



## Advisory Circular NCAA-AC-PEL029

**SUBJECT: COMMERCIAL PILOT - AEROPLANE SKILL TEST  
STANDARDS  
ADVISORY CIRCULAR NCAA-AC-PEL029  
DATE: 2<sup>ND</sup> JUNE 2010**

### 0.0 FOREWORD

0.1 The Nigerian Civil Aviation Authority (NCAA) has developed skill test standards for airmen licences and ratings and these are published as Advisory Circulars (ACs). This AC establishes the standards for the Commercial Pilot licence skill tests for aeroplane. Nigerian inspectors and designated pilot flight test examiners shall conduct skill tests in compliance with these standards. Flight instructors and applicants should find these standards helpful in skill test preparation. Other ACs have been developed for other airmen licences and can be obtained from the NCAA website: <http://www.ncaa.gov.ng>.

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

0.3 The Nigerian Civil Aviation Regulations (Nlg. CARs) can be obtained from the NCAA at the address listed below. Nlg. CARs Part 2 cover the requirements for personnel licensing.

0.4 This Skill Test Standard may be downloaded from the NCAA website at <http://www.ncaa.gov.ng>. Subsequent changes to the Skill Test Standard will also be available on the NCAA web site.

0.5 Comments regarding this publication should be sent to:

Nigerian Civil Aviation Authority  
Aviation House  
Murtala Muhammed Airport  
Ikeja

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**Dr. H. O. Demuren**  
**Director General, Civil Aviation Authority**

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**SKILL TEST STANDARDS**  
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## SECTION ONE

## PURPOSE

1.1 The purpose of this AC is to prescribe the standards that shall be used by NCAA inspectors and designated flight test examiners when conducting Commercial Pilot - aeroplane skill tests. Flight instructors are expected to use this document when preparing applicants for skill tests. Applicants should be familiar with this document and refer to these standards during their training.

## GENERAL

1.2 The NCAA has developed this skill test AC as the standard that shall be used by NCAA inspectors and designated flight test examiners when conducting Commercial Pilot - aeroplane skill tests. Flight instructors are expected to use this book when preparing applicants for skill tests. Applicants should be familiar with this book and refer to these standards during their training.

## SKILL TEST STANDARD CONCEPT

1.3 The Nig. CARs specify the areas in which knowledge and skill must be demonstrated by the applicant before the issuance of a licence or rating. The Nig. CARs provide the flexibility to permit the NCAA to publish Skill Test Standards (STS) containing the AREAS OF OPERATION and specific TASKS in which pilot competency shall be demonstrated. The NCAA will revise this STS whenever it is determined that changes are needed in the interest of safety. Adherence to the provisions of the regulations and the STS is mandatory for evaluation of pilot applicants.

## SKILL TEST DESCRIPTION

1.4 (1) This AC contains the STS for the Commercial Pilot licence for both single engine and multiengine aeroplanes. Section 2 contains the STS for single-engine aeroplanes on land and sea. Section 3 contains the STS for multi-engine aeroplanes on land and sea. The Commercial Pilot STS includes the AREAS OF OPERATION and TASKs for the issuance of an initial commercial pilot licence and for the addition of category ratings and/or class ratings to that licence.

(2) 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 may conduct the skill test in any sequence that results in a complete and efficient test; however, the ground portion of the skill test shall be accomplished before the flight portion.

(3) TASKS are titles of knowledge areas, flight procedures, or maneuvers appropriate to an AREA OF OPERATION. The abbreviations within parentheses immediately following a TASK refer to the category and/or class aircraft appropriate to that task. The meaning of each abbreviation is as follows:

ASEL	Airplane – Single Engine Land
AMEL	Airplane – Multi-engine Land
ASES	Airplane – Single Engine Sea
AMES	Airplane – Multi-engine Sea

NOTE: When administering a test based on Section 2 and 3 of this AC, the TASKS appropriate to the class airplane (ASEL, ASES, 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.

(4) NOTE is used to emphasize special considerations required in the AREA OF OPERATION or TASK.

(5) REFERENCE identifies the publication(s) that describe(s) the TASK. Descriptions of TASKS are not included in the standards because this information can be found in the current issue of the listed references. Publications other than those listed may be used for references if their content conveys substantially the same meaning as the referenced publications. The STSs are based on the following references:

NIG. CARS Part 1	General Policies, Procedures, and Definitions
NIG. CARS Part 2	Personnel Licensing
NIG. CARS Part 5	Airworthiness
NIG. CARS Part 7	Aircraft Instruments and Equipment
NIG. CARS Part 8	Operations
NIG. CARS Part 9	Air Operator Certification and Operation
NOTAMS	Notices to Airmen
RESERVED	
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(6) The Objective lists the important elements that must be satisfactorily performed to demonstrate competency in a TASK. The Objective includes:

- (a) Specifically what the applicant should be able to do;
- (b) The conditions under which the TASK is to be performed; and
- (c) The acceptable standards of performance.

(7) The following abbreviations have the meanings shown:

ADF	Automatic Direction Finder
ADM	Aeronautical Decision Making
AIRMETS	Airman’s Meteorological Information
APV	Approach with Vertical Guidance

ATC	Air Traffic Control
ATIS	Automatic Terminal Information Service
ATS	Air Traffic Service
NIG. CARS	Nigeria Civil Aviation Regulations
CDI	Course Deviation Indicator
CFIT	Controlled Flight into Terrain
CRM	Crew Resource Management
DA	Decision Altitude
DH	Decision Height
DME	Distance Measuring Equipment
DP	Departure Procedure
NCAA	Nigerian Civil Aviation Authority
FDC	Flight Data Center
FMS	Flight Management System
FSTD	Flight Simulation Training Device
GLS	GNSS Landing System
GNSS	Global Navigation Satellite System
GPS	Global Positioning System
GPWS	Ground Proximity Warning System
IAP	Instrument Approach Procedure
IFR	Instrument Flight Rules
ILS	Instrument Landing System
IMC	Instrument Meteorological Conditions
IPC	Instrument Proficiency Check
LAHSO	Land and Hold Short Operations
LCD	Liquid Crystal Display
LDA	Localizer-type Directional Aid
LED	Light Emitting Diode
LOC	ILS Localizer
LORAN	Long Range Navigation
MAP	Missed Approach Point
ACA	Minimum Descent Attitude
METAR	Aviation Routine Weather Report
MLS	Microwave Landing System
NAVAID	Navigational Aid
NDB	Non-Directional Beacon
NOTAM	Notice to Airmen
NPA	Nonprecision Approach
PA	Precision Approach
RAIM	Receiver Autonomous Integrity Monitoring
RMI	Radio Magnetic Indicator
RNAV	Area navigation
SAS	Stability Augmentation System
SDF	Simplified Directional Facility
SIGMETS	Significant Meteorological Advisory
SRM	Single Pilot Resource Management
STAR	Standard Terminal Arrival
STS	Skill Test Standards
TCAS	Traffic Alert and Collision Avoidance System
VDP	Visual Descent Point
VHF	Very High Frequency



VNAV	Vertical Navigation
VOR	Very High Frequency Ominidirectional Range

### 1.5 USE OF THE SKILL TEST STANDARDS

(1) The Skill Test Standards are designed to evaluate competency in both knowledge and skill.

(2) The NCAA requires that all skill tests be conducted in accordance with the appropriate STS and the policies set forth in Section 1. Applicants shall be evaluated in ALL TASKS included in the AREAS OF OPERATION of the appropriate STS (unless noted otherwise).

(3) An applicant who holds at least a commercial pilot licence seeking an additional airplane category rating and/or class rating at the commercial pilot level, shall be evaluated in the AREAS OF OPERATION and TASKS listed in the Additional Rating Task Tables on pages 18-21. At the discretion of the examiner, an evaluation of the applicant's competence in the remaining AREAS OF OPERATION and TASKS may be conducted.

(4) If the applicant holds two or more category or class ratings at least at the commercial level, and the ratings table indicates differing required TASKs, the "least restrictive" entry applies. For example, if "ALL" and "NONE" are indicated for one AREA OF OPERATION, the "NONE" entry applies. If "B" and "B, C" are indicated, the "B" entry applies.

(3) In preparation for each skill test, the examiner shall develop a written "plan of action" for each skill test. The "plan of action" is a tool, for the sole use of the examiner, to be used in evaluating the applicant. The plan of action need not be grammatically correct or in any formal format. The plan of action must contain all of the required AREAS OF OPERATION and TASKS and any optional TASKS selected by the examiner. The "plan of action" shall incorporate one or more scenarios that will be used during the skill test. The examiner should try to include as many of the TASKS into the scenario portion of the test as possible, but maintain the flexibility to change due to unexpected situations as they arise and still result in an efficient and valid test. **Any TASK selected for evaluation during a skill test shall be evaluated in its entirety.**

(4) The examiner is not required to follow the precise order in which the AREAS OF OPERATION and TASKS appear in this book. The examiner may change the sequence or combine TASKS with similar Objectives to have an orderly and efficient flow of the skill test. For example, holding procedures may be combined with an approach or missed approach procedures if a holding entry is part of the procedure.

(5) When using the STS, the examiner must evaluate the applicant's knowledge and skill in sufficient depth to determine that the standards of performance listed for all TASKS are met.

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

### 1.5.1 REMOVAL OF THE “AIRPLANE MULTIENGINE VFR ONLY” LIMITATION

The removal of the “Airplane Multiengine VFR Only” limitation, at the commercial pilot licence level, requires an applicant to satisfactorily perform the following AREAS OF OPERATION and TASKs from the commercial AMEL and AMES STS in a multiengine airplane that has a manufacturer’s published  $V_{MC}$  speed.

AREA OF OPERATION X: MULTIENGINE OPERATIONS

- TASK C: ENGINE FAILURE DURING FLIGHT (By Reference to Instruments)
- TASK D: INSTRUMENT APPROACH—ONE ENGINE INOPERATIVE (By Reference to Instruments)

### 1.5.2 REMOVAL OF THE “LIMITED TO CENTER THRUST” LIMITATION

The removal of the “Limited to Center Thrust” limitation at the commercial pilot licence level requires an applicant to satisfactorily perform the following AREAS OF OPERATION and TASKs from the commercial AMEL and AMES STS in a multiengine airplane that has a manufacturer’s published  $V_{MC}$  speed.

AREA OF OPERATION I: PREFLIGHT PREPARTATION

- TASK H: PRINCIPLES OF FLIGHT-ENGINE INOPERATIVE

AREA OF OPERATION X: EMERGENCY OPERATIONS

- TASK B: ENGINE FAILURE DURING TAKEOFF BEFORE  $V_{MC}$  (SIMULATED)
- TASK C: ENGINE FAILURE AFTER LIFT-OFF (SIMULATED)
- TASK D: APPROACH AND LANDING WITH AN INOPERATIVE ENGINE (SIMULATED)

AREA OF OPERATION XI: MULTIENGINE OPERATIONS

- TASK A: MANEUVERING WITH ONE ENGINE INOPERATIVE
- TASK B:  $V_{MC}$  DEMONSTRATION

## 1.6 SPECIAL EMPHASIS AREAS

(1) Flight test examiners shall place special emphasis upon areas of aircraft operations considered critical to flight safety. Among these are:

- (a) positive aircraft control;
- (b) positive exchange of the flight controls procedure (who is flying the aircraft);
- (c) stall/spin awareness;
- (d) collision avoidance;
- (e) wake turbulence avoidance;
- (f) runway incursion avoidance;
- (g) LAHSO (Land and Hold Short Operations)
- (h) CFIT;
- (i) ADM and risk management;
- (j) checklist usage; and

(k) other areas deemed appropriate to any phase of the skill test.

(2) Although these areas may not be specifically addressed under each TASK, they are essential to flight safety and will be evaluated during the skill test.

### 1.7. SKILL TEST PREREQUISITES

An applicant for an Commercial Pilot rating for Aeroplane skill test is required to:

- (a) Meet the applicable requirements in Nig. CARs Part 2 for a Commercial Pilot rating;
- (b) Hold the appropriate medical certificate;
- (c) Pass the required knowledge test; and
- (d) Instructor Authorisation: Obtain a written endorsement from an authorised instructor certifying that the applicant has met the flight training requirements for the skill test. The endorsement shall also state that the instructor finds the applicant competent to pass the skill test and that the applicant has satisfactory knowledge of the subject area(s) in which a deficiency was indicated by the Airman Knowledge Test Report.

### 1.8 AIRCRAFT AND EQUIPMENT REQUIRED FOR THE SKILL TEST

- (1) The Commercial Pilot - aeroplane applicant is required to provide an airworthy, certificated aircraft for use during the skill test. This section further requires that the aircraft
  - a. Be of Nigerian, foreign, or military registry of the same category, class and type, if applicable, for the licence and/or rating for which the candidate is applying.
  - b. Have functioning dual controls, except as provided in Nig. CARs Part 2.
  - c. Be capable of performing all AREAS OF OPERATION appropriate to the rating sought and have no operating limitations which prohibit its use in any of the AREAS OF OPERATION required for the skill test; and
  - d. Be a complex airplane furnished by the applicant unless the applicant currently holds a commercial pilot licence with a single-engine or multiengine class rating as appropriate, for the performance of takeoffs, landings, and appropriate emergency procedures. A complex landplane is one having retractable landing gear, flaps, and controllable propeller or turbine-powered. A complex seaplane is one having flaps and controllable propeller.

### 1.9 USE OF NCAA-APPROVED FLIGHT SIMULATION TRAINING DEVICE

(1) An airman applicant for a Commercial Pilot – Aeroplane rating is authorised to use an NCAA-qualified and approved flight simulator or flight training device, to complete certain flight TASK requirements listed in this skill test standard.

(2) An airman applicant seeking an added rating to a commercial licence may also use a qualified and approved flight simulator or flight training device to complete the flight task requirements in accordance with Appendix 1 and 2 of these skill test standards. These appendices should be consulted to identify which flight TASKs may be accomplished in an approved flight simulator or flight training device. The level of flight simulator or flight training

device required for each maneuver or procedure will also be found in the appropriate appendix. An appropriate class airplane is required to complete the remaining flight TASKs for licencing.

(2) When flight TASKs are accomplished in an aircraft, certain TASK elements may be accomplished through “simulated” actions in the interest of safety and practicality, but when accomplished in a flight simulator or flight training device, these same actions would not be “simulated.” For example, when in an aircraft, a simulated engine fire may be addressed by retarding the throttle to idle, simulating the shutdown of the engine, simulating the discharge of the fire suppression agent, if applicable, simulating the disconnect of associated electrical, hydraulic, and pneumatics systems. However, when the same emergency condition is addressed in a flight simulator or flight training device, all TASK elements must be accomplished as would be expected under actual circumstances.

(3) Similarly, safety of flight precautions taken in the aircraft for the accomplishment of a specific maneuver or procedure (such as limiting altitude in an approach to stall or setting maximum airspeed for an engine failure expected to result in a rejected takeoff) need not be taken when a flight simulator or flight training device is used.

(4) It is important to understand that whether accomplished in an aircraft, flight simulator, or flight training device, all TASKs and elements for each maneuver or procedure shall have the same performance standards applied equally for determination of overall satisfactory performance.

#### **1.10 FLIGHT INSTRUCTOR RESPONSIBILITY**

(1) An appropriately rated flight instructor is responsible for training the pilot applicant to acceptable standards in all subject matter areas, procedures, and maneuvers included in the TASKs within the appropriate skill test standard.

(2) Because of the impact of their teaching activities in developing safe, proficient pilots, flight instructors should exhibit a high level of knowledge, skill, and the ability to impart that knowledge and skill to students. Additionally, the flight instructor must certify that the applicant is able to perform safely as an pilot and is competent to pass the required skill test.

(3) Throughout the applicant’s training, the flight instructor is responsible for emphasizing the performance of effective visual scanning, collision avoidance, and runway incursion avoidance procedures.

#### **1.11 EXAMINER RESPONSIBILITY**

(1) The examiner conducting the skill test is responsible for determining that the applicant meets the acceptable standards of knowledge and skill of each TASK within the appropriate skill test standard. Since there is no formal division between the “oral” and “skill” portions of the skill test, this becomes an ongoing process throughout the test. To avoid unnecessary distractions, oral questioning should be used judiciously at all times, especially during the flight portion of the skill test.

(2) Examiners shall test to the greatest extent practicable the applicant’s correlative abilities rather than mere rote enumeration of facts throughout the skill test.

(3) If the examiner determines that a TASK is incomplete, or the outcome uncertain,

the examiner may require the applicant to repeat that TASK, or portions of that TASK. This provision has been made in the interest of fairness and does not mean that instruction, practice, or the repeating of an unsatisfactory TASK is permitted during the licencing process. When practical, the remaining TASKs of the skill test phase should be completed before repeating the questionable TASK.

(4) On multiengine skill tests where the failure of the most critical engine after lift off is required, the examiner must give consideration to local atmospheric conditions, terrain, and type of aircraft used. However the failure of an engine shall not be simulated until attaining at least  $V_{SSE}/V_{YSE}$  and at an altitude not lower than 200 feet AGL.

(5) During simulated engine failures on multiengine skill tests the examiner shall set zero thrust after the applicant has simulated feathering the propeller. The examiner shall require the applicant to demonstrate at least one landing with a simulated feathered propeller with the engine set to zero thrust.

(6) During the flight portion of the skill test, the examiner shall evaluate the applicant's use of visual scanning, and collision avoidance procedures, when appropriate.

## 1.12 SATISFACTORY PERFORMANCE

Satisfactory performance to meet the requirements for licencing is based on the applicant's ability to safely:

- (a) perform the TASKS specified in the AREAS OF OPERATION for the licence or rating sought within the approved standards;
- (b) demonstrate mastery of the aircraft with the successful outcome of each TASK performed never seriously in doubt;
- (c) demonstrate satisfactory proficiency and competency within the approved standards;
- (d) demonstrate sound judgment and ADM; and
- (e) demonstrate single-pilot competence if the aircraft is type certificated for single-pilot operations.

## 1.13 UNSATISFACTORY PERFORMANCE

(1) The tolerances represent the performance expected in good flying conditions. If, in the judgment of the examiner, the applicant does not meet the standards of performance of any TASK performed, the associated AREA OF OPERATION is failed and therefore, the skill test is failed.

(2) The examiner or applicant may discontinue the test at any time when the failure of an AREA OF OPERATION makes the applicant ineligible for the licence or rating sought. **The test may be continued ONLY with the consent of the applicant.** If the test is discontinued, the applicant is entitled credit for only those AREAS OF OPERATION and their associated TASKS that were satisfactorily performed. However, during the retest, and at the discretion of the examiner, any TASK may be re- evaluated, including those previously passed.

(3) Typical areas of unsatisfactory performance and grounds for disqualification are:

- (a) Any action or lack of action by the applicant that requires corrective intervention by the examiner to maintain safe flight.
- (b) Failure to use proper and effective visual scanning techniques when applicable,

- to clear the area before and while performing maneuvers.
- (c) Consistently exceeding tolerances stated in the Objectives.
- (d) Failure to take prompt corrective action when tolerances are exceeded.

(4) When a notice of disapproval is issued, the examiner shall record the applicant's unsatisfactory performance in terms of the AREA OF OPERATION and specific TASK(s) not meeting the standard appropriate to the skill test conducted. The AREA(s) OF OPERATION/TASK(s) not tested and the number of skill test failures shall also be recorded. If the applicant fails the skill test because of a special emphasis area, the Notice of Disapproval shall indicate the associated TASK. For example, AREA OF OPERATION VI, TASK E, Landing From a Straight-in or Circling Approach, failure to avoid runway incursion.

#### **1.14 DISCONTINUANCE OF A SKILL TEST**

When a skill test is discontinued for reasons other than unsatisfactory performance (i.e., equipment failure, weather, or illness) NCAA Airman Licence and/or Rating Application, and, if applicable, the Airman Knowledge Test Report, shall be returned to the applicant. The examiner at that time shall prepare, sign, and issue a Letter of Discontinuance to the applicant. The Letter of Discontinuance should identify the AREAS OF OPERATION and their associated TASKS of the skill test that were successfully completed. The applicant shall be advised that the Letter of Discontinuance shall be presented to the examiner when the skill test is resumed, and made part of the licencing file.

#### **1.15 AERONAUTICAL DECISION MAKING AND RISK MANAGEMENT**

(1) The examiner shall evaluate the applicant's ability throughout the skill test to use good aeronautical decision making procedures in order to evaluate risks. The examiner shall accomplish this requirement by developing scenarios that incorporate as many TASKS as possible to evaluate the applicants risk management in making safe aeronautical decisions. For example, the examiner may develop a scenario that incorporates weather decisions and performance planning.

(2) The applicant's ability to utilize all the assets available in making a risk analysis to determine the safest course of action is essential for satisfactory performance. The scenarios should be realistic and within the capabilities of the aircraft used for the skill test.

#### **1.16 CREW RESOURCE MANAGEMENT**

(1) CRM refers to the effective use of all available resources; human resources, hardware, and information. Human resources includes all other groups routinely working with the cockpit crew (or if it is a single pilot operation, the pilot) who are involved in decisions that are required to operate a flight safely. These groups include, but are not limited to: flight operations officers, cabin crewmembers, maintenance personnel, and air traffic controllers. CRM is not a single TASK. CRM is a set of skill competencies which must be evident in all TASKS in this skill test standard as applied to the single pilot or the multicrew operation. CRM competencies, grouped into three clusters of observable behavior, are:

##### **(a) COMMUNICATIONS PROCESSES AND DECISIONS**

1. Briefing/Debriefing
2. Inquiry/Advocacy/Assertiveness
3. Self-Critique
4. Communication with Available Personnel Resources

5. Decision Making

(b) BUILDING AND MAINTENANCE OF A FLIGHT TEAM

1. Leadership/Followership
2. Interpersonal Relationships

(c) WORKLOAD MANAGEMENT AND SITUATIONAL AWARENESS

1. Preparation/Planning
2. Vigilance
3. Workload Distribution
4. Distraction Avoidance
5. Wake Turbulence Avoidance

(2) CRM deficiencies almost always contribute to the unsatisfactory performance of a TASK. Therefore, the competencies provide an extremely valuable vocabulary for debriefing.

(3) The standards for each CRM competency as generally stated and applied are subjective. Conversely, some of the competencies may be found objectively stated as required operational procedures for one or more TASKS. Examples of the latter include briefings, radio calls, and instrument approach callouts. Whether subjective or objective, application of CRM competencies is dependent upon the composition of the crew.

### **1.17 SINGLE-PILOT RESOURCE MANAGEMENT**

Single-Pilot Resource Management refers to the effective use of ALL available resources: human resources, hardware, and information. It is similar to Crew Resource Management (CRM) procedures that are being emphasized in multi-crewmember operations except that only one crewmember (the pilot) is involved. Human resources "...include all other groups routinely working with the pilot who are involved in decisions that are required to operate a flight safely. These groups include, but are not limited to: dispatchers, weather briefers, maintenance personnel, and air traffic controllers." Pilot Resource Management is not a single TASK; it is a set of skill competencies that must be evident in all TASKS in this skill test standard as applied to single-pilot operation.

### **1.18 HOW THE EXAMINER APPLIES CREW RESOURCE MANAGEMENT**

(1) Examiners are required to exercise proper CRM competencies in conducting tests as well as expecting the same from applicants.

(2) Pass/Fail judgments based solely on CRM issues must be carefully chosen since they may be entirely subjective. Those Pass/Fail judgments which are not subjective apply to CRM-related procedures in NCAA-approved operations manuals that must be accomplished, such as briefings to other crewmembers. In such cases, the operator (or the aircraft manufacturer) specifies what should be briefed and when the briefings should occur. The examiner may judge objectively whether the briefing requirement was or was not met. In those cases where the operator (or aircraft manufacturer) has not specified a briefing, the examiner shall require the applicant to brief the appropriate items from the following note. The examiner may then judge objectively whether the briefing requirement was or was not met.

(3) The majority of aviation accidents and incidents are due to resource management failures by the pilot/crew; fewer are due to technical failures. Each applicant shall give a crew briefing before each takeoff/departure and approach/landing. If the operator or aircraft manufacturer has not specified a briefing, the briefing shall cover the appropriate items, such as runway, SID/STAR/IAP, power settings, speeds, abnormals or emergency prior to or after takeoff, emergency return intentions, missed approach procedures, FAF, altitude at FAF, initial rate of descent, DH/ACA, time to missed approach, and what is expected of the other crewmembers during the takeoff/SID and approach/landing. If the first takeoff/departure and approach/landing briefings are satisfactory, the examiner may allow the applicant to brief only the changes, during the remainder of the flight.

### **1.19 APPLICANT'S USE OF CHECKLISTS**

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

### **1.20 USE OF DISTRACTIONS DURING SKILL TESTS**

Numerous studies indicate that many accidents have occurred when the pilot has been distracted during critical phases of flight. To evaluate the pilot's ability to utilize proper control technique while dividing attention both inside and/or outside the cockpit, the examiner shall cause a realistic distraction during the flight portion of the skill test to evaluate the applicant's ability to divide attention while maintaining safe flight.

### **1.21 POSITIVE EXCHANGE OF FLIGHT CONTROLS**

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

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



## 1.22 RATING TASK TABLES

(1) The following tables indicate the areas of operations required during a skill test for an additional Commercial Pilot rating in another aircraft category.

### Airplane Multiengine Land

a. Addition of an Airplane Multiengine Land Rating to an existing Commercial Pilot Licence							
<b>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 based on the notes in each AREA OF OPERATION.</b>							
<b>COMMERCIAL PILOT RATING(S) HELD</b>							
<b>AREAS OF OPER- ATION</b>	<b>ASEL</b>	<b>ASES</b>	<b>AMES</b>	<b>Helicopter</b>	<b>Glider</b>	<b>Balloon</b>	<b>Airship</b>
<b>I</b>	F,G,H	F,G,H	F,G	F,G,H	F,G,H	F,G,H	F,G,H
<b>II</b>	ALL	ALL	D	ALL	ALL	ALL	ALL
<b>III</b>	NONE	C	C	B,C	B,C	B,C	B,C
<b>IV</b>	A,B,C,D	A,B,C,D	A,B,C,D	A,B,C,D,I	A,B,C,D,I	A,B,C,D,I	A,B,C,D,I
<b>V</b>	ALL	ALL	NONE	ALL	ALL	ALL	ALL
<b>VI</b>	NONE	NONE	NONE	NONE	ALL	ALL	NONE
<b>VII</b>	ALL	ALL	NONE	ALL	ALL	ALL	ALL
<b>VIII</b>	ALL	ALL	B,D,E	ALL	ALL	ALL	ALL
<b>IX</b>	NONE	NONE	NONE	ALL	ALL	ALL	ALL
<b>X</b>	ALL	ALL	NONE	ALL	ALL	ALL	ALL
<b>XI</b>	NONE	A	A	A	A	A	A

## Airplane Multiengine Sea

Addition of an Airplane Multiengine Sea Rating to an existing Commercial Pilot Licence							
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 based on the notes in each AREA OF OPERATION.							
COMMERCIAL PILOT RATING(S) HELD							
AREAS OF OPER- ATION	AMEL	ASEL	ASES	Helicopter	Glider	Balloon	Airship
I	F,G,I,J	F,G,H,I,J	F,G,H	F,G,H,I,J	F,G,H,I,J	F,G,H,I,J	F,G,H,I,J
II	E	ALL	ALL	ALL	ALL	ALL	ALL
III	C	C	NONE	B,C	B,C	B,C	B,C
IV	A,B,C,D,E, F,G,H	A,B,C,D,E, F,G,H	A,B,C,D,E,F ,G,H	ALL	ALL	ALL	ALL
V	NONE	ALL	ALL	ALL	ALL	ALL	ALL
VI	NONE	NONE	NONE	NONE	ALL	ALL	NONE
VII	NONE	ALL	ALL	ALL	ALL	ALL	ALL
VIII	B,D,E	ALL	ALL	ALL	ALL	ALL	ALL
IX	NONE	NONE	NONE	ALL	ALL	ALL	ALL
X	NONE	ALL	ALL	ALL	ALL	ALL	ALL
XI	B,C,D	B,C,D	NONE	ALL	ALL	ALL	ALL

### Airplane Single-Engine Land

Addition of an Airplane Single-Engine Land Rating to an existing Commercial Pilot Licence							
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 based on the notes in each AREA OF OPERATION.							
COMMERCIAL PILOT RATING(S) HELD							
AREAS OF OPER- ATION	ASES	AMEL	AMES	Helicopter	Glider	Balloon	Airship
I	F,G	F,G	F,G	F,G	F,G	F,G	F,G
II	D	NONE	D	A,C,D,F	A,B,C,D,F	A,B,C,D,F	A,B,C,D,F
III	C	NONE	C	B,C	B,C	B,C	B,C
IV	A,B,C,D,E,F, K	A,B,C,D,E,F, K	A,B,C,D,E,F, ,K	A,B,C,D,E,F,K, L	A,B,C,D,E,F, K,L	A,B,C,D,E,F, K,L	A,B,C,D,E,F,K,L
V	NONE	B,C,D	B,C,D	ALL	ALL	ALL	ALL
VI	NONE	ALL	ALL	ALL	ALL	ALL	ALL
VII	NONE	NONE	NONE	NONE	ALL	ALL	NONE
VIII	NONE	NONE	NONE	ALL	ALL	ALL	ALL
IX	A,B	A,B	A,B	ALL	ALL	ALL	ALL
X	NONE	NONE	NONE	ALL	ALL	ALL	ALL
XI	A	NONE	A	A	A	A	A

## Airplane Single-Engine Sea

Addition of an Airplane Single-Engine Sea Rating to an existing Commercial Pilot Licence							
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 based on the notes in each AREA OF OPERATION.							
COMMERCIAL PILOT RATING(S) HELD							
AREAS OF OPER- ATION	ASEL	AMEL	AMES	Helicopter	Glider	Balloon	Airship
I	F,G,H,I	F,G,H,I	F,G	F,G,H,I	F,G,H,I	F,G,H,I	F,G,H,I
II	E	E	E	A,B,C,E,F	A,B,C,E,F	A,B,C,E,F	A,B,C,E,F
III	C	C	NONE	B,C	B,C	B,C	B,C
IV	A,B,E,F,G, H,I,J	A,B,E,F,G,H ,I,J	A,B,E,F,G,H,I ,J	A,B,E,F,G,H,I, J,K,L	A,B,E,F,G,H,I ,J,K,L	A,B,E,F,G,H,I, J,K,L	A,B,E,F,G,H,I,J, K,L
V	NONE	B,C,D	B,C,D	ALL	ALL	ALL	ALL
VI	NONE	ALL	ALL	ALL	ALL	ALL	ALL
VII	NONE	NONE	NONE	NONE	ALL	ALL	NONE
VIII	NONE	NONE	NONE	ALL	ALL	ALL	ALL
IX	A,B	A,B	A,B	ALL	ALL	ALL	ALL
X	NONE	NONE	NONE	ALL	ALL	ALL	ALL
XI	B,C,D	B,C,D	NONE	B,C,D	B,C,D	B,C,D	B,C,D

## SECTION TWO

## APPLICANT'S SKILL 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, NCAA-Approved Airplane Flight Manual

#### PERSONAL EQUIPMENT

- View-Limiting Device
- Current Aeronautical Charts
- Computer and Plotter
- Flight Plan Form
- Flight Logs
- Current AIM, Airport Facility Directory, and Appropriate Publications

#### PERSONAL RECORDS

- Identification—Photo/Signature ID
- Pilot Certificate
- Current and Appropriate Medical Certificate
- Completed Form, Airman Licence and/or Rating Application with Instructor's Signature (if applicable)
- Computer Test Report
- Pilot Logbook with appropriate Instructor Endorsements
- Notice of Disapproval (if applicable)
- Approved School Graduation Certificate (if applicable)
- Examiner's Fee (if applicable)

## EXAMINER'S SKILL TEST CHECKLIST

### Airplane Single-Engine Land And Airplane Single-Engine Sea

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

LOCATION \_\_\_\_\_

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

#### I. PREFLIGHT PREPARATION

- A. Certificates and Documents (ASEL and ASES)
- B. Airworthiness Requirements (ASEL and ASES)
- C. Weather Information (ASEL and ASES)
- D. Cross-Country Flight Planning (ASEL and ASES)
- E. National Airspace System (ASEL and ASES)
- F. Performance and Limitations (ASEL and ASES)
- G. Operation of Systems (ASEL and ASES)
- H. Water and Seaplane Characteristics (ASES)
- I. Seaplane Bases, Maritime Rules, and Aids to Marine Navigation (ASES)
- J. Aeromedical Factors (ASEL and ASES)

#### II. PREFLIGHT PROCEDURES

- A. Preflight Inspection (ASEL and ASES)
- B. Cockpit Management (ASEL and ASES)
- C. Engine Starting (ASEL and ASES)
- D. Taxiing (ASEL)
- E. Taxiing and Sailing (ASES)
- F. Before Takeoff Check (ASEL and ASES)

#### III. AIRPORT AND SEAPLANE BASE OPERATIONS

- A. Radio Communications and ATC Light Signals (ASEL and ASES)
- B. Traffic Patterns (ASEL and ASES)
- C. Airport/Seaplane Base, Runway, and Taxiway Signs, Markings, and Lighting (ASEL and ASES)

#### IV. TAKEOFFS, LANDINGS, AND GO-AROUNDS

- A. Normal and Crosswind Takeoff and Climb (ASEL and ASES)
- B. Normal and Crosswind Approach and Landing (ASEL and ASES)
- C. Soft-Field Takeoff and Climb (ASEL)
- D. Soft-Field Approach and Landing (ASEL)
- E. Short-Field (Confined Area—ASES) Takeoff and Maximum Performance Climb (ASEL and ASES)
- F. Short-Field Approach (Confined Area—ASES) and Landing (ASEL and ASES)
- G. Glassy Water Takeoff and Climb (ASES)
- H. Glassy Water Approach and Landing (ASES)
- I. Rough Water Takeoff and Climb (ASES)
- J. Rough Water Approach and Landing (ASES)
- K. Power-Off 180° Accuracy Approach and Landing (ASEL and ASES)
- L. Go-Around/Rejected Landing (ASEL and ASES)

#### V. PERFORMANCE MANEUVERS

- A. Steep Turns (ASEL and ASES)
- B. Steep Spiral (ASEL and ASES)
- C. Chandelles (ASEL and ASES)
- D. Lazy Eights (ASEL and ASES)

#### VI. GROUND REFERENCE MANEUVER

- Eights on Pylons (ASEL and ASES)

#### VII. NAVIGATION

- A. Pilotage and Dead Reckoning (ASEL and ASES)
- B. Navigation Systems and Radar Services (ASEL and ASES)
- C. Diversion (ASEL and ASES)
- D. Lost Procedures (ASEL and ASES)

#### VIII. SLOW FLIGHT AND STALLS

- A. Maneuvering During Slow Flight (ASEL and ASES)
- B. Power-Off Stalls (ASEL and ASES)
- C. Power-On Stalls (ASEL and ASES)
- D. Spin Awareness (ASEL and ASES)

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## SECTION 2 - SINGLE ENGINE STS

### I. AREA OF OPERATION: PREFLIGHT PREPARATION

**NOTE:** The examiner shall develop a scenario based on real time weather to evaluate TASKs C and D.

#### A. TASK: CERTIFICATES AND DOCUMENTS (ASEL and ASES)

REFERENCES: Nig. CARs parts 2, 5 and 8, POH/AFM.

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

1. Explaining—
  - a. commercial pilot licence 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.

#### B. TASK: AIRWORTHINESS REQUIREMENTS (ASEL and ASES)

REFERENCES: Nig. CARs Part 8;

**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 airplane 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.

**C. TASK: WEATHER INFORMATION (ASEL and ASES)**

REFERENCES: Nig. CARs Part 8;

**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. 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.

**D. TASK: CROSS-COUNTRY FLIGHT PLAN (ASEL and ASES)**

REFERENCES: Nig. CARs part 8

**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 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.
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 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 NOTAMs, A/FD, and other flight publications.
9. Completes a navigation log and simulates filing a VFR flight plan.

**E. TASK: NATIONAL AIRSPACE SYSTEM (ASEL and ASES)**

REFERENCES: Nig. CARs part 8;

**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 airplane 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.

**F. TASK: PERFORMANCE AND LIMITATIONS (ASEL and ASES)**

REFERENCES: POH/AFM.

**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 airplane'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 airplane's performance.

**G. TASK: OPERATION OF SYSTEMS (ASEL and ASES)**

REFERENCES POH/AFM.

**Objective.** To determine that the applicant exhibits knowledge of the elements related to the operation of systems on the airplane 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.

#### H. TASK: WATER AND SEAPLANE CHARACTERISTICS (ASES)

**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.
  - 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.

#### I. TASK: SEAPLANE BASES, MARITIME RULES, AND AIDS TO MARINE NAVIGATION (ASES)

**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.

#### J. TASK: AEROMEDICAL FACTORS (ASEL and ASES)

**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.

## **II. AREA OF OPERATION: PREFLIGHT PROCEDURES**

### **A. TASK: PREFLIGHT INSPECTION (ASEL and ASES)**

REFERENCES: POH/AFM.

**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 airplane with reference to an appropriate checklist.
3. Verifies that the airplane is in condition for safe flight.

### **B. TASK: COCKPIT MANAGEMENT (ASEL and ASES)**

REFERENCES: POH/AFM.

**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.

### **C. TASK: ENGINE STARTING (ASEL and ASES)**

REFERENCES: POH/AFM.

**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, hand propping safety, and starting under various atmospheric conditions.
2. Positions the airplane properly considering structures, surface conditions other aircraft, and the safety of nearby persons and property.
3. Utilizes the appropriate checklist for starting procedure.

### **D. TASK: TAXIING (ASEL)**

REFERENCES: POH/AFM.

**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 airplane 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 airport/taxiway markings, signals, ATC clearances and instructions.
6. Taxes so as to avoid other aircraft and hazards.

### **E. TASK: TAXIING AND SAILING (ASES)**

REFERENCES: POH/AFM.

**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.
6. Prevents and corrects for porpoising and skipping.
7. Avoids other aircraft, vessels, and hazards.
8. Complies with seaplane base signs, signals, and clearances.

**F. TASK: BEFORE TAKEOFF CHECK (ASEL and ASES)**

REFERENCES: POH/AFM.

**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 airplane 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 airplane is in safe operating condition.
6. Reviews takeoff performance airspeeds, takeoff distances, departure and emergency procedures.
7. Avoids runway incursion and/or ensures no conflict with traffic prior to taxiing into takeoff position.

**III. AREA OF OPERATION: AIRPORT AND SEAPLANE BASE OPERATIONS**

**A. TASK: RADIO COMMUNICATIONS AND ATC LIGHT SIGNALS (ASEL and ASES)**

REFERENCES: Nig. CARs Part 8;

**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.

**B. TASK: TRAFFIC PATTERNS (ASEL and ASES)**

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

1. Exhibits knowledge of the elements related to traffic patterns. This shall include procedures at airports 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.

**C. TASK: AIRPORT/SEAPLANE BASE, RUNWAY, AND TAXIWAY SIGNS, MARKINGS, AND LIGHTING (ASEL and ASES)**

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

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

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

##### **A. TASK: NORMAL AND CROSSWIND TAKEOFF AND CLIMB (ASEL and ASES)**

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

REFERENCES: POH/AFM.

**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 airplane on the runway center/takeoff path.
4. Retracts the water rudders as appropriate (ASES), and advances the throttle smoothly to takeoff power.
5. Establishes and maintains the most efficient planing/lift off attitude and corrects for porpoising and skipping (ASES).
6. Lifts off at the recommended airspeed, and accelerates to  $V_Y$ .
7. Establishes a pitch attitude that will maintain  $V_Y \pm 5$  knots.
8. Retracts the landing gear if appropriate, and flaps after a positive rate of climb is established.
9. Maintains takeoff power and  $V_Y \pm 5$  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.

##### **B. TASK: NORMAL AND CROSSWIND APPROACH AND LANDING (ASEL and ASES)**

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

REFERENCES: POH/AFM.

**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 (ASES).
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  $1.3 V_{SO}$ ,  $\pm 5$  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 (ASES).
8. Touches down smoothly at approximate stalling speed (ASEL).
9. Touches down at or within 200 feet (60 meters) beyond a specified point, with no drift, and with the airplane'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.

**C. TASK: SOFT-FIELD TAKEOFF AND CLIMB (ASEL)**

REFERENCES: POH/AFM.

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

1. Exhibits knowledge of the elements related to a soft-field takeoff and climb.
2. Positions the flight controls for existing conditions and to maximize lift as quickly as possible.
3. Clears the area; taxies onto takeoff surface at a speed consistent with safety without stopping while advancing the throttle smoothly to takeoff power.
4. Establishes and maintains a pitch attitude that will transfer the weight of the airplane from the wheels to the wings as rapidly as possible.
5. Lifts off at the lowest possible airspeed and remains in ground effect while accelerating to  $V_X$  or  $V_Y$ , as appropriate.
6. Establishes a pitch attitude for  $V_X$  or  $V_Y$ , as appropriate, and maintains selected airspeed  $\pm 5$  knots, during the climb.
7. Retracts the landing gear, if appropriate and flaps after clear of any obstacles or as recommended by the manufacturer.
8. Maintains takeoff power and  $V_X$  or  $V_Y \pm 5$  knots to a safe maneuvering altitude.
9. Maintains directional control and proper wind-drift correction throughout the takeoff and climb.
10. Completes appropriate checklist.

**D. TASK: SOFT-FIELD APPROACH AND LANDING (ASEL)**

REFERENCES: POH/AFM.

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

1. Exhibits knowledge of the elements related to a soft-field approach and landing.
2. Considers the wind conditions, landing surface, and obstructions, and selects the most suitable touchdown area.
3. Establishes the recommended approach and landing configuration and airspeed; adjusts pitch attitude and power as required.
4. Maintains a stabilized approach and recommended airspeed, or in its absence, not more than 1.3  $V_{SO}$ ,  $\pm 5$  knots, with wind gust factor applied.
5. Makes smooth, timely, and correct control application during the roundout and touchdown.
6. Touches down softly, with no drift, and with the airplane's longitudinal axis aligned with the runway/landing path.
7. Maintains crosswind correction and directional control throughout the approach and landing sequence.
8. Maintains proper position of the flight controls and sufficient speed to taxi on the soft surface.
9. Completes appropriate checklist.

**E. TASK: SHORT-FIELD TAKEOFF (CONFINED AREA—ASES) AND MAXIMUM PERFORMANCE CLIMB (ASEL and ASES)**

REFERENCES: POH/AFM.

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

1. Exhibits knowledge of the elements related to a short-field (confined area ASES) 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 airplane on the runway center/takeoff path.
4. Selects an appropriate take-off path for the existing conditions (ASES).



5. Applies brakes (if appropriate) while advancing the throttle smoothly to takeoff power.
6. Establishes and maintains the most efficient planing/lift off attitude and corrects for porpoising and skipping (ASES).
7. Lifts off at the recommended airspeed, and accelerates to recommended obstacle clearance airspeed, or  $V_X$ .
8. Establishes a pitch attitude that will maintain the recommended obstacle clearance airspeed, or  $V_X + 5/-0$  knots, until the obstacle is cleared, or until the airplane is 50 feet (20 meters) above the surface.
9. After clearing the obstacle, establishes the pitch attitude for  $V_Y$ , accelerates to  $V_Y$ , and maintains  $V_Y, \pm 5$  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  $V_Y \pm 5$  knots to a safe maneuvering altitude.
12. Maintains directional control and proper wind-drift correction throughout the takeoff and climb.
13. Completes appropriate checklist.

**F. TASK: SHORT-FIELD APPROACH (CONFINED AREA—ASES) AND LANDING (ASEL AND ASES)**

REFERENCES: POH/AFM.

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

1. Exhibits knowledge of the elements related to a short-field (confined area ASES) approach and landing.
2. Adequately surveys the intended landing area (ASES).
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.
5. Maintains a stabilized approach and recommended approach airspeed, or in its absence, not more than  $1.3 V_{SO}, \pm 5$  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 (ASES).
8. Touches down smoothly at minimum control airspeed (ASEL).
9. Touches down at or within 100 feet (30 meters) beyond a specified point, with no side drift, minimum float and with the airplane'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 (ASEL) or elevator control (ASES), as necessary, to stop in the shortest distance consistent with safety.
12. Completes appropriate checklist.

**G. TASK: GLASSY WATER TAKEOFF AND CLIMB (ASES)**

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

REFERENCES: POH/AFM.

**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.

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  $V_Y \pm 5$  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  $V_Y \pm 5$  knots to a safe maneuvering altitude.
10. Maintains directional control and proper wind-drift correction throughout takeoff and climb.
11. Completes the appropriate checklist.

#### **H. TASK: GLASSY WATER APPROACH AND LANDING (ASES)**

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

REFERENCES: POH/AFM.

**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.
10. Completes the appropriate checklist.

#### **I. TASK: ROUGH WATER TAKEOFF AND CLIMB (ASES)**

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

REFERENCES: POH/AFM.

**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 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  $V_Y \pm 5$  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  $V_Y \pm 5$  knots to a safe maneuvering altitude.
9. Maintains directional control and proper wind-drift correction throughout takeoff and climb.
10. Completes the appropriate checklist.

**J. TASK: ROUGH WATER APPROACH AND LANDING (ASES)**

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

REFERENCES: POH/AFM.

**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  $1.3 V_{SO} \pm 5$  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.

**K. TASK: POWER-OFF 180° ACCURACY APPROACH AND LANDING (ASEL and ASES)**

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

1. Exhibits knowledge of the elements related to a power-off 180° accuracy approach and landing.
2. Considers the wind conditions, landing surface, obstructions, and selects an appropriate touchdown point.
3. Positions airplane on downwind leg, parallel to landing runway, and not more than 1000 feet AGL.
4. Abeam the specified touchdown point, closes throttle and establishes appropriate glide speed.
5. Completes final airplane configuration.
6. Touches down in a normal landing attitude, at or within 200 feet (60 meters) beyond the specified touchdown point.
7. Completes the appropriate checklist.

**L. TASK: GO-AROUND/REJECTED LANDING (ASEL and ASES)**

REFERENCES: POH/AFM.

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

1. Exhibits knowledge of the elements related to a go-around/rejected landing.
2. Makes a timely decision to discontinue the approach to landing.
3. Applies takeoff power immediately and transitions to climb pitch attitude for  $V_Y$ , and maintains  $V_Y \pm 5$  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  $V_y \pm 5$  knots to a safe maneuvering altitude.
8. Maintains directional control and proper wind-drift correction throughout the climb.
9. Completes the appropriate checklist.

## V. AREA OF OPERATION: PERFORMANCE MANEUVERS

NOTE: The examiner shall at least select either TASK A or B, and either C or D.

### A. TASK: STEEP TURNS (ASEL and ASES)

REFERENCES: POH/AFM.

**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  $V_A$ .
3. Rolls into a coordinated  $360^\circ$  steep turn with at least a  $50^\circ$  bank, followed by a  $360^\circ$  steep turn in the opposite direction.
4. Divides attention between airplane control and orientation.
5. Maintains the entry altitude,  $\pm 100$  feet (30 meters), airspeed,  $\pm 10$  knots, bank,  $\pm 5^\circ$ ; and rolls out on the entry heading,  $\pm 10^\circ$ .

### B. TASK: STEEP SPIRAL (ASEL and ASE)

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

1. Exhibits knowledge of the elements related to a steep spiral.
2. Selects an altitude sufficient to continue through a series of at least three  $360^\circ$  turns.
3. Selects a suitable ground reference point.
4. Applies wind-drift correction to track a constant radius circle around selected reference point with bank not to exceed  $60^\circ$  at steepest point in turn.
5. Divides attention between airplane control and ground track, while maintaining coordinated flight.
6. Maintains the specified airspeed,  $\pm 10$  knots, rolls out toward object or specified heading,  $\pm 10^\circ$ .

### C. TASK: CHANDELLES (ASEL and ASES)

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

1. Exhibits knowledge of the elements related to chandelles.
2. Selects an altitude that will allow the maneuver to be performed no lower than 1,500 feet AGL (460 meters).
3. Establishes the recommended entry configuration, power, and airspeed.
4. Establishes the angle of bank at approximately  $30^\circ$ .
5. Simultaneously applies power and pitch to maintain a smooth, coordinated climbing turn to the  $90^\circ$  point, with a constant bank.
6. Begins a coordinated constant rate rollout from the  $90^\circ$  point to the  $180^\circ$  point maintaining power and a constant pitch attitude.
7. Completes rollout at the  $180^\circ$  point,  $\pm 10^\circ$  just above a stall airspeed, and maintaining that airspeed momentarily avoiding a stall.
8. Resumes straight and level flight with minimum loss of altitude.

### D. TASK: LAZY EIGHTS (ASEL and ASES)

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

1. Exhibits knowledge of the elements related to lazy eights.
2. Selects an altitude that will allow the task to be performed no lower than 1,500 feet AGL (460 meters).
3. Establishes the recommended entry configuration, power, and airspeed.
4. Maintains coordinated flight throughout the maneuver.
5. Achieves the following throughout the maneuver—
  - a. approximately 30° bank at the steepest point.
  - b. constant change of pitch and roll rate.
  - c. altitude tolerance at 180° points, ±100 feet (30 meters) from entry altitude.
  - d. airspeed tolerance at the 180° point plus ±10° knots from entry airspeed.
  - e. heading tolerance at the 180° point ±10°.
6. Continues the maneuver through the number of symmetrical loops specified and resumes straight and level flight.

## **VI. AREA OF OPERATION: GROUND REFERENCE MANEUVER**

**TASK: EIGHTS ON PYLONS (ASEL and ASES)**

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

1. Exhibits knowledge of the elements related to eights on pylons.
2. Determines the approximate pivotal altitude.
3. Selects suitable pylons, that will permit straight and level flight, between the pylons.
4. Enters the maneuver at the appropriate altitude and airspeed and at a bank angle of approximately 30° to 40° at the steepest point.
5. Applies the necessary corrections so that the line-of-sight reference line remains on the pylon.
6. Divides attention between accurate coordinated airplane control and outside visual references.
7. Holds pylon using appropriate pivotal altitude avoiding slips and skids.

## **VII. AREA OF OPERATION: NAVIGATION**

**A. TASK: PILOTAGE AND DEAD RECKONING (ASEL and ASES)**

**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 airplane'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, ±100 feet (30 meters), and headings, ±10°.

**B. TASK: NAVIGATION SYSTEMS AND RADAR SERVICES (ASEL and ASES)**

**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 airplane'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,  $\pm 10^\circ$ .

**C. TASK: DIVERSION (ASEL and ASES)**

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

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

**D. TASK: LOST PROCEDURES (ASEL and ASES)**

**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.

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

### A. TASK: MANEUVERING DURING SLOW FLIGHT (ASEL and ASES)

REFERENCES: POH/AFM.

**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 1,500 feet (460 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 airplane 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,  $\pm 5^\circ$ .

### B. TASK: POWER-OFF STALLS (ASEL and ASES)

REFERENCES: POH/AFM.

**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 1,500 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 airplane.
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  $V_X$  or  $V_Y$  speed before the final flap retraction; returns to the altitude, heading, and airspeed specified by the examiner.

**C. TASK: POWER-ON STALLS (ASEL and ASES)**

REFERENCES: POH/AFM.

**NOTE:** In some high performance airplanes, 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° nose up).

**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 1,500 feet (460 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.
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 airplane.
7. Retracts flaps to the recommended setting, retracts the landing gear if retractable, after a positive rate of climb is established.
8. Accelerates to  $V_X$  or  $V_Y$  speed before the final flap retraction; returns to the altitude, heading, and airspeed specified by the examiner.

**D. TASK: SPIN AWARENESS (ASEL and ASES)**

REFERENCES: POH/AFM.

**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.

**I. AREA OF OPERATION: EMERGENCY OPERATIONS**

**A. TASK: EMERGENCY APPROACH AND LANDING (SIMULATED)  
(ASEL and ASES)**

REFERENCE: POH/AFM.

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

1. Exhibits knowledge of the elements related to emergency approach and landing procedures.
2. Analyzes the situation and selects an appropriate course of action.
3. Establishes and maintains the recommended best glide airspeed,  $\pm 10$  knots.
4. Selects a suitable landing area.
5. Plans and follows a flight pattern to the selected landing area considering altitude, wind, terrain, and obstructions.
6. Prepares for landing, or go-around, as specified by the examiner.
7. Follows the appropriate checklist.



**B. TASK: SYSTEMS AND EQUIPMENT MALFUNCTIONS (ASEL and ASES)**

REFERENCES: POH/AFM.

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

1. Exhibits knowledge of the elements related to systems and equipment malfunctions appropriate to the airplane provided for the skill test.
2. Analyzes the situation and takes appropriate action for simulated emergencies appropriate to the airplane provided for the skill test for at least five (5) of the following:
  - 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 airplane.
3. Follows the appropriate checklist or procedure.

**C. TASK: EMERGENCY EQUIPMENT AND SURVIVAL GEAR (ASEL and ASES)**

REFERENCES: POH/AFM.

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

Exhibits knowledge of the elements related to emergency equipment and survival gear appropriate to the airplane and environment encountered during flight. Identifies appropriate equipment that should be aboard the airplane.

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

**A. TASK: SUPPLEMENTAL OXYGEN (ASEL and ASES)**

REFERENCES: Nig. CARs Part 8, POH/AFM.

**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 airplanes.
2. Identification and differences between “aviators’ breathing oxygen” and other types.
3. Operational characteristics of continuous flow, demand, and pressure-demand oxygen systems.

**B. TASK: PRESSURIZATION (ASEL and ASES)**

REFERENCES: POH/AFM.

**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 airplanes with pressurized cabins.
- c. physiological hazards associated with high altitude flight and decompression.

**NOTE:** Element 2 applies only if the airplane provided for the skill test is equipped for pressurized flight operations.

- 2. Operates the pressurization system properly, and reacts appropriately to simulated pressurization malfunctions.

## **XI. AREA OF OPERATION: POSTFLIGHT PROCEDURES**

**NOTE:** The examiner shall select TASK A and for ASES applicants at least one other TASK.

### **A. TASK: AFTER LANDING, PARKING, AND SECURING (ASEL and ASES)**

REFERENCES: POH/AFM.

**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.

### **B. TASK: ANCHORING (ASES)**

REFERENCES: POH/AFM.

**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.

### **C. TASK: DOCKING AND MOORING (ASES)**

REFERENCES: POH/AFM.

**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: RAMPING/BEACHING (ASES)**

REFERENCES: POH/AFM.

**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 level.

## SECTION THREE

## APPLICANT'S SKILL 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, NCAA-Approved Airplane Flight Manual

#### PERSONAL EQUIPMENT

- View-Limiting Device
- Current Aeronautical Charts
- Computer and Plotter
- Flight Plan Form
- Flight Logs
- Current AIM, Airport Facility Directory, and Appropriate Publications

#### PERSONAL RECORDS

- Identification - Photo/Signature ID
- Pilot Certificate
- Current Medical Certificate
- Completed Form , Airman licence and/or Rating Application with Instructor's Signature (if applicable)
- Computer Test Report
- Pilot Logbook with appropriate Instructor Endorsements
- Notice of Disapproval (if applicable)
- Approved School Graduation Certificate (if applicable)
- Examiner's Fee (if applicable)

## EXAMINER'S SKILL TEST CHECKLIST

### Airplane Multiengine Land and Airplane Multiengine Sea

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

LOCATION \_\_\_\_\_

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

#### I. PREFLIGHT PREPARATION

- A. Certificates and Documents (AMEL and AMES)
- B. Airworthiness Requirements (AMEL and AMES)
- C. Weather Information (AMEL and AMES)
- D. Cross-Country Flight Planning (AMEL and AMES)
- E. National Airspace System (AMEL and AMES)
- F. Performance and Limitations (AMEL and AMES)
- G. Operation of Systems (AMEL and AMES)
- H. Principles of Flight—Engine Inoperative (AMEL and AMES)
- I. Water and Seaplane Characteristics (AMES)
- J. Seaplane Bases, Maritime Rules, and Aids to Marine Navigation (AMES)
- K. Aeromedical Factors (AMEL and AMES)

#### II. PREFLIGHT PROCEDURES

- A. Preflight Inspection (AMEL and AMES)
- B. Cockpit Management (AMEL and AMES)
- C. Engine Starting (AMEL and AMES)
- D. Taxiing (AMEL)
- E. Taxiing and Sailing (AMES)
- F. Before Takeoff Check (AMEL and AMES)

#### III. AIRPORT AND SEAPLANE BASE OPERATIONS

- A. Radio Communications and ATC Light Signals (AMEL and AMES)
- B. Traffic Patterns (AMEL and AMES)
- C. Airport/Seaplane Base, Runway, and Taxiway Signs, Markings, and Lighting (AMEL and AMES)

#### IV. TAKEOFFS, LANDINGS, AND GO-AROUNDS

- A. Normal and Crosswind Takeoff and Climb (AMEL and AMES)
- B. Normal and Crosswind Approach and Landing (AMEL and AMES)
- C. Short-Field Takeoff (Confined Area—AMEL) and Maximum Performance Climb (AMEL and AMES)
- D. Short-Field (Confined Area—AMES) Approach and Landing (AMEL and AMES)
- E. Glassy Water Takeoff and Climb (AMES)
- F. Glassy Water Approach and Landing (AMES)
- G. Rough Water Takeoff and Climb (AMES)
- H. Rough Water Approach and Landing (AMES)
- I. Go-Around/Rejected Landing (AMEL and AMES)

#### V. PERFORMANCE MANEUVER

- Steep Turns (AMEL and AMES)

#### VI. NAVIGATION

- A. Pilotage and Dead Reckoning (AMEL and AMES)
- B. Navigation Systems and Radar Services (AMEL and AMES)
- C. Diversion (AMEL and AMES)
- D. Lost Procedures (AMEL and AMES)

#### VII. SLOW FLIGHT AND STALLS

- A. Maneuvering During Slow Flight (AMEL and AMES)
- B. Power-Off Stalls (AMEL and AMES)
- C. Power-On Stalls (AMEL and AMES)
- D. Spin Awareness (AMEL and AMES)

#### VIII. EMERGENCY OPERATIONS

- A. Emergency Descent (AMEL and AMES)
- B. Engine Failure During Takeoff Before  $V_{MC}$  (Simulated) (AMEL and AMES)
- C. Engine Failure After Lift-Off (Simulated) (AMEL and AMES)
- D. Approach and Landing with an Inoperative Engine (Simulated) (AMEL and AMES)
- E. Systems and Equipment Malfunctions (AMEL and AMES)
- F. Emergency Equipment and Survival Gear (AMEL and AMES)

**IX. HIGH ALTITUDE OPERATIONS**

- A.** Supplemental Oxygen (AMEL and AMES)
- B.** Pressurization (AMEL and AMES)

**X. MULTIENGINE OPERATIONS**

- A.** Maneuvering with One Engine Inoperative (AMEL and AMES)
- B.** Vmc Demonstration (AMEL and AMES)
- C.** Engine Failure During Flight (by Reference to Instruments) (AMEL and AMES)
- D.** Instrument Approach—One Engine Inoperative (by Reference to Instruments) (AMEL and AMES)

**XI. POSTFLIGHT PROCEDURES**

- A.** After Landing, Parking, and Securing (AMEL and AMES)
- B.** Anchoring (AMES)
- C.** Docking and Mooring (AMES)
- D.** Ramping/Beaching (AMES)



## SECTION 3 – MULTI-ENGINE STS

### I. AREA OF OPERATION: PREFLIGHT PREPARATION

**NOTE:** The examiner shall develop a scenario based on real time weather to evaluate TASKs C and D.

#### A. TASK: CERTIFICATES AND DOCUMENTS (AMEL and AMES)

REFERENCES: Nig. CARs parts 2, 5 and 8, POH/AFM.

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

1. Explaining—
  - a. commercial pilot licence 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.
  - d. weight and balance data and equipment list.

#### B. TASK: AIRWORTHINESS REQUIREMENTS (AMEL and AMES)

REFERENCES: Nig. CARs Part 8;

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

3. Explaining—
  - d. required instruments and equipment for day/night VFR.
  - e. procedures and limitations for determining airworthiness of the airplane with inoperative instruments and equipment with and without an MEL.
  - f. requirements and procedures for obtaining a special flight permit.
4. Locating and explaining—
  - e. airworthiness directives.
  - f. compliance records.
  - g. maintenance/inspection requirements.
  - h. appropriate record keeping.

#### C. TASK: WEATHER INFORMATION (AMEL and AMES)

REFERENCES: Nig. CARs Part 8;

**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—
  - h. METAR, TAF, and FA.

- i. surface analysis chart.
- j. radar summary chart.
- k. winds and temperature aloft chart.
- l. significant weather prognostic charts.
- m. convective outlook chart.
- n. AWOS, ASOS, and ATIS reports.

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

**D. TASK: CROSS-COUNTRY FLIGHT PLANNING (AMEL and AMES)**

REFERENCES: Nig. CARs Part 8;

**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 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.
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 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 NOTAMs, A/FD, and other flight publications.
9. Completes a navigation log and simulates filing a VFR flight plan.

**E. TASK: NATIONAL AIRSPACE SYSTEM (AMEL and AMES)**

REFERENCES: Nig. CARs Part 8;

**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 airplane 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.

**F. TASK: PERFORMANCE AND LIMITATIONS (AMEL and AMES)**

REFERENCES: POH/AFM.

**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 airplane'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 airplane's performance.

**G. TASK: OPERATION OF SYSTEMS (AMEL and AMES)**

REFERENCES: POH/AFM.

**Objective.** To determine that the applicant exhibits knowledge of the elements related to the operation of systems on the airplane 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.

**H. TASK: PRINCIPLES OF FLIGHT—ENGINE INOPERATIVE (AMEL and AMES)**

REFERENCES: POH/AFM.

**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  $V_{MC}$  demonstration.
3. effects of airplane weight and center of gravity on control.
4. effects of angle of bank on  $V_{MC}$ .
5. relationship of  $V_{MC}$  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.

**I. TASK: WATER AND SEAPLANE CHARACTERISTICS (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.
  - 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.

**J. TASK: SEAPLANE BASES, MARITIME RULES, AND AIDS TO MARINE NAVIGATION (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:

5. How to locate and identify seaplane bases on charts or in directories.
6. Operating restrictions at various bases.
7. Right-of-way, steering, and sailing rules pertinent to seaplane operation.
8. Marine navigation aids, such as buoys, beacons, lights, and sound signals.

**K. TASK: AEROMEDICAL FACTORS (AMEL and 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.
4. The effects of alcohol, drugs, and over-the-counter medications.
5. The effects of excess nitrogen during scuba dives upon a pilot or passenger in flight.

## II. AREA OF OPERATION: PREFLIGHT PROCEDURES

### A. TASK: PREFLIGHT INSPECTION (AMEL and AMES)

REFERENCES: POH/AFM.

**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 airplane with reference to an appropriate checklist.
3. Verifies that the airplane is in condition for safe flight.

### B. TASK: COCKPIT MANAGEMENT (AMEL and AMES)

REFERENCES: POH/AFM.

**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.

### C. TASK: ENGINE STARTING (AMEL and AMES)

REFERENCES: POH/AFM.

**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 airplane properly considering structures, surface conditions, other aircraft, and the safety of nearby persons and property.
3. Utilizes the appropriate checklist for starting procedure.

### D. TASK: TAXIING (AMEL)

REFERENCES: POH/AFM.

**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 airplane 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 airport/taxiway markings, signals, ATC clearances, and instructions.
6. Taxies so as to avoid other aircraft and hazards.

### E. TASK: TAXIING AND SAILING (AMES)

REFERENCES: POH/AFM.

**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.
6. Prevents and corrects for porpoising and skipping.
7. Avoids other aircraft, vessels, and hazards.
8. Complies with seaplane base signs, signals, and clearances.

**F. TASK: BEFORE TAKEOFF CHECK (AMEL and AMES)**

REFERENCES: POH/AFM.

**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 airplane 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 airplane 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.

**III. AREA OF OPERATION: AIRPORT AND SEAPLANE  
BASE OPERATIONS**

**A. TASK: RADIO COMMUNICATIONS AND ATC LIGHT SIGNALS (AMEL and AMES)**

REFERENCES: Nig. CARs Part 8;

**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.

**B. TASK: TRAFFIC PATTERNS (AMEL and AMES)**

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

1. Exhibits knowledge of the elements related to traffic patterns. This shall include procedures at airports 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.

**C. TASK: AIRPORT/SEAPLANE BASE, RUNWAY, AND TAXIWAY SIGNS, MARKINGS, AND LIGHTING (AMEL and AMES)**

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

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

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

**A. TASK: NORMAL AND CROSSWIND TAKEOFF AND CLIMB (AMEL and AMES)**

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

REFERENCES: POH/AFM.

**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 airplane 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  $V_Y$ .
7. Establishes a pitch attitude that will maintain  $V_Y \pm 5$  knots.
8. Retracts the landing gear, if appropriate, and flaps after a positive rate of climb is established.
9. Maintains takeoff power and  $V_Y \pm 5$  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.

**B. TASK: NORMAL AND CROSSWIND APPROACH AND LANDING (AMEL and AMES)**

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

REFERENCES: POH/AFM.

**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  $1.3 V_{SO}$ ,  $\pm 5$  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 airplane'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.

**C. TASK: SHORT-FIELD TAKEOFF (CONFINED AREA—AMEL) AND MAXIMUM PERFORMANCE CLIMB (AMEL and AMES)**

REFERENCES: POH/AFM.

**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; taxis into takeoff position utilizing maximum available takeoff area and aligns the airplane 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  $V_x$ .
8. Establishes a pitch attitude that will maintain the recommended obstacle clearance airspeed, or  $V_x$ ,  $+5/-0$  knots, until the obstacle is cleared, or until the airplane is 50 feet (20 meters) above the surface.
9. After clearing the obstacle, establishes the pitch attitude for  $V_Y$ , accelerates to  $V_Y$ , and maintains  $V_Y$ ,  $\pm 5$  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  $V_Y \pm 5$  knots to a safe maneuvering altitude.
12. Maintains directional control and proper wind-drift correction throughout the takeoff and climb.
13. Completes appropriate checklist.



**D. TASK: SHORT-FIELD (CONFINED AREA—AMES) APPROACH AND LANDING (AMEL and AMES)**

REFERENCES: POH/AFM.

**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  $1.3 V_{SO}$ ,  $\pm 5$  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 airplane'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.

**E. TASK: GLASSY WATER TAKEOFF AND CLIMB (AMES)**

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

REFERENCES: POH/AFM.

**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.
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  $V_Y$ ,  $\pm 5$  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  $V_Y \pm 5$  knots to a safe maneuvering altitude.
10. Maintains directional control and proper wind-drift correction throughout takeoff and climb.
11. Completes the appropriate checklist.

**F. TASK: GLASSY WATER APPROACH AND LANDING (AMES)**

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

REFERENCES: POH/AFM.

**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.
10. Completes the appropriate checklist.

**G. TASK: ROUGH WATER TAKEOFF AND CLIMB (AMES)**

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

REFERENCES: POH/AFM.

**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 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  $V_y$ ,  $\pm 5$  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  $V_y \pm 5$  knots to a safe maneuvering altitude.
9. Maintains directional control and proper wind-drift correction throughout takeoff and climb.
10. Completes the appropriate checklist.

**H. TASK: ROUGH WATER APPROACH AND LANDING (AMES)**

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

REFERENCES: POH/AFM.

**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  $1.3 V_{SO} \pm 5$  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.

**I. TASK: GO-AROUND/REJECTED LANDING (AMEL and AMES)**

REFERENCES: POH/AFM.

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

1. Exhibits knowledge of the elements related to a go-around/rejected landing.
2. Makes a timely decision to discontinue the approach to landing.
3. Applies takeoff power immediately and transitions to climb pitch attitude for  $V_Y$  and maintains  $V_Y \pm 5$  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  $V_Y \pm 5$  knots to a safe maneuvering altitude.
8. Maintains directional control and proper wind-drift correction throughout the climb.
9. Completes the appropriate checklist.

**V. AREA OF OPERATION: PERFORMANCE MANEUVER**

**TASK: STEEP TURNS (AMEL and AMES)**

REFERENCES: POH/AFM.

**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  $V_A$ .
3. Rolls into a coordinated  $360^\circ$  steep turn with at least a  $50^\circ$  bank, followed by a  $360^\circ$  steep turn in the opposite direction.
4. Divides attention between airplane control and orientation.
5. Maintains the entry altitude,  $\pm 100$  feet (30 meters), airspeed,  $\pm 10$  knots, bank,  $\pm 5^\circ$ ; and rolls out on the entry heading,  $\pm 10^\circ$ .

**VI. AREA OF OPERATION: NAVIGATION**

**A. TASK: PILOTAGE AND DEAD RECKONING (AMEL and 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 airplane'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,  $\pm 10^\circ$ .

**B. TASK: NAVIGATION SYSTEMS AND RADAR SERVICES (AMEL and 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 airplane'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,  $\pm 10^\circ$ .

**C. TASK: DIVERSION (AMEL and AMES)**

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

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

**D. TASK: LOST PROCEDURES (AMEL and 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.

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

### A. TASK: MANEUVERING DURING SLOW FLIGHT (AMEL and AMES)

REFERENCES: POH/AFM.

**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 airplane 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,  $\pm 5^\circ$ .

### B. TASK: POWER-OFF STALLS (AMEL and AMES)

REFERENCES: POH/AFM.

**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 airplane.
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  $V_X$  or  $V_Y$  speed before the final flap retraction; returns to the altitude, heading, and airspeed specified by the examiner.

**C. TASK: POWER-ON STALLS (AMEL and AMES)**

REFERENCES: POH/AFM.

**NOTE:** In some high performance airplanes, 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° nose up).

**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.
9. Establishes the takeoff or departure configuration. Sets power to no less than 65 percent available power.
10. Transitions smoothly from the takeoff or departure attitude to a pitch attitude that will induce a stall.
11. 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.
12. 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 airplane.
13. Retracts flaps to the recommended setting, retracts the landing gear if retractable, after a positive rate of climb is established.
14. Accelerates to  $V_X$  or  $V_Y$  speed before the final flap retraction; returns to the altitude, heading, and airspeed specified by the examiner.

**D. TASK: SPIN AWARENESS (AMEL and AMES)**

REFERENCES: POH/AFM.

**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.

**VIII. AREA OF OPERATION: EMERGENCY OPERATIONS**

**NOTE:** 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. 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.

**A. TASK: EMERGENCY DESCENT (AMEL and AMES)**

REFERENCES: POH/AFM.

**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.

**B. TASK: ENGINE FAILURE DURING TAKEOFF BEFORE  $V_{MC}$  (SIMULATED)** (AMEL and AMES)

REFERENCES: POH/AFM.

**NOTE:** Engine failure (simulated) shall be accomplished before reaching 50 percent of the calculated  $V_{MC}$ .

**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  $V_{MC}$ .
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.

**C. TASK: ENGINE FAILURE AFTER LIFT-OFF (SIMULATED)** (AMEL and AMES)

REFERENCES: POH/AFM.

**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  $V_{YSE}$ ; If obstructions are present, establishes  $V_{XSE}$  or  $V_{MC} + 5$  knots, whichever is greater, until obstructions are cleared. Then transitions to  $V_{YSE}$ .
6. Banks toward the operating engine as required for best performance.
7. Monitors operating engine and makes adjustments, as necessary.
8. Recognizes the airplane's performance capabilities. If a climb is not possible at  $V_{YSE}$ , maintain  $V_{YSE}$  and return to the departure airport for landing, or initiates an approach to the most suitable landing area available.
9. Secures the (simulated) inoperative engine.
10. Maintains heading,  $\pm 10^\circ$ , and airspeed,  $\pm 5$  knots.
11. Completes appropriate emergency checklist.

**D. TASK: APPROACH AND LANDING WITH AN INOPERATIVE ENGINE (SIMULATED)** (AMEL and AMES)

REFERENCES: POH/AFM.

**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 airplane'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.

**E. TASK: SYSTEMS AND EQUIPMENT MALFUNCTIONS (AMEL and AMES)**

REFERENCES: POH/AFM.

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

1. Exhibits knowledge of the elements related to systems and equipment malfunctions appropriate to the airplane provided for the skill test.
2. Analyzes the situation and takes appropriate action for simulated emergencies appropriate to the airplane provided for the skill test for at least five (5) of the following—
  - 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. inadvertent door or window opening.
  - l. structural icing.
  - m. smoke/fire/engine compartment fire.
  - n. any other emergency appropriate to the airplane.
3. Follows the appropriate checklist or procedure.

**F. TASK: EMERGENCY EQUIPMENT AND SURVIVAL GEAR (ASEL and ASES)**

REFERENCES: POH/AFM.

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

Exhibits knowledge of the elements related to emergency equipment and survival gear appropriate to the airplane and environment encountered during flight. Identifies appropriate equipment that should be aboard the airplane.

**IX. AREA OF OPERATION: HIGH ALTITUDE OPERATIONS**

**A. TASK: SUPPLEMENTAL OXYGEN (AMEL and AMES)**

REFERENCES: Nig. CARs Part 8; POH/AFM.

**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 airplanes.
2. Identification and differences between “aviators” breathing oxygen” and other types.
3. Operational characteristics of continuous flow, demand, and pressure-demand oxygen systems.

**B. TASK: PRESSURIZATION (AMEL and AMES)**

REFERENCES: POH/AFM.

**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 airplanes with pressurized cabins.
- c. physiological hazards associated with high altitude flight and decompression.

**NOTE:** Element 2 applies only if the airplane provided for the skill test is equipped for pressurized flight operations.

- 2. Operates the pressurization system properly, and reacts appropriately to simulated pressurization malfunctions.

b.

## **X. AREA OF OPERATION: MULTIENGINE OPERATIONS**

**NOTE:** If the applicant is instrument rated, and has previously demonstrated instrument proficiency in a multiengine airplane or does not hold an instrument rating airplane, TASKs D and C need not be accomplished.

### **A. TASK: MANEUVERING WITH ONE ENGINE INOPERATIVE (AMEL and AMES)**

REFERENCES POH/AFM.

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

**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.
- 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  $\pm 10^\circ$ .
- 10. Completes the appropriate checklists.

### **B. TASK: $V_{MC}$ DEMONSTRATION (AMEL and AMES)**

REFERENCES: POH/AFM.

**NOTE #1** An applicant seeking an airplane—multiengine land (AMEL) rating, "Limited to Center Thrust," is not required to be evaluated on this TASK.

**NOTE #2** Airplanes 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  $V_{MC}$  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 airplane control.

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

1. Exhibits knowledge of the elements related to  $V_{MC}$  by explaining the causes of loss of directional control at airspeeds less than  $V_{MC}$ , the factors affecting  $V_{MC}$ , and safe recovery procedures.
2. Configures the airplane at  $V_{SSE}/V_{YSE}$ , 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  $V_{SSE}$  or  $V_{YSE}$ , 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.
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  $20^\circ$  of the entry heading.
9. Advances power smoothly on operating engine and accelerates to  $V_{XSE}/V_{YSE}$ , as appropriate,  $\pm 5$  knots, during the recovery.

**C. TASK: ENGINE FAILURE DURING FLIGHT (By Reference to Instruments) (AMEL and AMES)**

REFERENCES: Nig. CARs Part 2;

**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).

**D. TASK: INSTRUMENT APPROACH—ONE ENGINE INOPERATIVE (By Reference to Instruments) (AMEL and AMES)**

REFERENCES: Nig. CARs Part 2;

**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 ACA or DH/DA, with the airplane 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. For RMI or ADF indicators, within  $10^\circ$  of the course.
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.

## **XI. AREA OF OPERATION: POSTFLIGHT PROCEDURES**

**NOTE:** The examiner shall select TASK A and for AMES applicants at least one other TASK.

### **A. TASK: AFTER LANDING, PARKING, AND SECURING (AMEL and AMES)**

REFERENCES: POH/AFM.

**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.

### **B. TASK: ANCHORING (AMES)**

REFERENCES: POH/AFM.

**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.

### **C. TASK: DOCKING AND MOORING (AMES)**

REFERENCES: POH/AFM.

**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: RAMPING/BEACHING (AMES)**

REFERENCES: POH/AFM.

**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 level.

**APPENDIX 1**

**TASK VS. SIMULATION DEVICE CREDIT  
AIRPLANE SINGLE-ENGINE LAND**

## **AIRPLANE SINGLE-ENGINE LAND TASK VS. SIMULATION DEVICE CREDIT**

Examiners conducting the Commercial Pilot–Airplane Skill Tests with flight simulation devices should consult appropriate documentation to ensure that the device has been approved for training, testing, or checking. The documentation for each device should reflect that the following activities have occurred:

1. The device must be evaluated, determined to meet the appropriate standards, and assigned the appropriate qualification level . The device must continue to meet qualification standards through continuing evaluations
2. The NCAA must approve the device for training, testing, and checking the specific flight TASKs listed in this appendix.
3. The device must continue to support the level of student or applicant performance required by this PTS.

**NOTE:** Users of the following chart are cautioned that use of the chart alone is incomplete. The description and objective of each TASK as listed in the body of the PTS, including all notes, must also be incorporated for accurate simulation device use.

### **A.2 USE OF CHART**

- X** Creditable.
- A** Creditable if appropriate systems are installed and operating.
- \*** Asterisk items require use of FTD or simulator visual reference.

#### **NOTES:**

1. Use of Level 2 or Level 3 FTDs authorized only for those airplanes not requiring a type rating.
2. For skill tests, not more than 50 % of the maneuvers may be accomplished in an FTD or simulator UNLESS:
  - a. each maneuver has been satisfactorily accomplished for an instructor, in the appropriate airplane, not less than three (3) times, OR
  - b. the applicant has logged not less than 500 hours of flight time as a pilot in airplanes.
3. . Not all AREAS OF OPERATION (AOO) and TASKs required by this PTS are listed in the appendix. The remaining AOO and TASKs must be accomplished in an airplane.

### A.3 FLIGHT SIMULATION TRAINING DEVICE LEVEL

Areas of Operation	1	2	3	4	5	6	7	A	B	C	D
<b>II. Preflight Procedures</b>											
A. Preflight Inspection (Cockpit Only)	--	A	X	A	A	X	X	X	X	X	X
B. Cockpit Management	--	A	X	A	A	X	X	X	X	X	X
C. Engine starting	--	A	X	A	A	X	X	X	X	X	X
D. Taxiing	--	--	--	--	--	--	--	--	--	X	X
E. Before Takeoff Check	--	A	X	A	A	X	X	X	X	X	X
<b>IV. Takeoffs, Landings and Go-Arounds</b>											
A. Normal and Crosswind Takeoff and Climb	-	--	--	--	--	--	--	--	--	X	X
B. Normal and Crosswind Approach and Landing	--	--	--	--	--	--	--	--	--	X	X
E. Short-Field Takeoff and Climb	--	--	--	--	--	--	--	X	X	X	X
F. Short-Field Approach and Landing	--	--		--	--					X	X
G. Go-Around*	--	--	X	--	--	X	X	X	X	X	X
<b>V. Performance Maneuvers</b>											
A. Steep Turns	--	--	X	--	--	X	X	X	X	X	X
<b>VII. Navigation*</b>											
B. Navigation Systems and ATC Radar Services	--	A	--	--	A	X	X	X	X	X	X
C. Diversion	--	A	X	--	A	X	X	X	X	X	X
D. Lost Procedures	--	A	X	--	A	X	X	X	X	X	X
<b>VIII. Slow Flight and Stalls</b>											
A. Maneuvering During Slow Flight	--	--	X	--	--	X	X	X	X	X	X
<b>IX. Emergency Operations</b>											
A. Emergency Descent	--	--	X	--	--	X	X	X	X	X	X
B. Emergency Approach and Landing	--	--	--	--	--	--	--	--	--	X	X
C. Systems and Equipment Malfunctions	--	A	X	A	A	X	X	X	X	X	X
D. Loss of Gyro Attitude and/or Heading Indicators	--	--	--	--	--	X	X	X	X	X	X
<b>X High Altitude Operations</b>											
B. Pressurization	--	A	X	A	A	X	X	X	X	X	X
<b>XI. Postflight Procedures</b>											
A. After Landing	--	A	X	A	A	X	X	X	X	X	X

FLIGHT TASK

FLIGHT SIMULATION DEVICE LEVEL

\* Aircraft required for those items that cannot be checked using a flight training device or flight simulator.

**Appendix 2**

**TASK VS. SIMULATION DEVICE CREDIT  
AIRPLANE MULTIENGINE LAND**



**AIRPLANE MULTIENGINE LAND  
TASK VS. SIMULATION DEVICE CREDIT**

Examiners conducting the Commercial Pilot–Airplane Skill Tests with flight simulation devices should consult appropriate documentation to ensure that the device has been approved for training, testing, or checking. The documentation for each device should reflect that the following activities have occurred:

1. The device must be evaluated, determined to meet the appropriate standards, and assigned the appropriate qualification level. The device must continue to meet qualification standards through continuing evaluations.
2. The NCAA must approve the device for training, testing, and checking the specific flight TASKs listed in this appendix.
3. The device must continue to support the level of student or applicant performance required by the PTS.

**NOTE:** Users of the following chart are cautioned that use of the chart alone is incomplete. The description and objective of each TASK as listed in the body of the PTS, including all notes, must also be incorporated for accurate simulation device use.

**USE OF CHART**

- X** Creditable.
- A** Creditable if appropriate systems are installed and operating.
- \*** Asterisk items require use of FTD or Simulator visual reference.

**NOTES:**

1. Use of Level 2 or Level 3 FTDs authorized only for those airplanes not requiring a type rating.
2. For skill tests, not more than 50 % of the maneuvers may be accomplished in an FTD or simulator UNLESS:
  - a. each maneuver has been satisfactorily accomplished for an instructor, in the appropriate airplane, not less than three (3) times, OR
  - b. the applicant has logged not less than 500 hours of flight time as a pilot in airplanes.
3. Not all AREAS OF OPERATION (AOO) and TASKs required by this PTS are listed in the appendix. The remaining AOO and TASKs must be accomplished in an airplane.
4. Standards for and use of Level 1 FTDs have not been determined.

Areas of Operation	1	2	3	4	5	6	7	A	B	C	D
<b>II. Preflight Procedures</b>											
A. Preflight Inspection (Cockpit Only)	--	A	X	A	A	X	X	X	X	X	X
B. Cockpit Management	--	A	X	A	A	X	X	X	X	X	X
C. Engine starting	--	A	X	A	A	X	X	X	X	X	X
D. Taxiing	--	--	--	--	--	--	--	--	--	X	X
E. Before Takeoff Check	--	A	X	A	A	X	X	X	X	X	X
<b>IV. Takeoffs, Landings and Go-Arounds</b>											
A. Normal and Crosswind Takeoff and Climb	-	--	--	--	--	--	--	--	--	X	X
B. Normal and Crosswind Approach and Landing	--	--	--	--	--	--	--	--	--	X	X
E. Short-Field Takeoff and Climb	--	--	--	--	--	--	--	X	X	X	X
F. Short-Field Approach and Landing	--	--	--	--	--	--	--	--	--	X	X
G. Go-Around*	--	--	X	--	--	X	X	X	X	X	X
<b>V. Performance Maneuvers</b>											
A. Steep Turns	--	--	X	--	--	X	X	X	X	X	X
<b>VI. Navigation*</b>											
B. Navigation Systems and ATC Radar Services	--	A	--	--	A	X	X	X	X	X	X
C. Diversion	--	A	X	--	A	X	X	X	X	X	X
D. Lost Procedures	--	A	X	--	A	X	X	X	X	X	X
<b>VII. Slow Flight and Stalls</b>											
A. Maneuvering During Slow Flight	--	--	X	--	--	X	X	X	X	X	X
<b>VIII. Emergency Operations</b>											
A. Emergency Descent	--	--	X	--	--	X	X	X	X	X	X
B. Maneuvering with One Engine Inoperative	--	--	--	--	--	--	--	X	X	X	X
C. Engine Inoperative – Loss of Directional Control Demonstration	--	--	--	--	--	--	--	X	X	X	X
D. Engine Failure During Takeoff Before V <sub>MC</sub>	--	--	--	--	--	--	--	X	X	X	X
E. Engine Failure After Lift-Off (simulated)	--	--	--	--	--	--	--	X	X	X	X
F. Approach and Landing with an Inoperative Engine (simulated)	--	--	--	--	--	--	--	X	X	X	X
G. Systems and Equipment Malfunctions	--	A	X	A	A	X	X	X	X	X	X
<b>IX. Multiengine Operations</b>											
A. Engine Failure During Flight (by reference to instruments)	--	--	X	--	--	X	X	X	X	X	X
B. Instrument Approach – All Engines Operating (by reference to instruments)	--	--	X	--	--	X	X	X	X	X	X
C. Instrument Approach – One Engine Inoperative (by reference to instruments)	--	--	--	--	--	--	--	X	X	X	X
<b>X High Altitude Operations</b>											
B. Pressurization	--	A	X	A	A	X	X	X	X	X	X
<b>XI. Postflight Procedures</b>											
A. After Landing	--	A	X	A	A	X	X	X	X	X	X

**A.3 FLIGHT SIMULATION TRAINING DEVICE LEVEL**

**FLIGHT TASK**

**FLIGHT SIMULATION DEVICE LEVEL**

\* Aircraft required for those items that cannot be checked using a flight training device or flight simulator.