

**EGYPTIAN CIVIL AVIATION AUTHORITY**  
**FLIGHT SAFETY STANDARDS SECTOR**



**COMMERCIAL PILOT**  
**ECA Examination Standards**  
**for**  
**AIRPLANE (SES)**

# COMMERCIAL PILOT ECA Examination Standards for AIRPLANE (SES)

## FOREWORD

The Commercial Pilot – Airplane ECA Examination Standards book has been published by the Egyptian Civil Aviation Supervisory Authority (ECAA) to establish the standards for commercial pilot certification practical tests for the airplane category, single-engine, land and sea; and multiengine, land and sea classes. ECAA inspectors and designated pilot examiners shall conduct practical tests in compliance with these standards. Flight instructors and applicants should find these standards helpful during training and when preparing for the practical test.

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RATING TASK TABLE

Airplane Single-Engine Sea

Addition of an Airplane Single-Engine Sea rating to an existing Commercial Pilot Certificate

Area of Operation	Required TASKS are indicated by either the TASK letter(s) that apply(s) or an indication that all or none of the TASKS must be tested.							
	COMMERCIAL PILOT RATING(S) HELD							
	ASEL	AMEL	AMES	RH	RG	Glider	Balloon	Airship
I	E,F,H, I	E,F,H, I	E,F	E,F,H, I	E,F,H, I	E,F,H, I,J,K	E,F,H, I,J,K	E,F,H, I,J
II	ALL	ALL	A,B,C, D,F	ALL	ALL	ALL	ALL	ALL
III	B,C	B,C	B	B,C	B,C	ALL	ALL	B,C
IV	ALL	ALL	ALL	ALL	ALL	ALL	ALL	ALL
V	NONE	ALL	ALL	ALL	ALL	ALL	ALL	ALL
VI	NONE	ALL	ALL	ALL	ALL	ALL	ALL	ALL
VII	NONE	NONE	NONE	NONE	NONE	ALL	ALL	NONE
VIII	ALL	ALL	ALL	ALL	ALL	ALL	ALL	ALL
IX	ALL	ALL	ALL	ALL	ALL	ALL	ALL	ALL
X	ALL	ALL	ALL	ALL	ALL	ALL	ALL	ALL
XI	ALL	ALL	A,F	ALL	ALL	ALL	ALL	ALL

## APPLICANT'S PRACTICAL TEST CHECKLIST

APPOINTMENT WITH EXAMINER:

EXAMINER'S NAME \_\_\_\_\_

LOCATION \_\_\_\_\_

DATE/TIME \_\_\_\_\_

ACCEPTABLE AIRCRAFT

Aircraft Documents:

Airworthiness Certificate

Registration Certificate

Operating Limitations

Aircraft Maintenance Records:

Logbook Record of Airworthiness Inspections and AD Compliance

Pilot's Operating Handbook, ECAA-Approved Airplane Flight Manual

PERSONAL EQUIPMENT

View-Limiting Device

Current Aeronautical Charts

Computer and Plotter

Flight Plan Form

Flight Logs

Current AIP, Airport Facility Directory, and Appropriate Publications

PERSONAL RECORDS

Identification - Photo/Signature ID

Pilot Certificate

Current and Appropriate Medical Certificate

Completed ECAA Form 8710-1, Airman Certificate and/or Rating Application  
with Instructor's Signature (if applicable)

AC Form 8080-2, Airman Written Test Report, or Computer Test Report

Pilot Logbook with appropriate Instructor Endorsements

ECAA Form 8060-5, Notice of Disapproval (if applicable)

Approved School Graduation Certificate (if applicable)

Examiner's Fee (if applicable)



## EXAMINER'S PRACTICAL TEST CHECKLIST

Airplane Single-Engine Sea

APPLICANT'S NAME \_\_\_\_\_

LOCATION \_\_\_\_\_

DATE/TIME \_\_\_\_\_

### I. PREFLIGHT PREPARATION

- A. CERTIFICATES AND DOCUMENTS
- B. WEATHER INFORMATION
- C. CROSS-COUNTRY FLIGHT PLANNING
- D. NATIONAL AIRSPACE SYSTEM
- E. PERFORMANCE AND LIMITATIONS
- F. OPERATION OF SYSTEMS
- G. AEROMEDICAL FACTORS
- H. WATER AND SEAPLANE CHARACTERISTICS
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- J. PHYSIOLOGICAL ASPECTS OF NIGHT FLYING
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## **V. PERFORMANCE MANEUVERS**

A. STEEP TURNS

B. LAZY EIGHTS

## **VI. GROUND REFERENCE MANEUVER**

EIGHTS ON PYLONS

## **VII. NAVIGATION**

A. PILOTAGE AND DEAD RECKONING

B. NAVIGATION SYSTEMS AND ATC RADAR SERVICES

C. DIVERSION

D. LOST PROCEDURE

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## **X. HIGH ALTITUDE OPERATION**

SUPPLEMENTAL OXYGEN

## **XI. POSTFLIGHT PROCEDURES**

A. AFTER LANDING

B. ANCHORING

C. DOCKING AND MOORING

D. BEACHING

E. RAMPING

F. PARKING AND SECURING

## I. AREA OF OPERATION: PREFLIGHT PREPARATION

### A. TASK: CERTIFICATES AND DOCUMENTS

**REFERENCES:** ECAR parts 43, 61, 91; AC 61-21, AC 61-23; Pilot's Operating Handbook, ECAA-Approved Airplane Flight Manual, Seaplane Supplement.

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

1. Exhibits knowledge of the elements related to certificates and documents by explaining—
  - a. commercial pilot certificate privileges and limitations.
  - b. medical certificates, class and duration as related to commercial pilot privileges.
  - c. pilot logbook or flight records.
2. Exhibits knowledge of the elements related to certificates and documents by locating and explaining—
  - a. airworthiness and registration certificates.
  - b. operating limitations, placards, instrument markings, Pilot's Operating Handbook and Airplane Flight Manual, Seaplane Supplement.
  - c. weight and balance data, and equipment list.
  - d. airworthiness directives, compliance records, maintenance/inspection requirements, tests, and other appropriate records.
3. Exhibits knowledge of the elements and procedures related to inoperative instruments and equipment by explaining—
  - a. limitations imposed on airplane operations with inoperative instruments or equipment.
  - b. when a special flight permit is required.
  - c. procedures for obtaining a special flight permit.

### B. TASK: WEATHER INFORMATION

**REFERENCES:** AC 00-6, AC 00-45, AC-23, AC 61-84; AIP.

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

1. Exhibits knowledge of the elements related to weather information by analyzing weather reports, charts, and forecasts from various sources with emphasis on—
  - a. convective SIGMET's.
  - b. SIGMET's.

- c. AIRMET's.
  - d. wind shear report's.
  - e. PIREP's.
2. Makes a competent "go/no-go" decision based on available weather information.

### **C. TASK: CROSS-COUNTRY FLIGHT PLANNING**

**REFERENCES:** AC 61-21, AC 61-23, AC 61-84; Navigation Charts; Airport/Facility Directory, AIP.

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

1. Exhibits knowledge of the elements related to cross-country flight planning by presenting and explaining a pre-planned VFR cross-country flight, as previously assigned by the examiner. On the day of the test, the final flight plan shall include real time weather to the first fuel stop. Computations shall be based on maximum allowable passenger, baggage and/or cargo loads.
2. Uses appropriate and current aeronautical charts.
3. Properly identifies airspace, obstructions, and terrain features.
4. Selects easily identifiable en route checkpoints.
5. Selects most favorable altitudes or flight levels, considering weather conditions and equipment capabilities.
6. Computes headings, flight time, and fuel requirements.
7. Selects appropriate navigation system/facilities and communication frequencies.
8. Confirms availability of alternate seaplane bases or water landing sites.
9. Extracts and records pertinent information from NOTAM's, Airport/Facility Directory, and other flight publications.
10. Completes a navigation log and simulates filing a VFR flight plan.

### **D. TASK: NATIONAL AIRSPACE SYSTEM**

**REFERENCES:** ECAR part 91; AIP.

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

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

- b. Class C.
  - c. Class D.
  - d. Class E, and
  - e. Class G.
3. Special use airspace and other airspace areas.

#### **E. TASK: PERFORMANCE AND LIMITATIONS**

**REFERENCES:** AC 61-21, AC 61-23, AC 61-84, AC 91-23; Pilot's Operating Handbook, ECAA-Approved Airplane Flight Manual, Seaplane Supplement.

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

1. Exhibits knowledge of the elements related to performance and limitations by explaining the use of charts, tables, and appropriate data, available from the manufacturer, to determine performance, including climb, cruise, range, endurance, and the adverse effects of exceeding limitations.
2. Describes the effects of various atmospheric conditions on the seaplane's performance, to include at least—
  - a. takeoff distance.
  - b. rate of climb.
  - c. groundspeed.
  - d. landing distance.
  - e. drag on touchdown.
3. Computes weight and balance, including adding, removing, and shifting weight. Determines if the weight and center of gravity will remain within limits during all phases of flight.
4. Determines whether the computed performance is within the seaplane's capabilities and operating limitations.

#### **F. TASK: OPERATION OF SYSTEMS**

**REFERENCES:** AC 61-21, AC 61-23; Pilot's Operating Handbook, ECAA-Approved Airplane Flight Manual, Seaplane Supplement.

**Objective.** To determine that the applicant exhibits knowledge of the elements related to the operation of systems on the seaplane provided for the practical test by explaining at least five (5) of the following:

1. Primary flight controls and trim.
2. Flaps, leading edge devices, and spoilers.

3. Powerplant and propeller.
4. Landing gear, if applicable.
5. Floats or hull.
6. Water rudder(s).
7. Fuel, oil, and hydraulic systems.
8. Electrical system.
9. Avionics systems.
10. Pitot-static system, vacuum/pressure system and associated flight instruments.

#### **G. TASK: AEROMEDICAL FACTORS**

**REFERENCES:** AC 61-21, AC 61-23, AC 67-2; AIP.

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

1. The symptoms, causes, effects, and corrective actions of at least four (4) of the following—
  - a. hypoxia.
  - b. hyperventilation.
  - c. middle ear and sinus problems.
  - d. spatial disorientation.
  - e. motion sickness.
  - f. carbon monoxide poisoning.
  - g. stress and fatigue.
2. The effects of alcohol and drugs, including over-the-counter drugs.
3. The effects of nitrogen excesses during scuba dives upon a pilot and/or passenger in flight.

#### **H. TASK: WATER AND SEAPLANE CHARACTERISTICS**

**REFERENCE:** AC 61-21.

**Objective.** To determine that the applicant exhibits knowledge of the elements related to water and seaplane characteristics by explaining:

1. The characteristics of a water surface as affected by features such as—
  - a. size and location.
  - b. direction and strength of the water current.
  - c. presence of floating and partially submerged debris.

- d. protected and unprotected areas.
  - e. effect of surface wind and method of determining its force.
  - f. operating near sandbars, islands, and shoals.
  - g. other pertinent characteristics deemed important by the examiner.
2. Float and hull construction and their effect on seaplane/flying boat performance.
  3. Causes of porpoising and skipping, and pilot action to prevent or correct these occurrences.

#### **I. TASK: SEAPLANE BASES, MARITIME RULES, AND AIDS TO MARINE NAVIGATION**

**REFERENCES:** AC 61-21; AIP.

**Objective.** To determine that the applicant exhibits knowledge of the elements related to seaplane bases, maritime rules, and aids to marine navigation by explaining:

1. How to identify and locate seaplane bases on charts or in directories.
2. Operating restrictions at seaplane bases.
3. Right-of-way, steering, and sailing rules pertinent to seaplane operation.
4. Purpose and identification of marine navigation aids such as buoys, beacons, lights, and range markers.

#### **J. TASK: PHYSIOLOGICAL ASPECTS OF NIGHT FLYING**

**REFERENCES:** AC 61-21, AC 67-2; AIP.

**Objective.** To determine that the applicant exhibits knowledge of the elements related to the physiological aspects of night flying by explaining:

1. The function of various parts of the eye essential for night vision.
2. Adaptation of the eye to changing light.
3. Coping with illusions created by various light conditions.
4. Effects of the pilot's physical condition on visual acuity.
5. Methods for increasing vision effectiveness.

#### **K. TASK: LIGHTING AND EQUIPMENT FOR NIGHT FLYING**

**REFERENCES:** AC 61-21; Pilot's Operating Handbook, ECAA-Approved Airplane Flight Manual, Seaplane Supplement.

**Objective.** To determine that the applicant exhibits knowledge of the elements related to lighting and equipment for night flying by explaining:

1. Types and uses of various personal lighting devices.
2. Required equipment, additional equipment recommended, location of external navigation lighting, and anchor lighting for the seaplane.
3. Meaning of various waterway and navigation lights.



## II. AREA OF OPERATION: PREFLIGHT PROCEDURES

### **A. TASK: PREFLIGHT INSPECTION**

**REFERENCES:** AC 61-21; Pilot's Operating Handbook, ECAA-Approved Airplane Flight Manual, Seaplane Supplement.

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

1. Exhibits knowledge of the elements related to a preflight inspection including which items must be inspected, the reasons for checking each item, and how to detect possible defects.
2. Inspects the seaplane with reference to an appropriate checklist.
3. Verifies that the seaplane is in condition for safe flight, notes any discrepancy, and determines whether the seaplane requires maintenance.
4. Locates and identifies switches, circuit breakers/fuses, pertinent to day and night operations.

### **B. TASK: COCKPIT MANAGEMENT**

**REFERENCES:** AC 61-21; Pilot's Operating Handbook, ECAA-Approved Airplane Flight Manual, Seaplane Supplement.

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

1. Exhibits knowledge of the elements related to efficient cockpit management procedures, and related safety factors.
2. Organizes and arranges material and equipment in a manner that makes the items readily available.
3. Briefs, or causes the briefing of occupants on the use of safety belts and emergency procedures.
4. Uses all appropriate checklists.

### **C. TASK: ENGINE STARTING**

**REFERENCES:** AC 61-21, AC 61-23, AC 91-13, AC 91-55; Pilot's Operating Handbook, ECAA-Approved Airplane Flight Manual, Seaplane Supplement.

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

1. Exhibits knowledge of the elements related to recommended engine starting procedures, including the use of an external power source, starting under various atmospheric conditions, awareness of other persons and property during start, and the effects of using incorrect starting procedures.
2. Accomplishes recommended starting procedures.

3. Completes appropriate checklists.

#### **D. TASK: TAXIING**

**REFERENCES:** AC 61-21; Pilot's Operating Handbook, ECAA-Approved Airplane Flight Manual, Seaplane Supplement.

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

1. Exhibits knowledge of the elements related to recommended taxi procedures.
2. Positions the flight controls properly for the existing wind conditions.
3. Plans and follows the most favorable course and speeds considering wind, current, hazards, and maritime regulations.
4. Utilizes appropriate idle, plow or step taxi technique.
5. Prevents and corrects for porpoising and skipping.
6. Complies with seaplane base/facility markings, signals, and ATC clearances.
7. Avoids other aircraft, vessels, and hazards.
8. Completes the appropriate checklist.

#### **E. TASK: SAILING**

**REFERENCES:** AC 61-21; Pilot's Operating Handbook, ECAA-Approved Airplane Flight Manual, Seaplane Supplement.

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

1. Exhibits knowledge of the elements related to sailing by explaining the techniques used in this procedure.
2. Recognizes the circumstance when sailing should be used.
3. Plans and follows the most favorable course considering wind, water current, obstructions, debris, and other vessels.
4. Uses flight controls, flaps, doors, and water rudders, as appropriate, to follow the desired course.
5. Controls speed appropriate to conditions.

#### **F. TASK: BEFORE TAKEOFF CHECK**

**REFERENCES:** AC 61-21; Pilot's Operating Handbook, ECAA-Approved Airplane Flight Manual, Seaplane Supplement.

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

1. Exhibits knowledge of the elements related to the before takeoff check, including the reasons for checking each item and how to detect malfunctions
2. Briefs passengers on the operation of safety belts, doors, and flotation devices.
3. Divides attention inside and outside the cockpit.
4. Positions the seaplane properly considering hazards, wind conditions, other aircraft, water surface conditions and depth, surrounding terrain, and other watercraft.
5. Ensures that the engine temperature and pressure are suitable for run-up and takeoff.
6. Accomplishes the before takeoff checks and ensures that the seaplane is in safe operating condition.
7. Reviews takeoff performance airspeeds, departure and emergency procedures.
8. Ensures no conflict with air or water traffic prior to taxiing into takeoff position.
9. Completes appropriate checklist.

### **III. AREA OF OPERATION: SEAPLANE BASE AND WATER LANDING SITE OPERATIONS**

#### **A. TASK: RADIO COMMUNICATION AND ATC LIGHT SIGNALS**

**REFERENCES:** AC 61-21, AC 61-23; AIP.

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

1. Exhibits knowledge of the elements related to radio communications, radio failure, and ATC light signals.
2. Demonstrates use of radio communications by—
  - a. selecting appropriate frequencies for facilities to be used.
  - b. transmitting using recommended phraseology.
  - c. acknowledging and complying with radio communications and ATC instructions.
3. Uses appropriate procedures for simulated radio communications failure.
4. Interprets and complies with ATC light signals.

#### **B. TASK: TRAFFIC PATTERNS**

**REFERENCES:** AC 61-21, AC 61-23; AIP.

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

1. Exhibits knowledge of the elements related to traffic pattern procedures at seaplane bases and water landing sites.
2. Complies with recommended traffic pattern procedures.
3. Selects the most appropriate departure and approach path considering alignment with the wind, landing area congestion, and shoreline population.
4. Maintains proper spacing from other traffic.
5. Establishes an appropriate pattern distance from landing area, considering possibility of engine failure.
6. Remains oriented with landing area.
7. Maintains and holds traffic pattern altitude  $\pm 100$  feet (30 meters), and appropriate airspeed  $\pm 10$  knots.
8. Completes appropriate checklists.

#### **C. TASK: SEAPLANE BASE/WATER LANDING SITE MARKINGS AND LIGHTING**

**REFERENCES:** AC 61-21, AC 61-23; AIP.

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

1. Exhibits knowledge of the elements related to seaplane base/water landing site markings and lighting.
2. Identifies and interprets seaplane base/water landing site markings and lighting.

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

### **A. TASK: NORMAL AND CROSSWIND TAKEOFF AND CLIMB**

**REFERENCES:** AC 61-21; Pilot's Operating Handbook, ECAA-Approved Airplane Flight Manual, Seaplane Supplement.

**NOTE:** If a crosswind condition does not exist, the applicant's knowledge of the crosswind elements shall be evaluated through oral testing.

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

1. Exhibits knowledge of the elements related to normal and crosswind takeoff and climb.
2. Positions flight controls and flaps for existing conditions.
3. Clears the area, notes any surface hazards and/or vessels prior to selecting a takeoff path.
4. Retracts the water rudders, if applicable.
5. Advances the throttle to takeoff power.
6. Avoids excessive water spray on the propeller.
7. Establishes and maintains an appropriate planing attitude, directional control, and corrects for porpoising and skipping.
8. Establishes and maintains proper lift-off attitude/airspeed and accelerates to VY,  $\pm 5$  knots.
9. Reduces the flaps after a positive rate of climb is established and at a safe altitude.
10. Maintains takeoff power to a safe maneuvering altitude, then sets climb power.
11. Maintains directional control and proper wind-drift correction throughout takeoff and climb.
12. Uses noise abatement procedures, as required.
13. Completes appropriate checklists.

### **B. TASK: NORMAL AND CROSSWIND APPROACH AND LANDING**

**REFERENCES:** AC 61-21; Pilot's Operating Handbook, ECAA-Approved Airplane Flight Manual, Seaplane Supplement.

**NOTE:** If a crosswind condition does not exist, the applicant's knowledge of the crosswind elements shall be evaluated through oral testing.

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

1. Exhibits knowledge of the elements related to normal and crosswind approach and landing.
2. Considers the wind conditions, surrounding terrain, surface condition, water depth, debris, and other watercraft.
3. Selects a suitable approach path and touchdown point.
4. Ensures that the landing gear and water rudders are retracted, if applicable.
5. Establishes the recommended approach and landing configuration and adjusts power while maintaining the proper attitude as required.
6. Maintains a stabilized approach and recommended airspeed with gust factor applied,  $\pm 5$  knots.
7. Makes smooth, timely, and correct power and control application during roundout and touchdown.
8. Touches down at the recommended airspeed and pitch attitude, beyond and within 200 feet (60 meters) of a specified area.
9. Maintains crosswind correction and directional control throughout the approach and landing.
10. Completes appropriate checklists.

### **C. TASK: GLASSY WATER TAKEOFF AND CLIMB**

**REFERENCES:** AC 61-21; Pilot's Operating Handbook, ECAA-Approved Airplane Flight Manual, Seaplane Supplement.

**NOTE:** If a glassy water condition does not exist, the applicant's knowledge of glassy water elements shall be evaluated through oral testing. The applicant's skill shall be evaluated by simulating the TASK.

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

1. Exhibits knowledge of the elements related to a glassy water takeoff and climb.
2. Positions the flight controls and flaps for the existing conditions.
3. Selects a takeoff path that maximizes safety should a powerplant failure occur.
4. Clears the area, notes any surface hazards and/or vessels prior to takeoff.
5. Retracts the water rudders, if applicable.
6. Advances the throttle to takeoff power.

7. Establishes and maintains an appropriate planing attitude, directional control, and corrects for porpoising, skipping, and increases in water drag.
8. Utilizes appropriate techniques to lift seaplane from the water surface.
9. Establishes proper attitude/airspeed, lifts off and accelerates to VY,  $\pm 5$  knots during the climb.
10. Reduces the flaps after a positive rate of climb is established and at a safe altitude.
11. Maintains takeoff power to a safe maneuvering altitude, then sets climb power.
12. Maintains directional control and proper wind-drift correction throughout takeoff and climb.
13. Uses noise abatement procedures, as required.
14. Completes appropriate checklists.

#### **D. TASK: GLASSY WATER APPROACH AND LANDING**

**REFERENCES:** AC 61-21; Pilot's Operating Handbook, ECAA-Approved Airplane Flight Manual, Seaplane Supplement.

**NOTE:** If a glassy water condition does not exist, the applicant's knowledge of glassy water elements shall be evaluated through oral testing. The applicant's skill shall be evaluated by simulating the TASK.

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

1. Exhibits knowledge of the elements related to a glassy water approach and landing.
2. Considers the surrounding terrain, visual attitude references, water depth, debris, and other watercraft.
3. Selects a suitable approach path and touchdown area.
4. Ensures that the landing gear and water rudders are retracted, if applicable.
5. Establishes the recommended approach and landing configuration and adjusts power and pitch attitude as required.
6. Maintains a slightly nose-high stabilized approach, at the recommended airspeed,  $\pm 5$  knots, and descent rate from the last altitude reference, until touchdown.



7. Makes smooth, timely, and correct power and control adjustments to maintain proper attitude and rate of descent to touchdown.
8. Contacts the water at the correct pitch attitude and slows to idle taxi speed.
9. Completes appropriate checklists.

#### **E. TASK: ROUGH WATER TAKEOFF AND CLIMB**

**REFERENCES:** AC 61-21; Pilot's Operating Handbook, ECAA-Approved Airplane Flight Manual, Seaplane Supplement.

**NOTE:** If a rough water condition does not exist, the applicant's knowledge of rough water elements shall be evaluated through oral testing. The applicant's skill shall be evaluated by simulating the TASK.

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

1. Exhibits knowledge of the elements related to rough water takeoff and climb.
2. Positions the flight controls and flaps for the existing conditions.
3. Clears the area, selects the proper takeoff path, considering wind, swells, surface hazards and/or vessels.
4. Retracts the water rudders, if applicable.
5. Advances the throttle to takeoff power.
6. Avoids excessive water spray on the propeller.
7. Establishes and maintains an appropriate planing/lift-off attitude, directional control, and corrects for porpoising, skipping, or excessive bouncing.
8. Establishes and maintains proper attitude to lift-off at minimum airspeed and accelerates to VY,  $\pm 5$  knots before leaving ground effect.
9. Retracts the flaps after a positive rate of climb is established and at a safe altitude.
10. Maintains takeoff power to a safe maneuvering altitude, then sets climb power.
11. Maintains directional control and proper wind-drift correction throughout takeoff and climb.
12. Uses noise abatement procedures, as required.
13. Completes appropriate checklists.

## F. TASK: ROUGH WATER APPROACH AND LANDING

**REFERENCES:** AC 61-21; Pilot's Operating Handbook, ECAA-Approved Airplane Flight Manual, Seaplane Supplement.

**NOTE:** If a rough water condition does not exist, the applicant's knowledge of rough water elements shall be evaluated through oral testing. The applicant's skill shall be evaluated by simulating the TASK.

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

1. Exhibits knowledge of the elements related to a rough water approach and landing.
2. Considers the wind conditions, surrounding terrain, water depth, debris, and other watercraft.
3. Selects a suitable approach direction and touchdown area.
4. Establishes the recommended approach and landing configuration and adjusts power and pitch attitude as required.
5. Ensures that the landing gear and water rudders are retracted, if applicable.
6. Maintains a stabilized approach and recommended airspeed with gust factor applied,  $\pm 5$  knots.
7. Contacts the water at the correct pitch attitude and touchdown speed.
8. Makes smooth, timely, and correct power and control application during the landing while remaining alert for a go-around should conditions be too rough.
9. Maintains positive after-landing control.
10. Completes appropriate checklists.

## G. TASK: CONFINED-AREA TAKEOFF AND CLIMB

**REFERENCES:** AC 61-21; Pilot's Operating Handbook, ECAA-Approved Airplane Flight Manual, Seaplane Supplement.

**NOTE:** This TASK simulates a takeoff from a small pond, which would require a takeoff and spiral climb; or a straight ahead takeoff and climb from a narrow waterway with obstructions at either end. The examiner must evaluate both takeoff situations for this TASK.

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

1. Exhibits knowledge of the elements related to a confined-area takeoff and climb.

2. Positions the flight controls and flaps for the existing conditions.
3. Clears the area, notes any surface hazards, vessels and/or obstructions prior to selecting a takeoff path.
4. Selects a takeoff path that will allow maximum safe utilization of wind, water, and low terrain.
5. Advances the throttle to takeoff power.
6. Ensures that the water rudders are retracted when no longer needed.
7. Maintains the most efficient alignment and planing angle, without skidding, porpoising, and skipping.
8. Lifts off at the recommended airspeed and accelerates to no higher than VX, if obstacle clearance is required.
9. Climbs at manufacturer's recommended configuration and airspeed, or in their absence, at VX, +5/-0 knots until the obstacle is cleared.
10. After clearing all obstacles, accelerates to and maintains VY,  $\pm 5$  knots, retracts flaps and maintains safe bank angles while turning and/or providing best terrain clearance.
11. Maintains takeoff power to a safe altitude, then sets climb power.
12. Uses noise abatement procedures, as required.
13. Completes appropriate checklists.

## H. TASK: CONFINED-AREA APPROACH AND LANDING

**REFERENCES:** AC 61-21; Pilot's Operating Handbook, ECAA-Approved Airplane Flight Manual, Seaplane Supplement.

**NOTE:** This TASK simulates an approach and landing to a small pond, which would require a spiral approach, wings level landing, and step turn upon landing; and a straight ahead approach and landing to a narrow waterway with obstructions at either end. The examiner must evaluate both landing situations for this TASK.

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

1. Exhibits knowledge of the elements related to a confined-area approach and landing.
2. Considers the wind conditions, surrounding terrain, surface condition, water depth, debris, and other watercraft.
3. Selects a suitable approach path and touchdown area.
4. Establishes the recommended approach and landing configuration and airspeed, and adjusts pitch attitude and power as required.

5. Ensures that the landing gear and water rudders are retracted, if applicable.
6. Maintains a stabilized approach and recommended approach airspeed with gust factor applied,  $\pm 5$  knots.
7. Makes smooth, timely, and correct power and control application during the roundout and touchdown.
8. Touches down smoothly at the recommended airspeed and pitch attitude, beyond and within 100 feet (30 meters) of a specified point/area.
9. Maintains crosswind correction and directional control throughout the approach and landing.
10. Completes appropriate checklists.

#### **I. TASK: GO-AROUND**

**REFERENCES:** AC 61-21; Pilot's Operating Handbook, ECAA-Approved Airplane Flight Manual, Seaplane Supplement.

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

1. Exhibits knowledge of the elements related to a go-around.
2. Makes a timely decision to discontinue the approach to landing.
3. Applies takeoff power immediately and establishes the pitch attitude that will stop the descent.
4. Retracts landing flaps, as appropriate.
5. Trims the seaplane to accelerate to VY before the final flap retraction.
6. Maintains takeoff power and climbs at VY,  $\pm 5$  knots to a safe maneuvering altitude, then sets climb power.
7. Maintains proper wind-drift correction and obstruction clearance throughout the transition to climb.
8. Completes appropriate checklists.

## V. AREA OF OPERATION: PERFORMANCE MANEUVERS

### A. TASK: STEEP TURNS

**REFERENCES:** AC 61-21; Pilot's Operating Handbook, ECAA-Approved Airplane Flight Manual, Seaplane Supplement.

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

1. Exhibits knowledge of the elements related to steep turns.
2. Selects an altitude that allows the task to be completed no lower than 1,500 feet AGL (460 meters) or the manufacturer's recommended altitude, whichever is higher.
3. Establishes the manufacturer's recommended airspeed or if one is not stated, the examiner may designate a safe airspeed not to exceed  $V_A$ .
4. Smoothly enters a coordinated  $360^\circ$  steep turn with a  $50^\circ$  bank,  $\pm 5^\circ$ , immediately followed by a  $360^\circ$  steep turn in the opposite direction.
5. Divides attention between seaplane control and orientation.
6. Rolls out on the entry heading,  $\pm 10^\circ$ .
7. Maintains the entry altitude throughout the maneuver,  $\pm 100$  feet (30 meters), and airspeed  $\pm 10$  knots.

### B. TASK: LAZY EIGHTS

**REFERENCES:** AC 61-21; Pilot's Operating Handbook, ECAA-Approved Airplane Flight Manual, Seaplane Supplement.

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

1. Exhibits knowledge of the elements related to performance factors associated with lazy eights.
2. Selects an altitude that will allow the task to be performed no lower than 1,500 feet AGL (460 meters) or the manufacturer's recommended altitude, whichever is higher.
3. Selects a prominent  $90^\circ$  reference point in the distance.
4. Establishes the recommended entry power and airspeed.
5. Plans and remains oriented while maneuvering the seaplane with positive, accurate control, and demonstrates mastery of the seaplane.
6. Achieves the following throughout the task—
  - a. constant change of pitch, bank, and turn rate.
  - b. altitude and airspeed consistent at the  $90^\circ$  points,  $\pm 100$  feet (30 meters) and  $\pm 10$  knots respectively.

- c. through proper power setting, attains the starting altitude and airspeed at the completion of the maneuver,  $\pm 100$  feet (30 meters) and  $\pm 10$  knots respectively.
  - d. heading tolerance  $\pm 10^\circ$  at each  $180^\circ$  point.
7. Continues the task through at least two  $180^\circ$  circuits and resumes straight-and-level flight.

## VI. AREA OF OPERATION: GROUND REFERENCE MANEUVER

### **TASK: EIGHTS ON PYLONS**

**REFERENCE:** AC 61-21; Pilot's Operating Handbook, ECAA-Approved Airplane Flight Manual, Seaplane Supplement.

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

1. Exhibits knowledge of the elements related to eights on pylons including the relationship of groundspeed change to the performance of the maneuver.
2. Determines the approximate pivotal altitude.
3. Selects suitable pylons, considering emergency landing areas, that will permit approximately 3 to 5 seconds of straight-and-level flight between them.
4. Attains proper configuration and airspeed prior to entry.
5. Applies the necessary corrections so that the line-of-sight reference line remains on the pylon with minimum longitudinal movement.
6. Exhibits proper orientation, division of attention, and planning.
7. Applies the necessary wind-effect correction to track properly between pylons.
8. Holds pylon using appropriate pivotal altitude avoiding slips and skids.

## VII. AREA OF OPERATION: NAVIGATION

### A. TASK: PILOTAGE AND DEAD RECKONING

REFERENCES: AC 61-21, AC 61-23, AC 61-84.

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

1. Exhibits knowledge of the elements related to pilotage and dead reckoning.
2. Correctly flies to at least the first planned checkpoint to demonstrate accuracy in computations, considers available alternates, and suitable action for various situations including possible route alteration by the examiner.
3. Follows the preplanned course solely by reference to landmarks.
4. Identifies landmarks by relating the surface features to chart symbols.
5. Navigates by means of precomputed headings, groundspeed, and elapsed time.
6. Verifies the seaplane's position within 1 nautical mile (1.85 Km) of flight planned route at all times.
7. Arrives at the en route checkpoints or destination within 3 minutes of the ETA.
8. Corrects for, and records, the differences between preflight fuel, groundspeed, and heading calculations and those determined en route.
9. Maintains appropriate altitude  $\pm 100$  feet (30 meters) and established heading,  $\pm 10^\circ$ .
9. Completes appropriate checklists.

### B. TASK: NAVIGATION SYSTEMS AND ATC RADAR SERVICES

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

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

1. Exhibits knowledge of the elements related to navigation systems and ATC radar services.
2. Selects and identifies the appropriate facilities.
3. Locates the seaplane's position using radials, bearings, or coordinates, as appropriate.
4. Intercepts and tracks a given radial on a low altitude airway.
5. Recognizes and describes the indication of station passage or arrival at a checkpoint, if using Area Navigation.
6. Recognizes signal loss and takes appropriate action.

7. Utilizes proper communication procedures when using ATC radar services.
8. Maintains the appropriate altitude,  $\pm 100$  feet (30 meters), heading  $\pm 10^\circ$ .

### C. TASK: DIVERSION

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

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

1. Exhibits knowledge of the elements related to procedures for diversion.
2. Selects an appropriate alternate water landing site and route.
3. Diverts toward the alternate seaplane water landing site.
4. Makes an accurate estimate of heading, groundspeed, arrival time and fuel consumption to the alternate base/water landing site.
5. Maintains the appropriate altitude,  $\pm 100$  feet (30 meters) and established heading  $\pm 10^\circ$ .

### D. TASK: LOST PROCEDURE

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

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

1. Exhibits knowledge of the elements related to lost procedures.
2. Selects the best course of action, including best power and altitude.
3. Maintains the original or appropriate heading, and if necessary, climbs.
4. Attempts to identify nearest prominent landmark(s).
5. Uses available navigation aids or contacts an appropriate facility for assistance.
6. Plans a precautionary landing if deteriorating visibility and/or fuel exhaustion is imminent.



## VIII. AREA OF OPERATION: SLOW FLIGHT AND STALLS

### A. TASK: MANEUVERING DURING SLOW FLIGHT

**REFERENCES:** AC 61-21; Pilot's Operating Handbook, ECAA-Approved Airplane Flight Manual, Seaplane Supplement.

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

1. Exhibits knowledge of the elements related to flight characteristics and controllability associated with maneuvering during slow flight.
2. Selects an entry altitude that will allow the task to be completed no lower than 1,500 feet (460 meters) AGL or the manufacturer's recommended altitude, whichever is higher.
3. Stabilizes and maintains the airspeed at 1.2 VS1,  $\pm 5$  knots.
4. Establishes straight-and-level flight and level turns, with gear and flaps selected as specified by the examiner.
5. Maintains the specified altitude,  $\pm 50$  feet (20 meters).
6. Maintains the specified heading during straight flight  $\pm 10^\circ$ .
7. Maintains specified bank angle,  $\pm 10^\circ$ , during turning flight.
8. Rolls out on specified headings,  $\pm 10^\circ$ .
9. Divides attention between seaplane control and orientation.

### B. TASK: POWER-OFF STALLS

**REFERENCES:** AC 61-21; Pilot's Operating Handbook, ECAA-Approved Airplane Flight Manual, Seaplane Supplement.

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

1. Exhibits knowledge of the elements related to the aerodynamic factors associated with power-off stalls and how this relates to actual approach and landing situations.
2. Selects an entry altitude that allows the task to be completed no lower than 1,500 feet (460 meters) AGL or the manufacturer's recommended altitude, whichever is higher.
3. Establishes a stabilized descent, in the approach configuration, as specified by the examiner.
4. Transitions slowly and smoothly from the approach or landing attitude, to a pitch attitude that will induce a stall.
5. Maintains the specified heading  $\pm 10^\circ$ , in straight flight; maintains a specified angle of bank, not to exceed  $30^\circ$ ,  $+0/-10^\circ$ , in turning flight, while inducing a stall.

6. Recognizes and announces the onset of the stall by identifying the first aerodynamic buffeting or decay of control effectiveness.
7. Recovers promptly as the stall occurs by simultaneously decreasing the pitch attitude, increasing power and leveling the wings, with a minimum loss of altitude.
8. Retracts flaps to the recommended setting.
9. Accelerates to VX or VY speed before final flap retraction, or follows manufacturer's recommended procedures.
10. Returns to the altitude, heading, and airspeed specified by the examiner.

### C. TASK: POWER-ON STALLS

**REFERENCES:** AC 61-21, AC 61-67; Pilot's Operating Handbook, ECAA-Approved Airplane Flight Manual, Seaplane Supplement.

**NOTE:** In some high performance seaplanes, the power setting may have to be reduced below the practical test standard guideline power setting to prevent excessively high pitch attitudes (greater than 30° nose up).

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

1. Exhibits knowledge of the elements related to aerodynamic factors associated with power-on stalls and how this relates to actual takeoff and departure situations.
2. Selects an entry altitude that allows the task to be completed no lower than 1,500 feet (460 meters) AGL or the manufacturer's recommended altitude, whichever is higher.
3. Establishes the takeoff configuration and slows the seaplane to normal lift-off speed.
4. Sets power to manufacturer's recommended climb power setting while establishing the climb attitude. In the absence of a manufacturer recommended power setting, use no less than approximately 55-60 percent of full power as a guideline.
5. Maintains the specified heading  $\pm 10^\circ$ , in straight flight; a  $20^\circ$  angle of bank,  $\pm 10^\circ$ , in turning flight.
6. Recognizes and announces the onset of the stall by identifying the first aerodynamic buffeting or decay of control effectiveness.
7. Recovers promptly as the stall occurs by simultaneously decreasing the pitch attitude, increasing power and leveling the wings, with a minimum loss in altitude.
8. Retracts flaps (if applicable) after a positive rate of climb is established.

9. Returns to the altitude, heading, and airspeed specified by the examiner.

#### **D. TASK: SPIN AWARENESS**

**REFERENCES:** AC 61-21, AC 61-67; Pilot's Operating Handbook, ECAA-Approved Airplane Flight Manual, Seaplane Supplement.

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

1. Aerodynamic conditions required for a spin.
2. Flight situations and conditions where unintentional spins may occur.
3. Instrument indications during a spin and/or spiral.
4. Techniques and procedures used to recognize and recover from unintentional spins.

### **IX. AREA OF OPERATION: EMERGENCY OPERATIONS**

#### **A. TASK: EMERGENCY DESCENT**

**REFERENCES:** AC 61-21; Pilot's Operating Handbook, ECAA-Approved Airplane Flight Manual, Seaplane Supplement.

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

1. Exhibits knowledge of the elements related to an emergency descent.
2. Recognizes situations, such as depressurization, cockpit smoke and/or fire, that require an emergency descent.
3. Establishes the prescribed airspeed and configuration for the emergency descent as recommended by the manufacturer without exceeding safety limitations.
4. Uses proper engine control settings.
5. Exhibits orientation, division of attention, and proper planning.
6. Maintains positive load factors during the descent.
7. Completes the appropriate checklist.

#### **B. TASK: EMERGENCY APPROACH AND LANDING**

**REFERENCES:** AC 61-21; Pilot's Operating Handbook, ECAA-Approved Airplane Flight Manual, Seaplane Supplement.

**NOTE:** Emergency landings shall be evaluated over water in the event an actual emergency landing becomes necessary.

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

1. Exhibits knowledge of the elements related to emergency approach and landing procedures.
2. Establishes the recommended best-glide airspeed,  $\pm 10$  knots, and configuration during simulated emergencies.
3. Selects a suitable landing area, considering the possibility of an actual emergency landing and the post-landing effect of wind and current if on water without power.
4. Attempts to determine the reason for the simulated malfunction.
5. Varies airspeed, descent, and flight pattern, as necessary, so as to arrive at selected landing area, considering altitude, wind, terrain, obstructions, and other factors.
6. Follows the appropriate emergency checklist.

### C. TASK: SYSTEMS AND EQUIPMENT MALFUNCTIONS

**REFERENCES:** AC 61-21; Pilot's Operating Handbook, ECAA-Approved Airplane Flight Manual, Seaplane Supplement.

**NOTE:** Examiners shall relate the required applicant knowledge in this TASK to the seaplane used for the practical test.

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

1. Exhibits knowledge of the elements related to causes, indications, and pilot actions for various systems and equipment malfunctions.
2. Analyzes the situation and takes appropriate action for at least five (5) of the following simulated emergencies—
  - a. partial power loss.
  - b. engine failure during various phases of flight.
  - c. engine roughness or overheat.
  - d. loss of oil pressure.
  - e. fuel starvation.
  - f. smoke and fire.
  - g. icing.
  - h. pitot static/vacuum system and associated flight instruments.
  - i. electrical.
  - j. landing gear.
  - k. flaps (asymmetrical position).
  - l. inadvertent door opening.

- m. emergency exits open.
  - n. any other emergency unique to the seaplane flown.
3. Follows the appropriate emergency checklist or procedures.

#### **D. TASK: EMERGENCY EQUIPMENT AND SURVIVAL GEAR**

**REFERENCES:** AC 61-21; Pilot's Operating Handbook, ECAA-Approved Airplane Flight Manual, Seaplane Supplement.

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

1. Exhibits knowledge of the elements related to emergency equipment appropriate to the seaplane used for the practical test by describing—
  - a. location in the seaplane.
  - b. method of operation.
  - c. servicing requirements.
  - d. method of safe storage.
  - e.
2. Exhibits knowledge of the elements related to survival gear by describing—
  - a. survival gear appropriate for operation in various climatological and topographical environments.
  - b. location in the seaplane.
  - c. method of operation.
  - d. servicing requirements.
  - e. method of safe storage.

### **X. AREA OF OPERATION: HIGH ALTITUDE OPERATION**

#### **TASK: SUPPLEMENTAL OXYGEN**

**REFERENCES:** ECAR part 91; AC 61-107; Pilot's Operating Handbook, ECAA-Approved Airplane Flight Manual, Seaplane Supplement, AIP.

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

1. Supplemental oxygen requirements for flight crew and passengers when operating non-pressurized seaplanes.
2. Distinctions between “aviators' breathing oxygen” and other types.
3. Method of determining oxygen service availability.

4. Operational characteristics of continuous flow, demand, and pressure-demand oxygen systems.
5. Care and storage of high-pressure oxygen bottles.

## XI. AREA OF OPERATION: POSTFLIGHT PROCEDURES

### **A. TASK: AFTER LANDING**

**REFERENCES:** AC 61-21; Pilot's Operating Handbook, ECAA-Approved Airplane Flight Manual, Seaplane Supplement.

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

1. Exhibits knowledge of the elements related to after-landing procedures, including maritime courtesy, local and ATC procedures.
2. Clears the water landing area, taxis to a suitable parking/refueling area while using proper taxi techniques considering wind, water current, and obstacles.
3. Completes the appropriate checklist.

### **B. TASK: ANCHORING**

**REFERENCES:** AC 61-21; Pilot's Operating Handbook, ECAA-Approved Airplane Flight Manual, Seaplane Supplement.

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

1. Exhibits knowledge of the elements related to anchoring in lakes, rivers, and tidal areas.
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 the seaplane's security.

### **C. TASK: DOCKING AND MOORING**

**REFERENCES:** AC 61-21; Pilot's Operating Handbook, ECAA-Approved Airplane Flight Manual, Seaplane Supplement.

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

1. Exhibits knowledge of the elements related to docking and mooring.
2. Approaches the dock or mooring buoy in the proper direction considering speed, hazards, wind, and water current.
3. Ensures seaplane security.

### **D. TASK: BEACHING**

**REFERENCES:** AC 61-21; Pilot's Operating Handbook, ECAA-Approved Airplane Flight Manual, Seaplane Supplement.

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

1. Exhibits knowledge of the elements related to beaching.
2. Selects a suitable area for beaching, considering water depth, current, tide, and wind.
3. Approaches from the proper direction and at a suitable speed for the beach condition.
4. Beaches and secures the seaplane in a manner that will protect it from harmful effects of wind, waves, and changes in water level.
5. Departs the beach in a safe manner, considering wind, current, traffic, and hazards.

#### **E. TASK: RAMPING**

**REFERENCES:** AC 61-21; Pilot's Operating Handbook, ECAA-Approved Airplane Flight Manual, Seaplane Supplement.

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

1. Exhibits knowledge of the elements related to ramping.
2. Approaches the ramp from the proper direction and at a safe speed, considering current, wind, and type of ramp.
3. Ramps the seaplane at the proper speed and attitude.
4. Secures the seaplane on the ramp in a manner that will protect it from the harmful effects of wind, waves, and changes in water level.
5. Departs the ramp in a manner that does not endanger other persons or watercraft in the area.
6. Re-enters the water.

#### **F. TASK: PARKING AND SECURING**

**REFERENCES:** AC 61-21; Pilot's Operating Handbook, ECAA-Approved Airplane Flight Manual, Seaplane Supplement.

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

1. Exhibits knowledge of the elements related to ramp safety, parking hand signals, shutdown, securing, and postflight inspection.
2. Parks the seaplane properly, considering prop blast and the safety of persons and property.
3. Follows the recommended procedure for engine shutdown, securing the cockpit, and deplaning passengers.
4. Secures the seaplane properly.
5. Performs a satisfactory postflight inspection.
6. Completes the appropriate checklist.