



CIVIL AVIATION AUTHORITY  
OF THE PHILIPPINES

# **ADVISORY CIRCULAR**

## **AC 02-012**

### **SKILL TEST STANDARDS**

### **COMMERCIAL PILOT – AEROPLANE MULTI-ENGINE**

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#### **SECTION 1 GENERAL**

##### **1.1 PURPOSE**

- A. This Advisory Circular (AC) provides guidance to individuals, organizations and examiners regarding the determination that an individual's skill level is adequate for the issuance of a Commercial Pilot License with an appropriate rating for--
- 1) Aeroplane Multi-Engine Land;
  - 2) Aeroplane Multi-Engine Sea; and/or
  - 3) Aeroplane Type Rating.
- B. This AC also provides the multi-engine skill standards for the AOC proficiency checks in aeroplanes configured for 9 passengers or less.

##### **1.2 STATUS OF THIS ADVISORY CIRCULAR**

This is an original issuance of this AC.

##### **1.3 BACKGROUND**

- A. ICAO Standards in Annex 1, Personnel Licensing, -I, require that, before issuing an Commercial Pilot License, the State must assess the knowledge and skill of the individual to perform such operations.
- B. Part 2 of the Philippine Civil Aviation Regulations establishes the specific requirements for CPL testing that parallel the ICAO Standards.
- C. This AC provides amplified standards for a CPL applicant and the person assigned to conduct the skill test for license

##### **1.4 APPLICABILITY**

- A. These Skill Test Standards are for use by examiners for determination of an individual's fitness to be issued and continue to hold CPL privileges.
- B. Flight instructors are expected to use these standards when preparing applicants for their CPL skill tests.
- C. Applicants should be familiar with these skill test standards and refer to them during their training.

- Advisory Circulars are intended to provide advice and guidance to illustrate a means, but not necessarily the only means, of complying with the regulations, or to explain certain regulatory requirements by providing informative, interpretative and explanatory material.
  - Where a regulation contains the words "prescribed by the Authority," the AC may be considered to "prescribe" a viable method of compliance, but status of that "prescription" is always "guidance" (never regulation).
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## 1.5 RELATED REGULATIONS

The following regulations are directly applicable to the guidance contained in this advisory circular—

- PCAR Part 2, Personnel Licensing
- PCAR Part 8, Operations of Aircraft

## 1.6 RELATED PUBLICATIONS

For further information on this topic, individuals, instructors and examiners are invited to consult the following publications—

- 1) Civil Aviation Authority of the Philippines(CAAP)
  - ◆ AC 02-002, Knowledge Testing
  - ◆ AC 02-006, Flight Testing

Copies may be obtained from the CAAP Flight Standards Inspectorate Service.

- 2) Manufacturer of the aircraft to be used for the skill test
  - ◆ Pilot Operating Handbook, or
  - ◆ Approved Flight Manual

- 3) United States Federal Aviation Administration (FAA)
  - ◆ AC 00-45, Aviation Weather
  - ◆ FAA-H-80-83-25, Pilot Handbook of Aeronautical Knowledge
  - ◆ FAA-H-8083-3A, Aeroplane Flying Handbook
  - ◆ FAA-H-8083-23, Seaplane Operations Handbook

● Copies are normally available through flight schools and instructors.  
● Contact the CAAP Flight Standards Inspectorate Service if unable to find copies.

- 4) International Civil Aviation Organization (ICAO)
  - ◆ Annex, 1, Personnel Licensing

Copies may be obtained from Document Sales Unit, ICAO, 999 University Street, Montreal, Quebec, Canada H3C 5H7.

## 1.7 DEFINITIONS & ACRONYMS

A. The following definitions are used in this advisory circular—

- 1) **Aircraft – category.** Classification of aircraft according to specified basic characteristics, e.g. aeroplane, rotorcraft, glider, lighter-than-air, powered-lift.
- 2) **Competency.** A combination of skills, knowledge and attitudes required to perform a task to the prescribed standard.
- 3) **Crew resource management.** A program designed to improve the safety of flight operations by optimizing the safe, efficient, and effective use of human resources, hardware, and information through improved crew communication and coordination.
- 4) **Error.** An action or inaction by the flight crew that leads to deviations from organizational or flight crew intentions or expectations.
- 5) **Error management.** The process of detecting and responding to errors with countermeasures that reduce or eliminate the consequences of errors and mitigate the probability of further errors or undesired aircraft states.
- 6) **Examiner.** A qualified person designated by CAAP to conduct a proficiency test, a skill test for an licence or rating, or a knowledge test under the Philippine regulations.

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- 7) **Flight simulation training device.** Any one of the following three types of apparatus in which flight conditions are simulated on the ground—
    - (a) A **flight simulator**, which provides an accurate representation of the flight deck of a particular aircraft type to the extent that the mechanical, electrical, electronic, etc. aircraft systems control functions, the normal environment of flight crew members, and the performance and flight characteristics of that type of aircraft are realistically simulated;
    - (b) A **flight procedures trainer**, which provides a realistic flight deck environment, and which simulates instrument responses, simple control functions of mechanical, electrical, electronic, etc. aircraft systems, and the performance and flight characteristics of aircraft of a particular class;
    - (c) A **basic instrument flight trainer**, which is equipped with appropriate instruments, and which simulates the flight deck environment of an aircraft in flight in instrument flight conditions
  - 8) **Flight test.** For the purpose of this advisory circular, a portion of a skill test that includes Tasks that are normally accomplished while operating the aircraft.
  - 9) **Plan of Action.** In item-by-item checklist for accomplishing each Task specified in the skill test standards in a practical and logical manner .
  - 10) **Practical Test.** For the purpose of this advisory circular, a portion of the skill test that includes Tasks accomplished before the flight portion.
  - 11) **Rating.** An authorisation entered on or associated with a licence and forming part thereof, stating special conditions, privileges or limitations pertaining to such licence.
  - 12) **Scenario.** A plan for sequencing of manuevers, procedures and communications in a flight lesson or proficiency check to simulate realistic flight operations and consequences.
  - 13) **Threat management.** The process of detecting and responding to threats with countermeasures that reduce or eliminate the consequences of threats and mitigate the probability of errors or undesired aircraft states
  - 14) **Threat.** Events or errors that occur beyond the influence of the flight crew, increase operational complexity and must be managed to maintain the margin of safety.
- B. The following acronyms are used in this advisory circular—
- 1) **AC** – Advisory Circular
  - 2) **CAAP** – Civil Aviation Authority of the Philippines
  - 3) **CPL** – Commercial Pilot License
  - 4) **FSIS** – CAAP Flight Standards Inspectorate Service
  - 5) **PCAR** – Philippine Civil Aviation Regulations
  - 6) **PEL** – Personnel Licensing

## SECTION 2 INTRODUCTORY INFORMATION

### 2.1 COMMERCIAL PILOT: AEROPLANE SKILL TEST PREREQUISITES

An applicant for the Commercial Pilot–Aeroplane Skill Test is required to—

- 1) Be at least 18 years of age;
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- 2) Be able to read, speak, write, and understand the English language.
- 3) For international operations, be able to read, speak and understand the aviation English at at least Level 4 (Operational). If there is a doubt, use AC 02-004, Evaluation of Language Proficiency;
- 4) Have passed the appropriate commercial pilot knowledge test since the beginning of the 24th month before the month in which he or she takes the skill test;
- 5) Have satisfactorily accomplished the required training and obtained the aeronautical experience prescribed;
- 6) Possess at least a current Class 1 medical certificate;
- 7) Have an endorsement from an authorized instructor certifying that the applicant—
  - (a) Has received and logged training time within 60 days preceding the date of application in preparation for the skill test, and
  - (b) Is prepared for the skill test; and
- 8) Also have an endorsement certifying that the applicant has demonstrated satisfactory knowledge of the subject areas in which the applicant was deficient on the airman knowledge test.

## 2.2 SKILL STANDARDS SPECIFIED BY REGULATION

The determination of an applicant's ability to hold a license or rating is based on a demonstration of the ability to perform as pilot-in command to perform the procedures and maneuvers to the degree of competency appropriate to the privileges granted and to—

- 1) Recognize and manage threats and errors;
- 2) Manually control the aircraft within its limitations at all times;
- 3) Complete all manoeuvres with smoothness and accuracy;
- 4) Exercise good judgement and airmanship;
- 5) Apply aeronautical knowledge; and
- 6) Maintain control of the aircraft at all times in a manner such that the successful outcome of a procedure or manoeuvre is assured.

## 2.3 SKILL TEST STANDARDS FORMAT

- A. **Areas Of Operation** are phases of the skill test arranged in a logical sequence within each standard.
    - They begin with Preflight Preparation and end with Postflight Procedures.
    - The examiner, however, may conduct the operational portions of the skill test in any sequence that will result in a complete and efficient test.
    - However the ground portion of the skill test shall be accomplished before the flight portion.
  - B. **Tasks** are titles of knowledge areas, flight procedures, or maneuvers appropriate to an Area Of Operation.
  - C. **Applicable to:** The abbreviation(s) immediately following a TASK refer to the category and/or class aircraft appropriate to that TASK. The meaning of each abbreviation is as follows.
    - AMEL – Aeroplane-Multiengine Land
    - AMES– Aeroplane-Multiengine Sea
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D. The **Objective** lists the 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) Conditions under which the *Task* is to be performed; and
- 3) Acceptable performance standards.

**NOTE TO EXAMINERS:**

- When administering a test based sections 1 and 2 of this PTS, the TASKs appropriate to the class aeroplane (AMEL or AMES) used for the test shall be included in the plan of action.
- The absence of a class indicates the task is for all classes.
- An accompanying note is used to emphasize special considerations required in the AREA OF OPERATION or TASK.

## 2.4 SPECIAL EMPHASIS AREAS

Examiners shall also place special emphasis upon areas of aircraft operations considered critical to flight safety. Among these are—

- 1) Positive aircraft control;
- 2) Positive exchange of the flight controls procedure (who is flying the aeroplane);
- 3) Stall/spin awareness;
- 4) Collision avoidance;
- 5) Wake turbulence avoidance;
- 6) Land and Hold Short Operations (LAHSO);
- 7) Runway incursion avoidance;
- 8) Controlled flight into terrain (CFIT);
- 9) Aeronautical decision making (ADM);
- 10) Checklist usage; and
- 11) Other areas deemed appropriate to any phase of this skill test.

- Although these areas may not be specifically addressed under each TASK, they are essential to flight safety.
- Each will be evaluated during the skill test.
- In all instances, the applicant's actions will relate to the complete situation.

## SECTION 3 AREA OF OPERATION: PREFLIGHT PREPARATION

### 3.1 TASK: CERTIFICATES & DOCUMENTS

Applicable To: AMEL/AMES

*Objective.* To determine that the applicant exhibits knowledge of the elements related to certificates and documents by—

- 1) Explaining—
  - (a) Commercial pilot certificate privileges limitations and recent flight experience requirements.
  - (b) Medical certificate class and duration.
  - (c) Pilot logbook or flight records.
- 2) Locating and explaining—
  - (a) Airworthiness and registration certificates.
  - (b) Operating limitations, placards, instrument markings, and POH/AFM.

- (c) Weight and balance data and equipment list.

### 3.2 TASK: AIRWORTHINESS REQUIREMENTS

Applicable To: AMEL/AMES

*Objective.* To determine that the applicant exhibits knowledge of the elements related to airworthiness requirements by—

- 1) Explaining—
  - (a) Required instruments and equipment for day/night VFR.
  - (b) Procedures and limitations for determining airworthiness of the aeroplane with inoperative instruments and equipment with and without an MEL.
  - (c) Requirements and procedures for obtaining a special flight permit.
- 2) Locating and explaining—
  - (a) Airworthiness directives.
  - (b) Compliance records.
  - (c) Maintenance/inspection requirements.
  - (d) Appropriate record keeping.

### 3.3 TASK: WEATHER INFORMATION

Applicable To: AMEL/AMES

*Objective.* To determine that the applicant—

The examiner shall develop a scenario based on real time weather to evaluate Task 3.3.

- 1) Exhibits knowledge of the elements related to weather information by analyzing weather reports, charts, and forecasts from various sources with emphasis on-
  - (a) METAR, TAF, and FA.
  - (b) Surface analysis chart.
  - (c) Radar summary chart.
  - (d) Winds and temperature aloft chart.
  - (e) Significant weather prognostic charts.
  - (f) Convective outlook chart.
  - (g) AWOS, ASOS, and ATIS reports.
- 2) Makes a competent "go/no-go" decision based on available weather information.

### 3.4 TASK: CROSS-COUNTRY FLIGHT PLANNING

Applicable To: AMEL/AMES

*Objective.* To determine that the applicant—

The examiner shall develop a scenario based on real time weather to evaluate Task 3.4.

- 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.
- 2) Uses appropriate and current aeronautical charts.

On the day of the skill test, the final flight plan shall be to the first fuel stop, based on maximum allowable passengers, baggage and/or cargo loads using real time weather.

- 3) Properly identifies airspace, obstructions, and terrain features.
- 4) Selects easily identifiable en route checkpoints.
- 5) Selects most favorable altitudes considering weather conditions and equipment capabilities.
- 6) Computes headings, flight time, and fuel requirements.
- 7) Selects appropriate navigation system/facilities and communication frequencies.
- 8) Applies pertinent information from NOTAM's, A/FD, and other flight publications.
- 9) Completes a navigation log and simulates filing a VFR flight plan.

### 3.5 TASK: NATIONAL AIRSPACE SYSTEM

Applicable To:: AMEL/AMES

*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 operating rules, pilot certification, and aeroplane equipment requirements for the following—
  - (a) Class A.
  - (b) Class B.
  - (c) Class C.
  - (d) Class D.
  - (e) Class E.
  - (f) Class G.
- 3) Special use and other airspace areas.

### 3.6 TASK: PERFORMANCE & LIMITATIONS

Applicable To:: AMEL/AMES

*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 data to determine performance and the adverse effects of exceeding limitations.
- 2) Computes weight and balance. Determines if the computed weight and center of gravity is within the aeroplane's operating limitations and if the weight and center of gravity will remain within limits during all phases of flight.
- 3) Demonstrates use of the appropriate performance charts, tables, and data.
- 4) Describes the effects of atmospheric conditions on the aeroplane's performance.

### 3.7 TASK: OPERATION OF SYSTEMS

Applicable To:: AMEL/AMES

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

- 1) Primary flight controls and trim.
- 2) Flaps, leading edge devices, and spoilers.
- 3) Water rudders (ASES).
- 4) Powerplant and propeller.
- 5) Landing gear.
- 6) Fuel, oil, and hydraulic.
- 7) Electrical.
- 8) Avionics.
- 9) Pitot-static, vacuum/pressure and associated flight instruments.
- 10) Environmental.
- 11) Deicing and anti-icing.

### 3.8 TASK: PRINCIPLES OF FLIGHT-ENGINE INOPERATIVE

Applicable To: AMEL/AMES

*Objective.* To determine that the applicant exhibits knowledge of the elements related to engine inoperative principles of flight by explaining the—

- 1) Meaning of the term "critical engine."
- 2) Effects of density altitude on the VMC demonstration.
- 3) Effects of aeroplane weight and center of gravity on control.
- 4) Effects of angle of bank on VMC.
- 5) Relationship of VMC to stall speed.
- 6) Reasons for loss of directional control.
- 7) Indications of loss of directional control.
- 8) Importance of maintaining the proper pitch and bank attitude, and the proper coordination of controls.
- 9) Loss of directional control recovery procedure.
- 10) Engine failure during takeoff including planning, decisions, and single-engine operations.

### 3.9 TASK: WATER & SEAPLANE CHARACTERISTICS

Applicable To: AMES

*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) Protected and unprotected areas.
    - (c) Surface wind.
    - (d) Direction and strength of water current.
    - (e) Floating and partially submerged debris.
    - (f) Sandbars, islands, and shoals.
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- (g) Vessel traffic and wakes.
- (h) Other features peculiar to the area.
- 2) Float and hull construction, and their effect on seaplane performance.
- 3) Causes of porpoising and skipping, and the pilot action required to prevent or correct these occurrences.

### **3.10 TASK: SEAPLANE BASES, MARITIME RULES, & AIDS TO MARINE NAVIGATION**

Applicable To:: AMES

*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 locate and identify seaplane bases on charts or in directories.
- 2) Operating restrictions at various bases.
- 3) Right-of-way, steering, and sailing rules pertinent to seaplane operation.
- 4) Marine navigation aids such as buoys, beacons, lights, and sound signals.

### **3.11 TASK: AEROMEDICAL FACTORS**

Applicable To:: AMEL/AMES

*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.
  - (h) Dehydration.
- 2) The effects of alcohol, drugs, and over-the-counter medications.
- 3) The effects of excess nitrogen during scuba dives upon a pilot or passenger in flight.

## **SECTION 4 AREA OF OPERATION: PREFLIGHT PROCEDURES**

### **4.1 TASK: PREFLIGHT INSPECTION**

Applicable To:: AMEL/AMES

*Objective.* To determine that the applicant—

- 1) Exhibits knowledge of the elements related to preflight inspection. This shall include which items must be inspected, the reasons for checking each item, and how to detect possible defects.
- 2) Inspects the aeroplane with reference to an appropriate checklist.

- 3) Verifies that the aeroplane is in condition for safe flight.

#### 4.2 TASK: COCKPIT MANAGEMENT

Applicable To: AMEL/AMES

*Objective.* To determine that the applicant—

- 1) Exhibits knowledge of the elements related to cockpit management procedures.
- 2) Ensures all loose items in the cockpit and cabin are secured.
- 3) Organizes material and equipment in an efficient manner so they are readily available.
- 4) Briefs occupants on the use of safety belts, shoulder harnesses, doors, and emergency procedures.

#### 4.3 TASK: ENGINE STARTING

Applicable To: AMEL/AMES

*Objective.* To determine that the applicant—

- 1) Exhibits knowledge of the elements related to recommended engine starting procedures. This shall include the use of an external power source, and starting under various atmospheric conditions.
- 2) Positions the aeroplane properly considering structures, surface conditions, other aircraft, and the safety of nearby persons and property.
- 3) Utilizes the appropriate checklist for starting procedure.

#### 4.4 TASK: TAXIING

Applicable To: AMEL

*Objective.* To determine that the applicant—

- 1) Exhibits knowledge of the elements related to safe taxi procedures.
- 2) Performs a brake check immediately after the aeroplane begins moving.
- 3) Positions flight controls properly for the existing wind conditions.
- 4) Controls direction and speed without excessive use of brakes.
- 5) Complies with aerodrome/taxiway markings, signals, ATC clearances, and instructions.
- 6) Taxies so as to avoid other aircraft and hazards.

#### 4.5 TASK: TAXIING & SAILING

Applicable To: AMES

*Objective.* To determine that the applicant—

- 1) Exhibits knowledge of the elements related to water taxi and sailing procedures.
  - 2) Positions the flight controls properly for the existing wind conditions.
  - 3) Plans and follows the most favorable course while taxi or sailing considering wind, water current, water conditions and maritime regulations.
  - 4) Uses the appropriate idle, plow, or step taxi technique.
  - 5) Uses flight controls, flaps, doors, water rudder, and power correctly so as to follow the desired course while sailing.
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- 6) Prevents and corrects for porpoising and skipping.
- 7) Avoids other aircraft, vessels, and hazards.
- 8) Complies with seaplane base signs, signals, and clearances.

#### **4.6 TASK: BEFORE TAKEOFF CHECK**

Applicable To: AMEL/AMES

*Objective.* To determine that the applicant—

- 1) Exhibits knowledge of the elements related to the before takeoff check. This shall include the reasons for checking each item and how to detect malfunctions.
- 2) Positions the aeroplane properly considering other aircraft/vessels, wind and surface conditions.
- 3) Divides attention inside and outside the cockpit.
- 4) Ensures the engine temperatures and pressure are suitable for run-up and takeoff.
- 5) Accomplishes the before takeoff checklist and ensures the aeroplane is in safe operating condition.
- 6) Reviews takeoff performance airspeeds, takeoff distances, departures and emergency procedures.
- 7) Avoids runway incursion and/or ensures no conflict with traffic prior to taxiing into takeoff position.

### **SECTION 5 AREA OF OPERATION: AERODROME & SEAPLANE BASE OPERATIONS**

#### **5.1 TASK: RADIO COMMUNICATIONS & ATC LIGHT SIGNALS**

Applicable To: AMEL/AMES

*Objective.* To determine that the applicant—

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

#### **5.2 TASK: TRAFFIC PATTERNS**

Applicable To: AMEL/AMES

*Objective.* To determine that the applicant—

- 1) Exhibits knowledge of the elements related to traffic patterns. This shall include procedures at aerodromes with and without operating control towers, prevention of runway incursions, collision avoidance, wake turbulence avoidance, and wind shear.
- 2) Complies with proper traffic pattern procedures.
- 3) Maintains proper spacing from other aircraft.
- 4) Corrects for wind-drift to maintain proper ground track.

- 5) Maintains orientation with runway/landing area in use.
- 6) Maintains traffic pattern altitude  $\pm$  100 feet (30 meters), and appropriate airspeed  $\pm$  10 knots.

### 5.3 TASK: AERODROME/SEAPLANE BASE, RUNWAY, & TAXIWAY SIGNS, MARKINGS, & LIGHTING

Applicable To: AMEL/AMES

*Objective.* To determine that the applicant—

- 1) Exhibits knowledge of the elements related to aerodrome/seaplane base, runway, and taxiway operations with emphasis on runway incursion avoidance.
- 2) Properly identifies and interprets aerodrome/seaplane base, runway, and taxiway signs, markings, and lighting.

## SECTION 6 AREA OF OPERATION: TAKEOFFS, LANDINGS, & GO-AROUNDS

### 6.1 TASK: NORMAL & CROSSWIND TAKEOFF & CLIMB

Applicable To: AMEL/AMES

*Objective.* To determine that the applicant—

- 1) Exhibits knowledge of the elements related to normal and crosswind takeoff, climb operations, and rejected takeoff procedures.
- 2) Positions the flight controls for the existing wind conditions.
- 3) Clears the area, taxis onto the takeoff surface and aligns the aeroplane on the runway center/takeoff path.
- 4) Retracts the water rudders as appropriate, (AMES) advances the throttles smoothly to takeoff power.
- 5) Establishes and maintains the most efficient planing/lift off attitude and corrects for porpoising and skipping (AMES).
- 6) Lifts off at the recommended airspeed and accelerates to VY.
- 7) Establishes a pitch attitude that will maintain VY  $\pm$  5 knots.
- 8) Retracts the landing gear, if appropriate, and flaps after a positive rate of climb is established.
- 9) Maintains takeoff power and VY  $\pm$  5 knots to a safe maneuvering altitude.
- 10) Maintains directional control, proper wind-drift correction throughout the takeoff and climb.
- 11) Complies with noise abatement procedures.
- 12) Completes appropriate checklists.

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

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## 6.2 TASK: NORMAL & CROSSWIND APPROACH & LANDING

Applicable To: AMEL/AMES

*Objective.* To determine that the applicant—

- 1) Exhibits knowledge of the elements related to normal and crosswind approach and landing.
- 2) Adequately surveys the intended landing area (AMES).
- 3) Considers the wind conditions, landing surface, obstructions, and selects a suitable touchdown point.
- 4) Establishes the recommended approach and landing configuration and airspeed and adjusts pitch attitude and power as required.
- 5) Maintains a stabilized approach and recommended airspeed, or in its absence, not more than 1.3 VSO,  $\pm 5$  knots, with wind gust factor applied.
- 6) Makes smooth, timely, and correct control application during the roundout and touchdown.
- 7) Contacts the water at the proper pitch attitude (AMES).
- 8) Touches down smoothly at approximate stalling speed (AMEL).
- 9) Touches down at or within 200 feet (60 meters) beyond a specified point, with no drift, and with the aeroplane's longitudinal axis aligned with and over the runway center/landing path.
- 10) Maintains crosswind correction and directional control throughout the approach and landing sequence.
- 11) Completes appropriate checklist.

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

## 6.3 TASK: SHORT-FIELD TAKEOFF CONFINED AREA (AMEL) & MAXIMUM PERFORMANCE CLIMB

Applicable To: AMEL/AMES

*Objective.* To determine that the applicant—

- 1) Exhibits knowledge of the elements related to a short-field confined area (AMES) takeoff and maximum performance climb.
  - 2) Positions the flight controls for the existing wind conditions, sets flaps as recommended.
  - 3) Clears the area; taxies into takeoff position utilizing maximum available takeoff area and aligns the aeroplane on the runway center/takeoff path.
  - 4) Selects an appropriate take-off path for the existing conditions (AMES).
  - 5) Applies brakes (if appropriate) while advancing the throttles smoothly to takeoff power.
  - 6) Establishes and maintains the most efficient planing/lift off attitude and corrects for porpoising and skipping (AMES).
  - 7) Lifts off at the recommended airspeed, and accelerates to recommended obstacle clearance airspeed, or VX.
  - 8) Establishes a pitch attitude that will maintain the recommended obstacle clearance airspeed, or VX,  $+5/-0$  knots, until the obstacle is cleared, or until the aeroplane is 50 feet (20 meters) above the surface.
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- 9) After clearing the obstacle, establishes the pitch attitude for VY, accelerates to VY, and maintains VY,  $\pm 5$  knots, during the climb.
- 10) Retracts the landing gear, if appropriate, and flaps after clear of any obstacles or as recommended by manufacturer.
- 11) Maintains takeoff power and VY  $\pm 5$  knots to a safe maneuvering altitude.
- 12) Maintains directional control and proper wind-drift correction throughout the takeoff and climb.
- 13) Completes appropriate checklist.

#### 6.4 TASK: SHORT-FIELD (CONFINED AREA-AMES) APPROACH & LANDING

Applicable To: AMEL/AMES

*Objective.* To determine that the applicant—

- 1) Exhibits knowledge of the elements related to a short-field (confined area AMES) approach and landing.
- 2) Adequately surveys the intended landing area (AMES).
- 3) Considers the wind conditions, landing surface, obstructions, and selects the most suitable touchdown point.
- 4) Establishes the recommended approach and landing configuration and airspeed; adjusts pitch attitude and power as required.
- 5) Maintains a stabilized approach and recommended approach airspeed, or in its absence, not more than 1.3 VSO,  $\pm 5$  knots, with wind gust factor applied.
- 6) Makes smooth, timely, and correct control application during the roundout and touchdown.
- 7) Selects the proper landing path, contacts the water at the minimum safe airspeed with the proper pitch attitude for the surface conditions (AMES).
- 8) Touches down smoothly at minimum control airspeed (AMEL).
- 9) Touches down at or within 100 feet (30 meters) beyond a specified point, with no side drift, minimum float, and with the aeroplane's longitudinal axis aligned with and over the runway center/landing path.
- 10) Maintains crosswind correction and directional control throughout the approach and landing sequence.
- 11) Applies brakes (AMEL) or elevator control (AMES), as necessary, to stop in the shortest distance consistent with safety.
- 12) Completes appropriate checklist.

#### 6.5 TASK: GLASSY WATER TAKEOFF & CLIMB

Applicable To: AMES

*Objective.* To determine that the applicant—

- 1) Exhibits knowledge of the elements related to glassy water takeoff and climb.
- 2) Positions the flight controls and flaps for the existing conditions.

If a glassy water condition does not exist, the applicant shall be evaluated by simulating the TASK.

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- 3) Clears the area; selects an appropriate takeoff path considering surface hazards and/or vessels and surface conditions.
- 4) Retracts the water rudders as appropriate; advances the throttle smoothly to takeoff power.
- 5) Establishes and maintains an appropriate planing attitude, directional control, and corrects for porpoising, skipping, and increases in water drag.
- 6) Utilizes appropriate techniques to lift seaplane from the water considering surface conditions.
- 7) Establishes proper attitude/airspeed, and accelerates to  $VY$ ,  $\pm 5$  knots during the climb.
- 8) Retracts the landing gear, if appropriate, and flaps after a positive rate of climb is established.
- 9) Maintains takeoff power and  $VY \pm 5$  knots to a safe maneuvering altitude.
- 10) Maintains directional control and proper wind-drift correction throughout takeoff and climb.
- 11) Completes the appropriate checklist.

## 6.6 TASK: GLASSY WATER APPROACH & LANDING

Applicable To: AMES

*Objective.* To determine that the applicant—

- 1) Exhibits knowledge of the elements related to glassy water approach and landing.
- 2) Adequately surveys the intended landing area.
- 3) Considers the wind conditions, water depth, hazards, surrounding terrain, and other watercraft.
- 4) Selects the most suitable approach path and touchdown area.
- 5) Establishes the recommended approach and landing configuration and airspeed, and adjusts pitch attitude and power as required.
- 6) Maintains a stabilized approach and the recommended approach airspeed,  $\pm 5$  knots and maintains a touchdown pitch attitude and descent rate from the last altitude reference until touchdown.
- 7) Makes smooth, timely, and correct power and control adjustments to maintain proper pitch attitude and rate of descent to touchdown.
- 8) Contacts the water in the proper pitch attitude, and slows to idle taxi speed.
- 9) Maintains crosswind correction and directional control throughout the approach and landing sequence.

If a glassy water condition does not exist, the applicant shall be evaluated by simulating the TASK.

## 6.7 TASK: ROUGH WATER TAKEOFF & CLIMB

Applicable To: AMES

*Objective.* To determine that the applicant—

- 1) Exhibits knowledge of the elements related to rough water takeoff and climb.

If a rough water condition does not exist, the applicant shall be evaluated by simulating the TASK.

- 2) Positions the flight controls and flaps for the existing conditions.
- 3) Clears the area; selects an appropriate takeoff path considering wind, swells surface hazards, and/or vessels.
- 4) Retracts the water rudders as appropriate; advances the throttle smoothly to takeoff power.
- 5) Establishes and maintains an appropriate planing attitude, directional control, and corrects for porpoising, skipping, or excessive bouncing.
- 6) Lifts off at minimum airspeed and accelerates to  $VY, \pm 5$  knots before leaving ground effect.
- 7) Retracts the landing gear, if appropriate, and flaps after a positive rate of climb is established.
- 8) Maintains takeoff power and  $VY \pm 5$  knots to a safe maneuvering altitude.
- 9) Maintains directional control and proper wind-drift correction throughout takeoff and climb.
- 10) Completes the appropriate checklist.

## 6.8 TASK: ROUGH WATER APPROACH & LANDING

Applicable To: AMES

*Objective.* To determine that the applicant—

- 1) Exhibits knowledge of the elements related to rough water approach and landing.
- 2) Adequately surveys the intended landing area.
- 3) Considers the wind conditions, water, depth, hazards, surrounding terrain, and other watercraft.
- 4) Selects the most suitable approach path, and touchdown area.
- 5) Establishes the recommended approach and landing configuration and airspeed, and adjusts pitch attitude and power as required.
- 6) Maintains a stabilized approach and the recommended approach airspeed, or in its absence not more than  $1.3 VSO \pm 5$  knots with wind gust factor applied.
- 7) Makes smooth, timely, and correct power and control application during the roundout and touch down.
- 8) Contacts the water in the proper pitch attitude, and at the proper airspeed, considering the type of rough water.
- 9) Maintains crosswind correction and directional control throughout the approach and landing sequence.
- 10) Completes the appropriate checklist.

If a rough water condition does not exist, the applicant shall be evaluated by simulating the TASK.

## 6.9 TASK: GO-AROUND/REJECTED LANDING

Applicable To: AMEL/AMES

*Objective.* To determine that the applicant—

- 1) Exhibits knowledge of the elements related to a go-around/rejected landing.
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- 2) Makes a timely decision to discontinue the approach to landing.
- 3) Applies takeoff power immediately and transitions to climb pitch attitude for VY and maintains VY  $\pm$  5 knots.
- 4) Retracts flaps, as appropriate.
- 5) Retracts the landing gear if appropriate after a positive rate of climb is established.
- 6) Maneuvers to the side of runway/landing area to clear and avoid conflicting traffic.
- 7) Maintains takeoff power and VY  $\pm$  5 knots to a safe maneuvering altitude.
- 8) Maintains directional control and proper wind-drift correction throughout the climb.
- 9) Completes the appropriate checklist.

## SECTION 7 AREA OF OPERATION: PERFORMANCE MANEUVERS

### 7.1 TASK: STEEP TURNS

Applicable To: AMEL/AMES

*Objective.* To determine that the applicant—

- 1) Exhibits knowledge of the elements related to steep turns.
- 2) Establishes the manufacturer's recommended airspeed or if one is not stated, a safe airspeed not to exceed VA.
- 3) Rolls into a coordinated 360° steep turn with at least a 50° bank, followed by a 360° steep turn in the opposite direction.
- 4) Divides attention between aeroplane control and orientation.
- 5) Maintains the entry altitude,  $\pm$ 100 feet (30 meters), airspeed,  $\pm$ 10 knots, bank,  $\pm$ 5°; and rolls out on the entry heading,  $\pm$ 10°.

## SECTION 8 AREA OF OPERATION: NAVIGATION

### 8.1 TASK: PILOTAGE DEAD RECKONING

Applicable To: AMEL/AMES

*Objective.* To determine that the applicant—

- 1) Exhibits knowledge of the elements related to pilotage and dead reckoning.
- 2) Follows the preplanned course by reference to landmarks.
- 3) Identifies landmarks by relating surface features to chart symbols.
- 4) Navigates by means of precomputed headings, groundspeed, and elapsed time.
- 5) Corrects for and records differences between preflight groundspeed and heading calculations and those determined en route.
- 6) Verifies the aeroplane's position within two (2) nautical miles of flight planned route.
- 7) Arrives at the en route checkpoints within three (3) minutes of the initial or revised ETA and provides a destination estimate.
- 8) Maintains appropriate altitude,  $\pm$  100 feet (30 meters), and heading,  $\pm$  10°.

## 8.2 TASK: NAVIGATION SYSTEMS & RADAR SERVICES

Applicable To: AMEL/AMES

*Objective.* To determine that the applicant—

- 1) Exhibits knowledge of the elements related to navigation systems and radar services.
- 2) Demonstrates the ability to use an airborne electronic navigation system.
- 3) Locates the aeroplane's position using the navigation system.
- 4) Intercepts and tracks a given course, radial, or bearing, as appropriate.
- 5) Recognizes and describes the indication of station passage, if appropriate.
- 6) Recognizes signal loss and takes appropriate action.
- 7) Uses proper communication procedures when utilizing radar services.
- 8) Maintains the appropriate altitude,  $\pm 100$  feet (30 meters) and heading,  $\pm 10^\circ$ .

## 8.3 TASK: DIVERSION

Applicable To: AMEL/AMES

*Objective.* To determine that the applicant—

- 1) Exhibits knowledge of the elements related to diversion.
- 2) Selects an appropriate alternate aerodrome and route.
- 3) Makes an accurate estimate of heading, groundspeed, arrival time, and fuel consumption to the alternate aerodrome.
- 4) Maintains the appropriate altitude,  $\pm 100$  feet (30 meters), and heading,  $\pm 10^\circ$ .

## 8.4 TASK: LOST PROCEDURES

Applicable To: AMEL/AMES

*Objective.* To determine that the applicant—

- 1) Exhibits knowledge of the elements related to lost procedures.
- 2) Selects an appropriate course of action.
- 3) Maintains an appropriate heading and climbs, if necessary.
- 4) Identifies prominent landmarks.
- 5) Uses navigation systems/facilities and/or contacts an ATC facility for assistance, as appropriate.

# SECTION 9 AREA OF OPERATION: SLOW FLIGHT & STALLS

## 9.1 TASK: MANEUVERING DURING SLOW FLIGHT

Applicable To: AMEL/AMES

*Objective.* To determine that the applicant—

- 1) Exhibits knowledge of the elements related to maneuvering during slow flight.
  - 2) Selects an entry altitude that will allow the task to be completed no lower than 3,000 feet (920 meters) AGL.
-

- 3) Establishes and maintains an airspeed at which any further increase in angle of attack, increase in load factor, or reduction in power, would result in an immediate stall.
- 4) Accomplishes coordinated straight-and-level flight, turns, climbs, and descents with landing gear and flap configurations specified by the examiner.
- 5) Divides attention between aeroplane control and orientation.
- 6) Maintains the specified altitude,  $\pm 50$  feet (15 meters); specified heading,  $\pm 10^\circ$ ; airspeed  $+ 5/- 0$  knots, and specified angle of bank,  $\pm 5^\circ$ .

## 9.2 TASK: POWER-OFF STALLS

Applicable To: AMEL/AMES

*Objective.* To determine that the applicant—

- 1) Exhibits knowledge of the elements related to power-off stalls.
- 2) Selects an entry altitude that allows the task to be completed no lower than 3,000 feet (460 meters) AGL.
- 3) Establishes a stabilized descent in the approach or landing configuration, as specified by the examiner.
- 4) Transitions smoothly from the approach or landing attitude to a pitch attitude that will induce a stall.
- 5) Maintains a specified heading  $\pm 10^\circ$ , in straight flight; maintains a specified angle of bank, not to exceed  $20^\circ$ ,  $\pm 5^\circ$ , in turning flight while inducing the stall.
- 6) Recognizes and recovers promptly as the stall occurs by simultaneously reducing the angle of attack, increasing power to maximum allowable, and leveling the wings to return to a straight-and-level flight attitude with a minimum loss of altitude appropriate for the aeroplane.
- 7) Retracts the flaps to the recommended setting, retracts the landing gear, if retractable, after a positive rate of climb is established.
- 8) Accelerates to VX or VY speed before the final flap retraction; returns to the altitude, heading, and airspeed specified by the examiner.

## 9.3 TASK: POWER-ON STALLS

Applicable To: AMEL/AMES

*Objective.* To determine that the applicant—

- 1) Exhibits knowledge of the elements related to power-on stalls.
- 2) Selects an entry altitude that allows the task to be completed no lower than 3,000 feet (920 meters) AGL.
- 3) Establishes the takeoff or departure configuration. Sets power to no less than 65 percent available power.
- 4) Transitions smoothly from the takeoff or departure attitude to a pitch attitude that will induce a stall.
- 5) Maintains a specified heading  $\pm 5^\circ$ , in straight flight; maintains a specified angle of bank, not to exceed a  $20^\circ$ ,  $\pm 10^\circ$  in turning flight, while inducing the stall.

In some high performance aeroplanes, the power setting may have to be reduced below the skill test standards guideline power setting to prevent excessively high pitch attitudes (greater than  $30^\circ$  nose up).

- 6) Recognizes and recovers promptly as the stall occurs by simultaneously reducing the angle of attack, increasing power to maximum allowable, and leveling the wings to return to a straight-and-level flight attitude, with a minimum loss of altitude appropriate for the aeroplane.
- 7) Retracts flaps to the recommended setting, retracts the landing gear if retractable, after a positive rate of climb is established.
- 8) Accelerates to VX or VY speed before the final flap retraction; returns to the altitude, heading, and airspeed specified by the examiner.

#### 9.4 TASK: SPIN AWARENESS

Applicable To: AMEL/AMES

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

- 1) Aerodynamic factors related to spins.
- 2) Flight situations where unintentional spins may occur.
- 3) Procedures for recovery from unintentional spins.

## SECTION 10 AREA OF OPERATION: EMERGENCY OPERATIONS

### 10.1 TASK: EMERGENCY DESCENT

Applicable To: AMEL/AMES

*Objective.* To determine that the applicant—

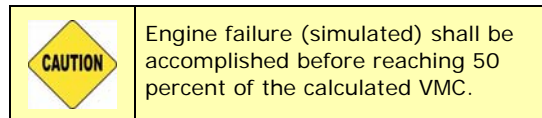
- 1) Exhibits knowledge of the elements related to an emergency descent.
- 2) Recognizes situations, such as depressurization, cockpit smoke and/or fire that require an emergency descent.
- 3) Establishes the appropriate airspeed and configuration for the emergency descent.
- 4) Exhibits orientation, division of attention, and proper planning.
- 5) Maintains positive load factors during the descent.
- 6) Completes appropriate checklists.

### 10.2 TASK: ENGINE FAILURE DURING TAKEOFF BEFORE VMC (SIMULATED)

Applicable To: AMEL/AMES


*Objective.* To determine that the applicant—

- 1) Exhibits knowledge of the elements related to the procedure used for engine failure during takeoff prior to reaching VMC.
- 2) Closes the throttles smoothly and promptly when simulated engine failure occurs.
- 3) Maintains directional control and applies brakes (AMEL) or flight controls (AMES), as necessary.



### 10.3 TASK: ENGINE FAILURE AFTER LIFT-OFF (SIMULATED)

Applicable To: AMEL/AMES

	<ul style="list-style-type: none"> <li>● Examiners shall select an entry altitude that will allow the single engine demonstrations TASK to be completed no lower than 3,000 feet (920 meters) AGL or the manufacturer's recommended altitude, whichever is higher.</li> <li>● At altitudes lower than 3,000 feet (920 meters) AGL, engine failure shall be simulated by reducing throttle to idle and then establishing zero thrust.</li> </ul>
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*Objective.* To determine that the applicant—

- 1) Exhibits knowledge of the elements related to the procedure used for engine failure after lift-off.
- 2) Recognizes a simulated engine failure promptly, maintains control, and utilizes appropriate emergency procedures.
- 3) Reduces drag, identifies and verifies the inoperative engine after simulated engine failure.
- 4) Simulates feathering the propeller on the inoperative engine. Examiner shall then establish zero-thrust on the inoperative engine.
- 5) Establishes VYSE; If obstructions are present, establishes VXSE or VMC +5 knots, whichever is greater, until obstructions are cleared. Then transitions to VYSE.
- 6) Banks toward the operating engine as required for best performance.
- 7) Monitors operating engine and makes adjustments, as necessary.
- 8) Recognizes the aeroplane's performance capabilities.
- 9) Secures the (simulated) inoperative engine.
- 10) Maintains heading,  $\pm 10^\circ$ , and airspeed,  $\pm 5$  knots.
- 11) Completes appropriate emergency checklist.

If a climb is not possible at VYSE—

- Maintain VYSE and return to the departure aerodrome for landing, or
- Initiates an approach to the most suitable landing area available.

### 10.4 TASK: APPROACH & LANDING WITH AN INOPERATIVE ENGINE (SIMULATED)

Applicable To: AMEL/AMES

*Objective.* To determine that the applicant—

- 1) Exhibits knowledge of the elements related to an approach and landing with an engine inoperative to include engine failure on final approach.
- 2) Recognizes engine failure and takes appropriate action, maintains control, and utilizes recommended emergency procedures.
- 3) Banks toward the operating engine, as required, for best performance.
- 4) Monitors the operating engine and makes adjustments as necessary.
- 5) Maintains the recommended approach airspeed  $\pm 5$  knots, and landing configuration with a stabilized approach, until landing is assured.
- 6) Makes smooth, timely and correct control applications during roundout and touchdown.
- 7) Touches down on the first one-third of available runway, with no drift and the aeroplane's longitudinal axis aligned with and over the runway center/landing path.

- 8) Maintains crosswind correction and directional control throughout the approach and landing sequence.
- 9) Completes appropriate checklists.

## 10.5 TASK: SYSTEMS & EQUIPMENT MALFUNCTIONS

Applicable To: AMEL/AMES

*Objective.* To determine that the applicant—

- 1) Exhibits knowledge of the elements related to systems and equipment malfunctions appropriate to the aeroplane provided for the skill test.
- 2) Analyzes the situation and takes appropriate action for the following simulated emergencies appropriate to the aeroplane —
  - (a) Partial or complete power loss.
  - (b) Engine roughness or overheat.
  - (c) Carburetor or induction icing.
  - (d) Loss of oil pressure.
  - (e) Fuel starvation.
  - (f) Electrical malfunction.
  - (g) Vacuum/pressure, and associated flight instruments malfunction.
  - (h) Pitot/static.
  - (i) Landing gear or flap malfunction.
  - (j) Inoperative trim.
  - (k) Inadvertant door or window opening.
  - (l) Structural icing.
  - (m) smoke/fire/engine compartment fire.
  - (n) Any other emergency appropriate to the aeroplane.
- 3) Follows the appropriate checklist or procedure.

Examiner will require at least five (5) of these emergencies during the skill test scenario.

## 10.6 TASK: EMERGENCY EQUIPMENT & SURVIVAL GEAR

Applicable To: ASEL/ASES

*Objective.* To determine that the applicant—

- 1) Exhibits knowledge of the elements related to emergency equipment and survival gear appropriate to the aeroplane and environment encountered during flight.
  - 2) Identifies appropriate equipment that should be aboard the aeroplane.
-

## SECTION 11 AREA OF OPERATION: HIGH ALTITUDE OPERATIONS

### 11.1 A. TASK: SUPPLEMENTAL OXYGEN

Applicable To: AMEL/AMES

*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 aeroplanes.
- 2) Identification and differences between "aviators' breathing oxygen" and other types.
- 3) Operational characteristics of continuous flow, demand, and pressure-demand oxygen systems.

### 11.2 TASK: PRESSURIZATION

Applicable To: AMEL/AMES

*Objective.* To determine that the applicant—

- 1) Exhibits knowledge of the elements related to pressurization by explaining—
  - (a) Fundamental concept of cabin pressurization.
  - (b) Supplemental oxygen requirements when operating aeroplanes with pressurized cabins.
  - (c) Physiological hazards associated with high altitude flight and decompression.
- 2) Operates the pressurization system properly, and reacts appropriately to simulated pressurization malfunctions.

Objective 2 applies only if the aeroplane provided for the skill test is equipped for pressurized flight operations.

## SECTION 12 AREA OF OPERATION: MULTIENGINE OPERATIONS

### 12.1 TASK: MANEUVERING WITH ONE ENGINE INOPERATIVE

Applicable To: AMEL/AMES

*Objective.* To determine that the applicant—

- 1) Exhibits knowledge of the elements related to maneuvering with one engine inoperative.
- 2) Recognizes engine failure and maintains control.
- 3) Sets the engine controls, reduces drag, identifies and verifies the inoperative engine, and feathers appropriate propeller.



- The feathering of one propeller shall be demonstrated in flight, in a multiengine aeroplane equipped with propellers which can be safely feathered and unfeathered.
- The maneuver shall be performed at altitudes and positions where safe landings on established aerodromes can be readily accomplished.
- In the event a propeller cannot be unfeathered during the skill test, it shall be treated as an emergency.

- 4) Establishes and maintains a bank toward the operating engine as required for best performance in straight and level flight.

- 5) Follows the prescribed checklists to verify procedures for securing the inoperative engine.
- 6) Monitors the operating engine and makes necessary adjustments.
- 7) Demonstrates coordinated flight with one engine inoperative (propeller feathered).
- 8) Restarts the inoperative engine using appropriate restart procedures.
- 9) Maintains altitude  $\pm$  100 feet (30 meters) or minimum sink as appropriate and heading  $\pm$  10°.
- 10) Completes the appropriate checklists.


## 12.2 TASK: VMC DEMONSTRATION

Applicable To: AMEL/AMES

An applicant seeking an aeroplane-multiengine land (AMEL) rating, "Limited to Center Thrust," is not required to be evaluated on this TASK.


*Objective.* To determine that the applicant—

- 1) Exhibits knowledge of the elements related to VMC by explaining the causes of loss of directional controls at airspeeds less than Vmc, the factors affecting VMC and the safe recovery procedures.
- 2) Configures the aeroplane at VSSE/VYSE, as appropriate-
  - (a) Landing gear retracted.
  - (b) Flaps set for takeoff.
  - (c) Cowl flaps set for takeoff.
  - (d) Trim set for takeoff.
  - (e) Propellers set for high RPM.
  - (f) Power on critical engine reduced to idle.
  - (g) Power on operating engine set to takeoff or maximum available power.
- 3) Establishes a single-engine climb attitude with the airspeed at approximately 10 knots above VSSE or VYSE as appropriate.
- 4) Establishes a bank toward the operating engine, as required for best performance and controllability.
- 5) Increases the pitch attitude slowly to reduce the airspeed at approximately 1 knot per second while applying rudder pressure to maintain directional control until full rudder is applied.
- 6) Recognizes indications of loss of directional control, stall warning or buffet.



- aeroplanes with normally aspirated engines will lose power as altitude increases because of the reduced density of the air entering the induction system of the engine.
- This loss of power will result in a VMC lower than the stall speed at higher altitudes.
- Therefore, recovery should be made at the first indication of loss of directional control, stall warning, or buffet.
- Do not perform this maneuver by increasing the pitch attitude to a high angle with both engines operating and then reducing power on the critical engine.
- This technique is hazardous and may result in loss of aeroplane control.

- 7) Recovers promptly by simultaneously reducing power sufficiently on the operating engine while decreasing the angle of attack as necessary to regain airspeed and directional control.



Recovery SHOULD NOT be attempted by increasing the power on the simulated failed engine.



- 8) Recovers within 20° of the entry heading.
- 9) Advances power smoothly on operating engine and accelerates to VXSE/VYSE, as appropriate,  $\pm 5$  knots, during the recovery.

### 12.3 TASK: ENGINE FAILURE DURING FLIGHT (BY REFERENCE TO INSTRUMENTS)

Applicable To: AMEL/AMES

*Objective.* To determine that the applicant—

- 1) Exhibits knowledge of the elements by explaining the procedures used during instrument flight with one engine inoperative.
- 2) Recognizes engine failure, sets the engine controls, reduces drag, identifies, and verifies the inoperative engine and simulates feathering appropriate engine propeller.
- 3) Establishes and maintains a bank toward the operating engine as required for best performance in straight and level.
- 4) Follows the prescribed checklists to verify procedures for securing the inoperative engine.
- 5) Monitors the operating engine and makes necessary adjustments.
- 6) Demonstrates coordinated flight with one engine inoperative.
- 7) Maintains altitude  $\pm 100$  feet (30 meters), or minimum sink as appropriate and heading  $\pm 10^\circ$ , bank  $\pm 5^\circ$ , and levels off from climbs and descents within  $\pm 100$  feet (30 meters).

Task 12.3 and 12.4 do not have to be accomplished if the applicant—

- Is instrument rated, and
- Has previously demonstrated instrument proficiency in a multiengine aeroplane; OR
- Does not hold an instrument-aeroplane rating.

### 12.4 TASK: INSTRUMENT APPROACH: ONE ENGINE INOPERATIVE

Applicable To: AMEL and AMES

*Objective.* To determine that the applicant—

- 1) Exhibits knowledge of the elements by explaining the procedures used during a published instrument approach with one engine inoperative.
- 2) Recognizes engine failure, sets the engine controls, reduces drag, identifies and verifies the inoperative engine, and simulates feathering appropriate engine propeller.
- 3) Establishes and maintains a bank toward the operating engine, as required, for best performance in straight and level.
- 4) Follows the prescribed checklists to verify procedures for securing the inoperative engine.
- 5) Monitors the operating engine and makes necessary adjustments.
- 6) Requests and receives an actual or a simulated ATC clearance for an instrument approach.
- 7) Follows the actual or a simulated ATC clearance for an instrument approach.
- 8) Maintains altitude within 100 feet (30 meters), the airspeed within  $\pm 10$  knots if within the aircraft's capability, and heading  $\pm 10^\circ$ .
- 9) Establishes a rate of descent that will ensure arrival at the MDA or DH/DA, with the aeroplane in a position from which a descent to a landing, on the intended runway can be made, either straight in or circling as appropriate.

- 10) On final approach segment, no more than three-quarter-scale deflection of the CDI/glide slope indicator.
- 11) Avoids loss of aircraft control, or attempted flight contrary to the engine-inoperative operating limitations of the aircraft.
- 12) Complies with the published criteria for the aircraft approach category when circling.
- 13) Completes landing and appropriate checklists.

For RMI or ADF indicators, within 10° of the course.

## SECTION 13 AREA OF OPERATION: POSTFLIGHT PROCEDURES

### 13.1 TASK: AFTER LANDING, PARKING & SECURING

Applicable To: AMEL/AMES

*Objective.* To determine that the applicant—

- 1) Exhibits knowledge of the elements related to after landing, parking and securing procedures.
- 2) Maintains directional control after touchdown while decelerating to an appropriate speed.
- 3) Observes runway hold lines and other surface control markings and lighting.
- 4) Parks in an appropriate area, considering the safety of nearby persons and property.
- 5) Follows the appropriate procedure for engine shutdown.
- 6) Completes the appropriate checklist.
- 7) Conducts an appropriate postflight inspection and secures the aircraft.

- The examiner shall select TASK 13.1; and
- For AMES applicants at least one other TASK from this Area of Operation.

### 13.2 TASK: ANCHORING

Applicable To: AMES

*Objective.* To determine that the applicant—

- 1) Exhibits knowledge of the elements related to anchoring.
- 2) Selects a suitable area for anchoring, considering seaplane movement, water depth, tide, wind, and weather changes.
- 3) Uses an adequate number of anchors and lines of sufficient strength and length to ensure the seaplane's security.

### 13.3 TASK: DOCKING & MOORING

Applicable To: AMES

*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.

### 13.4 TASK: RAMPING/BEACHING

Applicable To: AMES

*Objective.* To determine that the applicant—

- 1) Exhibits knowledge of the elements related to ramping/beaching.
- 2) Approaches the ramp/beach considering persons and property, in the proper attitude and direction, at a safe speed, considering water depth, tide, current, and wind.
- 3) Ramps/beaches and secures the seaplane in a manner that will protect it from the harmful effect of wind, waves, and changes in water.

*End of Advisory Circular*



RAMON S. GUTIERREZ

Director General

Date of Issue : **23 September 2011**

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