. Recognizes and avoids hazards.
6. Positions the controls properly for the existing wind conditions.
7. Avoids creating hazards to persons or property.

J. TASK: PRETAKEOFF CHECK (RG)

PILOT OPERATION - 1

REFERENCE: Gyroplane Flight Manual.

Objective. To determine that the applicant:

1. Exhibits knowledge of the pretakeoff check by explaining the reasons for checking the items.
2. Positions the gyroplane to avoid creating hazards.
3. Divides attention inside and outside the cockpit.
4. Ensures that engine temperatures and pressures are suitable for runup and takeoff.
5. Follows the checklist.
6. Positions each control or switch as prescribed by the checklist.
7. Ensures that the gyroplane is in safe operating condition, emphasizing
 - a. flight controls.
 - b. instruments in normal operating range.
 - c. engine and propeller operation.
 - d. rudder pedals/seat adjustment and lock.
 - e. safety belts and shoulder harnesses fastened and adjusted.
 - f. doors and windows secured.
8. Reviews the critical takeoff performance airspeeds and takeoff distances for both ground run and obstacle clearance.
9. Describes takeoff emergency procedures.
10. Assures that sufficient time to prerotate will exist prior to taxiing onto the runway.

II. AREA OF OPERATION: AIRPORT AND TRAFFIC PATTERN OPERATION

A. TASK: AIRPORT AND RUNWAY MARKING AND LIGHTING (RG)

PILOT OPERATION - 2

REFERENCES: AC61-21; AIM.

Objective. To determine that the applicant:

1. Exhibits knowledge by explaining airport and runway markings and lighting aids.
2. Identifies and interprets airport, runway, and taxiway marking aids.
3. Identifies and interprets airport lighting aids.

B. TASK: NORMAL AND CROSSWIND TAKEOFF (RG)

PILOT OPERATION - 2

REFERENCE: Gyroplane Flight Manual.

Objective. To determine that the applicant:

1. Exhibits knowledge by explaining the elements of normal and crosswind takeoffs, including related safety factors.
2. Aligns gyroplane with the intended takeoff path.
3. Holds brakes.
4. Engages rotor clutch slowly and properly.
5. Increases rotor RPM at the desired rate.
6. Observes rotor for proper movement and track.
7. Disengages clutch.
8. Releases brakes.
9. Advances throttle smoothly to maximum allowable power.
10. Checks engine instruments.
11. Maintains directional control along the intended takeoff path.
12. Uses proper crosswind technique.

13. Rotates at the recommended\1 airspeed and accelerates to best rate-of-climb airspeed.

1\The term ``recommended" refers to the manufacturer's recommendation.

14. Maintains best rate-of-climb airspeed, +/-5 knots.

15. Maintains takeoff power to a safe maneuvering altitude.

16. Maintains track along intended departure path until a turn is required.

C. TASK: TRAFFIC PATTERN OPERATION (RG)

PILOT OPERATION - 2

REFERENCES: AC61-21, AC61-23; Gyroplane Flight Manual.

Objective. To determine that the applicant:

1. Exhibits knowledge by explaining traffic pattern procedures at uncontrolled airports, including collision and wind-shear avoidance.
2. Follows the established traffic pattern procedures consistent with instructions or rules.
3. Corrects for wind drift to follow the appropriate ground track.
4. Maintains adequate spacing from other traffic.
5. Maintains the recommended traffic pattern altitude, +/-100 feet.
6. Maintains the desired airspeed, +/-10 knots.
7. Completes the prelanding cockpit checklist.
8. Maintains orientation throughout the traffic pattern.

D. TASK: GO-AROUND (RG)

PILOT OPERATION - 2

REFERENCE: Gyroplane Flight Manual.

Objective. To determine that the applicant:

1. Exhibits knowledge by explaining the elements of a go-around procedure.
2. Makes a go-around when one becomes necessary.
3. Applies necessary power and establishes a climb at the best rate-of-climb airspeed, +/-10 knots, and climbs to traffic pattern altitude.
4. Tracks the appropriate traffic pattern.

E. TASK: NORMAL AND CROSSWIND LANDING (RG)

PILOT OPERATION - 2

REFERENCE: Gyroplane Flight Manual.

Objective. To determine that the applicant:

1. Exhibits knowledge by explaining the elements of a normal and crosswind landing, including related safety factors.
2. Maintains the proper track on final approach.
3. Establishes the approach and landing attitude and power.
4. Maintains the recommended approach airspeed, +/-5 knots.
5. Makes smooth, timely, and correct control application during final approach and transition from approach to landing attitude.
6. Touches down smoothly beyond and within 200 feet of a specified point, with no appreciable drift and the longitudinal axis aligned with the intended landing path.
7. Maintains control during after-landing roll.

F. TASK: SHORT-FIELD TAKEOFF (RG)

PILOT OPERATION - 6

REFERENCE: Gyroplane Flight Manual.

Objective. To determine that the applicant:

1. Exhibits knowledge by explaining the elements of a short-field takeoff, including related safety factors.
2. Taxies the gyroplane to the most favorable position for a short-field takeoff.
3. Aligns gyroplane with intended takeoff path.
4. Holds brakes.
5. Engages rotor clutch slowly and properly.
6. Increases rotor RPM at the desired rate.
7. Observes rotor for proper movement and track.
8. Disengages clutch.
9. Advances throttle smoothly to maximum allowable power using brakes as required.
10. Checks engine instruments.
11. Maintains directional control along the intended takeoff path.
12. Rotates at the recommended airspeed and accelerates to best angle-of-climb airspeed.
13. Maintains best angle-of-climb airspeed, +5, -0 knots, until obstacle is cleared, or at least 50 feet above the surface, then accelerates to best rate-of-climb airspeed.
14. Maintains best rate-of-climb airspeed, +/-5 knots.
15. Maintains takeoff power to a safe maneuvering altitude.
16. Maintains track along intended takeoff path until a turn is required.

G. TASK: SHORT-FIELD LANDING (RG)

PILOT OPERATION - 6

REFERENCE: Gyroplane Flight Manual.

Objective. To determine that the applicant:

1. Exhibits knowledge by explaining the elements of a short-field landing.
2. Evaluates obstructions, landing surface, and wind condition.
3. Selects a suitable touchdown and go-around point.
4. Establishes the recommended short-field configuration, airspeed, and descent angle.
5. Maintains control of the descent rate and the recommended airspeed, +/-5 knots, along the intended approach path.
6. Touches down smoothly with little or no float beyond and within 100 feet of a specified point, with no appreciable drift, and the longitudinal axis aligned with the intended landing path.
7. Maintains directional control during after-landing roll.
8. Applies braking, as necessary, to stop in the shortest distance consistent with safety.

H. TASK: SOFT-FIELD TAKEOFF (RG)

PILOT OPERATION - 6

REFERENCE: Gyroplane Flight Manual.

Objective. To determine that the applicant:

1. Exhibits knowledge by explaining the elements of a

soft-field takeoff, including related safety factors.

2. Determines type of takeoff (jump or rolling, as appropriate) to be used.
3. Selects a suitable area for runup.
4. Aligns gyroplane with intended takeoff path.
5. Holds brakes.
6. Engages rotor clutch slowly and properly.
7. Increases rotor RPM at the desired rate and to maximum allowable RPM.
8. Observes rotor for proper movement and track.
9. Disengages clutch.
10. Advances throttle smoothly to maximum allowable power.
11. Checks engine instruments.
12. Maintains directional control along intended takeoff path.
13. Lifts off at minimum acceptable airspeed.
14. Accelerates to, and maintains, best rate-of-climb airspeed, +/-5 knots.
15. Maintains takeoff power to a safe maneuvering altitude.
16. Maintains track along intended takeoff path until a turn is required.

I. TASK: SOFT-FIELD LANDING (RG)

PILOT OPERATION - 6

REFERENCE: Gyroplane Flight Manual.

Objective. To determine that the applicant:

1. Exhibits knowledge by explaining the elements of a soft-field landing, including operations on various surfaces.

2. Evaluates landing surface and wind condition.
3. Establishes the recommended soft-field landing airspeed.
4. Maintains control of descent rate and airspeed, +/-5 knots, along intended approach path.
5. Touches down smoothly at minimum descent rate and groundspeed with no appreciable drift and the longitudinal axis aligned with the intended landing path.
6. Maintains directional control during after-landing roll.
7. Maintains sufficient speed to taxi on a soft surface.

J. TASK: HIGH-ALTITUDE TAKEOFF (RG)

PILOT OPERATION - 6

REFERENCE: Gyroplane Flight Manual.

Objective. To determine that the applicant:

1. Exhibits knowledge by explaining the elements of a high-altitude takeoff and related safety factors.
2. Aligns gyroplane with intended takeoff path.
3. Holds brakes.
4. Engages rotor clutch slowly and properly.
5. Increases rotor RPM at the desired rate and to maximum allowable RPM.
6. Observes rotor for proper movement and track.
7. Disengages clutch.
8. Releases brakes.
9. Advances throttle to power setting which simulates high-altitude operation.
10. Checks engine instruments.

11. Maintains directional control along intended takeoff path.
12. Rotates just prior to reaching best angle of climb airspeed.
13. Accelerates to best rate of climb near the surface.
14. Maintains best rate of climb, +/-5 knots.
15. Maintains takeoff power to a safe maneuvering altitude.
16. Maintains track along intended departure path until a turn is required.

K. TASK: POSTFLIGHT PROCEDURE (RG)

PILOT OPERATION - 2

REFERENCES: AC61-3; Gyroplane Flight Manual.

Objective. To determine that the applicant:

1. Exhibits knowledge by explaining the elements of after-landing procedures, including parking, temperature stabilization, shutdown, securing, and postflight inspection.
2. Selects the designated or suitable parking area, considering wind conditions and obstructions.
3. Parks the gyroplane properly.
4. Follows the checklist for engine shutdown, cockpit securing, and passenger deplaning.
5. Secures the gyroplane properly.
6. Performs a satisfactory postflight inspection.

L. TASK: RADIO COMMUNICATIONS (RG)

PILOT OPERATION - 2

REFERENCES: AC61-21, AC61-23; AIM.

NOTE: For the applicant whose gyroplane IS NOT radio equipped, this task will be orally tested ONLY. For the applicant whose gyroplane IS radio equipped, this task may be simulated in flight by the examiner.

Objective. To determine that the applicant:

1. Exhibits knowledge by explaining two-way radio communication procedures recommended for use at uncontrolled airports.
2. Selects the frequencies appropriate for the facilities to be used (UNICOM, FSS, or Flight Watch facilities).
3. Transmits requests and reports using recommended standard phraseology.
4. Receives, acknowledges, and complies with radio communications.

III. AREA OF OPERATION: FLIGHT MANEUVERING BY GROUND REFERENCE

A. TASK: RECTANGULAR COURSE (RG)

PILOT OPERATION - 3

REFERENCES: AC61-21; Gyroplane Flight Manual.

Objective. To determine that the applicant:

1. Exhibits knowledge by explaining wind-drift correction in straight and turning flight and the relationship of the rectangular course to airport traffic patterns.
2. Selects a suitable reference area.
3. Enters a left or right pattern at a desired distance from the selected reference area and at 600 to 1,000 feet AGL.
4. Divides attention between gyroplane control and ground

track, and maintains coordinated flight control.

5. Applies the necessary wind-drift corrections during straight and turning flight to track a uniform distance outside the selected reference area.

6. Maintains the desired altitude, +/-100 feet.

7. Maintains the desired airspeed, +/-10 knots.

8. Reverses course as directed by the examiner.

B. TASK: "S-TURNS" ACROSS A ROAD (RG)

PILOT OPERATION - 3

REFERENCES: AC61-21; Gyroplane Flight Manual.

Objective. To determine that the applicant:

1. Exhibits knowledge by explaining the procedures associated with "S-turns," and wind-drift correction throughout the maneuver.

2. Selects a suitable ground reference line.

3. Enters perpendicular to the selected reference line at 600 to 1,000 feet AGL.

4. Divides attention between gyroplane control and ground track, and maintains coordinated flight control.

5. Applies the necessary wind-drift correction to track a constant radius turn on each side of the selected reference line.

6. Reverses the direction of turn directly over the selected reference line.

7. Maintains the desired altitude, +/-100 feet.

8. Maintains the desired airspeed, +/-10 knots.

C. TASK: TURNS AROUND A POINT (RG)

PILOT OPERATION - 3

REFERENCES: AC61-21; Gyroplane Flight Manual.

Objective. To determine that the applicant:

1. Exhibits knowledge by explaining the procedures associated with turns around a point and wind-drift correction throughout the maneuver.
2. Selects a suitable ground reference point.
3. Enters a left or right turn at a desired distance from the selected reference point at 600 to 1,000 feet AGL.
4. Divides attention between gyroplane control and ground track, and maintains coordinated flight control.
5. Applies the necessary wind-drift corrections to track a constant radius turn around the selected reference point.
6. Maintains the desired altitude, +/-100 feet.
7. Maintains the desired airspeed, +/-10 knots.

IV. AREA OF OPERATION: MANEUVERING AT CRITICALLY SLOW AIRSPEED

A. TASK: STRAIGHT-AND-LEVEL FLIGHT, TURNS, AND DESCENTS (RG)

PILOT OPERATION5

REFERENCE: Gyroplane Flight Manual.

Objective. To determine that the applicant:

1. Exhibits knowledge by explaining the flight characteristics and controllability associated with flight at critically slow airspeeds.

2. Selects an entry altitude that will allow the maneuver to be completed no lower than 1,500 feet AGL.
3. Establishes and maintains a specified airspeed
 - a. in coordinated straight-and-level flight, and
 - b. shallow-banked level and descending turns.
4. Maintains the desired altitude, +/-100 feet, when a constant altitude is specified.
5. Maintains the desired heading during straight flight, +/-10°.
6. Maintains the specified bank angle, +/-10°.
7. Maintains a specified critically slow airspeed, +5, -0 knots.
8. Recovers to normal straight-and-level flight at cruise power.

B. TASK: HIGH RATES OF DESCENT AND RECOVERY (RG)

PILOT OPERATION - 5

REFERENCE: Gyroplane Flight Manual.

Objective. To determine that the applicant:

1. Exhibits knowledge by explaining the aerodynamic factors and flight situations that may result in high rates of descents, and the procedures used for recovery.
2. Selects an entry altitude that will allow the recoveries to be completed no lower than 1,500 feet AGL.
3. Establishes an airspeed that will induce a high rate of descent with power off.
4. Recognizes high rates of descent and recovers promptly with and without power.
5. Resumes normal cruising flight.

V. AREA OF OPERATION: NAVIGATION

A. TASK: PILOTAGE (RG)

PILOT OPERATION - 4

REFERENCES: AC61-21, AC61-23.

Objective. To determine that the applicant:

1. Exhibits knowledge by explaining pilotage techniques and procedures.
2. Follows the preplanned course solely by visual reference to landmarks, with the aid of a magnetic compass.
3. Identifies landmarks by relating the surface features to chart symbols.
4. Verifies gyroplane position within 3 nautical miles at all times.
5. Maintains the selected altitude, +/-200 feet.
6. Maintains the appropriate power setting for the desired airspeed.
7. Maintains desired heading, +/-10°.
8. Follows the climb, cruise, and descent checklists.
9. Requests in-flight weather information and uncontrolled airport traffic advisories, as necessary, and properly operates the transponder. (Note: These requirements may be simulated in flight by the examiner when testing the applicant whose gyroplane IS radio or transponder equipped, and will be orally tested ONLY for the applicant whose gyroplane IS NOT radio or transponder equipped.)

B. TASK: DIVERSION (RG)

PILOT OPERATION - 4

REFERENCE: AC61-21.

Objective. To determine that the applicant:

1. Exhibits knowledge by explaining the procedures for diverting to an alternate airport, including recognition of conditions requiring a diversion.
2. Selects an alternate airport and route.
3. Proceeds promptly toward the alternate airport.
4. Makes a reasonable estimate of heading and fuel consumption.
5. Maintains the appropriate altitude, +/-200 feet, and desired airspeed, +/-15 knots.

C. TASK: LOST PROCEDURE (RG)

PILOT OPERATION - 4

REFERENCE: AC61-21.

Objective. To determine that the applicant:

1. Exhibits knowledge by explaining lost procedures, including the following items
 - a. maintaining the original or an appropriate heading, identifying landmarks, and climbing if possible and necessary.
 - b. proceeding to and identifying the nearest concentration of prominent landmarks.
 - c. planning a precautionary landing if deteriorating visibility and/or fuel exhaustion is imminent.
2. Selects the best course of action when given a lost situation.

VI. AREA OF OPERATION: EMERGENCY OPERATION

A. TASK: SYSTEMS AND EQUIPMENT MALFUNCTIONS (RG)

PILOT OPERATION - 6

REFERENCE: Gyroplane Flight Manual.

Objective. To determine that the applicant:

1. Exhibits knowledge, as appropriate, by explaining causes, indications, and pilot actions in response to various systems and equipment malfunctions.
2. Analyzes the situation and takes appropriate action for simulated emergencies such as
 - a. partial power loss.
 - b. rough running engine.
 - c. carburetor or induction icing.
 - d. fuel starvation.
 - e. engine compartment fire.
 - f. electrical system malfunction.
 - g. door opening in flight.
 - h. trim inoperative.
 - i. other malfunctions.

B. TASK: PARTIAL OR COMPLETE POWER FAILURE (SIMULATED) (RG)

PILOT OPERATION - 6

REFERENCE: Gyroplane Flight Manual.

NOTE: Simulated power failures will be given ONLY over favorable terrain where an actual touchdown could be made, should one become necessary. In addition, simulated power failures will

not be given where an autorotative descent might constitute a violation of Federal Aviation Regulations. THE EXAMINER WILL DIRECT THE APPLICANT TO TERMINATE THIS TASK IN A POWER RECOVERY AT AN ALTITUDE HIGH ENOUGH TO ASSURE THAT A SAFE TOUCHDOWN COULD BE ACCOMPLISHED IN THE EVENT OF AN ACTUAL POWER FAILURE.

Objective. To determine that the applicant:

1. Exhibits knowledge by explaining emergency approach and landing procedures to be used during partial or complete power failure.
2. Establishes and maintains the recommended best glide airspeed during simulated emergencies.
3. Selects a suitable landing area within gliding distance.
4. Plans and follows a flight pattern to the selected landing area, considering altitude, wind, terrain, obstructions, and other factors.
5. Follows an appropriate emergency checklist.
6. Attempts to determine the reason for the simulated malfunction.
7. Maintains control of the gyroplane.

C. TASK: LIFT-OFF AT LOW AIRSPEED AND HIGH ANGLE OF ATTACK (RG)

PILOT OPERATION - 6

REFERENCE: Gyroplane Flight Manual.

Objective. To determine that the applicant:

1. Exhibits knowledge by explaining the techniques of lift-off at low airspeed and high angle of attack.
2. Aligns the gyroplane along the intended takeoff path.
3. Holds brakes.
4. Engages rotor clutch slowly and properly.
5. Increases rotor RPM at desired rate to maximum allowable RPM.

6. Observes rotor for proper movement and track.
7. Disengages clutch.
8. Releases brakes.
9. Advances throttle to less than full available power simulating a "reverse command" situation.
10. Checks engine instruments.
11. Maintains directional control along the intended takeoff path.
12. Rotates for takeoff prior to normal lift-off airspeed.
13. Aborts takeoff if lift-off is doubtful or if ground contact occurs after lift-off.
14. Accelerates to establish climb airspeed, once airborne.
15. Applies full power when maneuver has been satisfactorily demonstrated or to prevent a hazardous situation.
16. Maintains straight path along the intended takeoff path until a turn is required.

D. TASK: GROUND RESONANCE (RG)

PILOT OPERATION - 6

REFERENCE: AC61-13; Gyroplane Flight Manual.

NOTE: This TASK will be orally tested ONLY.

Objective. To determine that the applicant:

1. Exhibits knowledge by explaining the hazards associated with ground resonance.
2. Understands the conditions that contribute to ground resonance.
3. Understands preventive technique involved during rotor spin-up, if appropriate.

E. TASK: RADIO COMMUNICATIONS (RG)

PILOT OPERATION - 6

REFERENCE: AIM.

NOTE: For the applicant whose gyroplane IS NOT radio or transponder equipped, this task will be orally tested ONLY. For the applicant whose gyroplane IS radio or transponder equipped, this task may be simulated in flight by the examiner.

Objective. To determine that the applicant:

1. Exhibits knowledge by explaining radio communications or transponder operation procedures to be used in the event an emergency occurs.
2. Selects the appropriate emergency radio frequency (121.5MHz) and/or adjusts transponder to appropriate emergency code.
3. Understands that two-way radio communications and/or radar coverage may not be available.

PRACTICAL TEST CHECKLIST

(RG)

(SUGGESTED)

APPLICANT'S NAME

EXAMINER'S NAME

DATE

TYPE CHECK

I. PREFLIGHT PREPARATION

- A. Certificates and Documents
- B. Obtaining Weather Information
- C. Determining Performance and Limitations
- D. Gyroplane Systems
- E. Aeromedical Factors
- F. Visual Inspection
- G. Cockpit Management
- H. Engine Start
- I. Taxi
- J. Pretakeoff Check

II. AIRPORT AND TRAFFIC PATTERN OPERATION

- A. Airport and Runway Marking and Lighting
- B. Normal and Crosswind Takeoff
- C. Traffic Pattern Operation
- D. Go-Around
- E. Normal and Crosswind Landing
- F. Short-Field Takeoff
- G. Short-Field Landing
- H. Soft-Field Takeoff
- I. Soft-Field Landing
- J. High-Altitude Takeoff
- K. Postflight Procedure
- L. Radio Communications

III. FLIGHT MANEUVERING BY GROUND REFERENCE

- A. Rectangular Course

B. "S-Turns" Across a Road

C. Turns Around a Point.

IV. MANEUVERING AT CRITICALLY SLOW AIRSPEED

A. Straight-And-Level Flight, Turns, and Descents

B. High Rates of Descent and Recovery

V. NAVIGATION

A. Pilotage

B. Diversion

C. Lost Procedure

VI. EMERGENCY OPERATION

A. Systems and Equipment Malfunctions

B. Partial or Complete Power Failure (Simulated)

C. Lift-Off at Low Airspeed and High Angle of Attack

D. Ground Resonance

E. Radio Communications

APPLICANT'S PRACTICAL TEST CHECKLIST

(SUGGESTED)

APPOINTMENT WITH INSPECTOR OR EXAMINER:

NAME

TIME/DATE

