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**SUBJECT: SKILL TEST STANDARDS (STS) FOR COMMERCIAL PILOT LICENCE (A)**

**DATE: 07/08/2015**

## **1. PURPOSE**

A. The Civil Aviation Authority (AAC) has developed this skill test circular as the standard that shall be used by AAC inspectors and designated pilot examiners when conducting commercial pilot—airplane 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.

## **2. RELATED CV CAR's:**

CV CAR 2.1 - Personnel Licensing  
CV CAR 8 - Operations.  
CV CAR 9 – Air Operator Certification and Administration

## **3. DISCUSSION:**

A. The AAC has developed this document as the standard that shall be used by AAC inspectors and designated pilot examiners when conducting commercial pilot—airplane skill tests. Flight instructors, checkairmen and examiners 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.

B. Information considered directive in nature is described in this skill test document 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. Should changes to the skill test standards in this circular be required, they will be available on AAC’s website and then later incorporated into a printed revision of this circular which may be obtained at AAC Personnel Licensing Office (PEL).

## **4. SKILL TEST STANDARD CONCEPT:**

A. CV CAR Part 2.1 specifies the AREAS OF OPERATION in which knowledge and skill must be demonstrated by the applicant before the issuance of a commercial pilot licence or rating. The CV CARs provide the flexibility to permit the AAC to publish skill test standards containing the AREAS OF OPERATION and specific TASKs in which pilot competency shall be demonstrated. The AAC shall revise this document whenever it is determined that changes are needed in the interest of safety. ***Adherence to the provisions of the regulations and the skill test standards is mandatory for the evaluation of commercial pilot applicants.***

## **5. SKILL TEST DOCUMENT DESCRIPTION:**

A. This test document contains the following Commercial Pilot—Aeroplane Skill test Standards:

## Section 1 —Multiengine Land

The Commercial Pilot Skill test Standards—Aeroplane includes the AREAS OF OPERATION and TASKs for the issuance of an initial CPL and for the addition of category ratings and/or class ratings to that licence.

### 6. SKILL TEST STANDARDS DESCRIPTION:

A. AREAS OF OPERATION are phases of the skill test arranged in a logical sequence within each standard. They begin with Preflight Preparation and end with Postflight Procedures. The examiner, however, may conduct the skill test in any sequence that will result in a complete and efficient test; **however, the ground portion of the skill test shall be accomplished before the flight portion.**

B. TASKs are titles of knowledge areas, flight procedures, or manoeuvres appropriate to an AREA OF OPERATION. The abbreviation(s) within parentheses immediately following a TASK refer to the category and/or class aircraft appropriate to that TASK.

C. REFERENCE identifies the publication(s) that describe(s) the TASK. Descriptions of TASKs are not included in these standards because this information can be found in the current issue of the listed reference. Publications other than those listed may be used for references if their content conveys substantially the same meaning as the referenced publications.

C. These skill test standards are based on the following references.

CV CAR Part 2.1, § 2.1.C.500,  
Implementing Standard (IS): § 2.1.C.515

D. The Objective lists the elements that must be satisfactorily performed to demonstrate competency in a TASK. The Objective includes:

1. Specifically what the applicant should be able to do;
2. Conditions under which the TASK is to be performed; and
3. Acceptable performance standards.

### 7. USE OF THE SKILL TEST STANDARDS IN THIS AC:

A. The AAC requires that all commercial pilot skill tests be conducted in accordance with the appropriate commercial skill test standards and the policies set forth in the INTRODUCTION. Applicants shall be evaluated in **ALL** TASKs included in each AREA OF OPERATION of the appropriate skill test standard, unless otherwise noted.

B. An applicant, who holds at least a CPL seeking an additional aeroplane 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 Table. At the discretion of the examiner, an evaluation of the applicant's competence in the remaining AREAS OF OPERATION and TASKs may be conducted.

**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.**

C. In preparation for each skill test, the examiner shall develop a written “plan of action.” The “plan of action” shall include all TASKs in each AREA OF OPERATION, unless noted otherwise. If the elements in one TASK have already been evaluated in another TASK, they need not be repeated.

For example, the “plan of action” need not include evaluating the applicant on complying with markings, signals, and clearances at the end of the flight, if that element was sufficiently observed at the beginning of the flight. **Any TASK selected for evaluation during a skill test shall be evaluated in its entirety.**

D. The examiner is not required to follow the precise order in which the AREAS OF OPERATION and TASKs appear in this document. 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, Radio Communications and ATC Light Signals may be combined with Traffic Patterns. The examiner’s “plan of action” shall include the order and combination of TASKs to be demonstrated by the applicant in a manner that will result in an efficient and valid test.

E. 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 manoeuvre.

## **8. SPECIAL EMPHASIS AREAS**

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

1. positive aircraft control;
2. positive exchange of the flight controls procedure (who is flying the aeroplane);
3. stall/spin awareness;
4. collision avoidance;
5. wake turbulence avoidance;
6. Land and Hold Short Operations (LAHSO);
7. runway incursion avoidance;
8. controlled flight into terrain (CFIT);
9. aeronautical decision making (ADM);
10. checklist usage; and
11. other areas deemed appropriate to any phase of the skill test.

B. 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.** In all instances, the applicant’s actions will relate to the complete situation.

### **Removal of the “Aeroplane Multiengine VFR Only” Limitation**

The removal of the “Aeroplane Multiengine VFR Only” limitation, at the CPL level, requires an applicant to satisfactorily perform the following AREAS OF OPERATION and TASKs from the commercial AMEL and AMES STS in a multiengine aeroplane that has a manufacturer’s published VMC 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)

## **9. Removal of the “Limited to Centre Thrust” Limitation**

A. The removal of the “Limited to Centre Thrust” limitation at the CPL level requires an applicant to satisfactorily perform the following AREAS OF OPERATION and TASKs in a multiengine aeroplane that has a manufacturer’s published VMC 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 VMC (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: MANOEUVRING WITH ONE ENGINE NOPERATIVE

TASK B: VMC DEMONSTRATION

**10. COMMERCIAL PILOT—AEROPLANE SKILL TEST PREREQUISITES:**

A. An applicant for the Commercial Pilot—Aeroplane Skill test is required by CV CAR Part 2.1 to:

1. be at least 18 years of age;
2. be able to read, speak, write, and understand the English language.
3. possess a private pilot licence with an aeroplane rating, if a CPL with an aeroplane rating is sought, or meet the flight experience required for a commercial pilot licence (aeroplane rating);
4. possess an instrument rating (aeroplane) or the following limitation shall be placed on the commercial pilot licence: “Carrying passengers in aeroplanes for hire is prohibited at night or on cross-country flights of more than 50 nautical miles;”
5. have passed the appropriate commercial pilot knowledge test since the beginning of the 24th month before the month in which he or she takes the skill test;
6. have satisfactorily accomplished the required training and obtained the aeronautical experience prescribed;
7. possess a current first class medical licence;
8. have an endorsement from an authorised instructor certifying that the applicant has received and logged training time within 60 days preceding the date of application in preparation for the skill test, and is prepared for the skill test; and
9. also have an endorsement certifying that the applicant has demonstrated satisfactory knowledge of the subject areas in which the applicant was deficient on the airman knowledge test.

**11. AIRCRAFT AND EQUIPMENT REQUIRED FOR THE SKILL TEST:**

A. The commercial pilot—aeroplane applicant is required by CV CAR Part 2.1, to provide an airworthy, licensed aeroplane for use during the skill test. This section further requires that the aircraft must:

1. be of National or foreign registry of the same category, class, and type, if applicable, for the licence and/or rating for which the applicant is applying;
2. have fully functioning dual controls and 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
3. be a complex aeroplane furnished by the applicant, unless the applicant currently holds a CPL with a multiengine class rating as appropriate, for the performance of takeoffs, landings, and appropriate emergency procedures.

## 12. USE OF APPROVED SYNTHETIC FLIGHT TRAINERS:

A. An applicant for a commercial pilot -aeroplane licence may be authorised to use a synthetic flight trainer approved by the Licencing Authority to complete certain flight TASK requirements listed in this STS. An applicant seeking an added rating to a commercial pilot licence may also use a qualified, approved and appropriate synthetic flight trainer to complete certain flight task requirements in accordance with Annex A and 2 of this STS.

B. Examiners conducting CPL-Aeroplane skill tests with synthetic flight trainers shall consult appropriate AAC documentation to ensure that the specific synthetic flight trainer has been approved for training, testing, or checking. Documentation for each synthetic flight trainer should reflect at least the following:

1. The synthetic flight trainer has been evaluated and approved by the Licencing Authority and determined to be appropriate for testing on specifically identified skill test tasks.
2. The synthetic flight trainer shall continue to be suitable for testing specific skill test tasks through continuing evaluations conducted by the Licencing Authority.
3. The synthetic flight trainer shall continue to support the level of student or applicant performance required by this STS.

C. The description and objective of each TASK as listed in the body of this STS, including all notes, shall be incorporated into the synthetic flight trainer approval document.

D. An appropriate class aeroplane may be required to complete the remaining flight TASKs of a skill test. 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 synthetic flight trainer, 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, etc. However, when the same emergency condition is addressed in a synthetic flight, all TASK elements must be accomplished as would be expected under actual circumstances.

Similarly, safety of flight precautions taken in the aircraft for the accomplishment of a specific manoeuvre 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 synthetic flight trainer is used.

Synthetic trainers as defined by ICAO Annex 1, Personnel Licencing, are any one of the following three types of apparatus in which flight conditions are simulated on the ground: *A Flight Simulator, a Flight Procedures Trainer or a Basic Instrument Flight Trainer.*

It is important to understand that whether accomplished in an aircraft or synthetic flight trainer, all TASKs and elements for each manoeuvre or procedure shall have the same performance standards applied equally for determination of overall satisfactory performance.

## 13. FLIGHT INSTRUCTOR RESPONSIBILITY:

A. An appropriately rated flight instructor is responsible for training the commercial pilot applicant to acceptable standards in all subject matter areas, procedures, and manoeuvres included in the TASKs within each AREA OF OPERATION in the appropriate commercial pilot skill test standard.

B. 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.

Throughout the applicant's training, the flight instructor is responsible for emphasizing the performance of effective visual scanning and collision avoidance procedures.

#### 14. EXAMINER2 RESPONSIBILITY:

A. 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. This is an ongoing process throughout the test. Oral questioning, to determine the applicant's knowledge of TASKs and related safety factors, should be used judiciously at all times, especially during the flight portion of the skill test. Examiners shall test to the greatest extent practicable the applicant's correlative abilities rather than mere rote enumeration of facts throughout the skill test.

B. 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 skill test process. When practical, the remaining TASKs of the skill test phase should be completed before repeating the questionable TASK.

C. 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 VSSE/VYSE and at an altitude not lower than 200 feet (60 metres) AGL.

D. 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. Throughout the flight portion of the skill test, the examiner shall evaluate the applicant's use of visual scanning and collision avoidance procedures.

#### 15. SATISFACTORY PERFORMANCE:

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

(1) The word "examiner" is used throughout the standards to denote either the AAC inspector or AAC designated pilot examiner who conducts an official skill test.

- 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.

#### 16. UNSATISFACTORY PERFORMANCE:

A. 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.

B. 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 satisfactorily performed. However, during the retest, and at the discretion of the examiner, any TASK may be reevaluated, including those previously passed.

C. Typical areas of unsatisfactory performance and grounds for disqualification are:

1. Any action or lack of action by the applicant that requires corrective intervention by the examiner to maintain safe flight.
2. Failure to use proper and effective visual scanning techniques to clear the area before and while performing manoeuvres.
3. Consistently exceeding tolerances stated in the Objectives.
4. Failure to take prompt corrective action when tolerances are exceeded.

D. When a notice of denial 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 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. i. e.: AREA OF OPERATION VIII, Manoeuvring During Slow Flight, failure to use proper collision avoidance procedures.

### **17. CREW RESOURCE MANAGEMENT (CRM):**

A. CRM refers to the effective use of all available resources: human resources, hardware, and information. Human resources include all groups routinely working with the cockpit crew or pilot who are involved with decisions that are required to operate a flight safely. These groups include, but are not limited to dispatchers, cabin crewmembers, maintenance personnel, air traffic controllers, and weather services. CRM is not a single TASK, but a set of competencies that must be evident in all TASKs in this skill test standard as applied to crew.

### **18. APPLICANT'S USE OF CHECKLISTS:**

A. 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 impractical. 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.

### **19. USE OF DISTRACTIONS DURING SKILL TESTS:**

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

### **20. POSITIVE EXCHANGE OF FLIGHT CONTROLS:**

A. During flight training, there must always be a clear understanding between students and flight instructors 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.

B. When the instructor wishes the student to take control of the aircraft, he or she will say, "You have the flight controls." The student acknowledges immediately by saying, "I have the flight controls." The flight instructor again says, "You have the flight controls." When control is returned to the instructor, 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.

## **21. METRIC CONVERSION INITIATIVE:**

A. To assist pilots in understanding and using the metric measurement system, the skill test standards refer to the metric equivalent of various altitudes throughout. The inclusion of meters is intended to familiarize pilots with its use. The metric altimeter is arranged in 10 meter increments; therefore, when converting from feet to meters, the exact conversion, being too exact for practical purposes, is rounded to the nearest 10 meter increment or even altitude as necessary.

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João dos Reis Monteiro  
President of the board



## ANNEX A

### 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, AAC-Approved
  - Aeroplane Flight Manual

#### PERSONAL EQUIPMENT

- View-Limiting Device
- Current Aeronautical Charts
- Computer or electronic equivalent and Plotter
- Flight Plan Form
- Flight Logs
- Current Air Navigation Directives, Aerodrome Facility Directory, and Appropriate Publications

#### PERSONAL RECORDS

- Identification - Photo/Signature ID
- Pilot Licence
- Current Medical Certificate
- Completed AAC Form FS.PEL.01, Application For Flight Crew Licence, Rating, Authorisation or Validation Certificate with Authorised Instructor's Signature (if applicable)
- Current Aviation Knowledge Test Report
- Pilot Logbook with appropriate Instructor endorsements
- AAC FS.PEL.03, Notice of Disapproval (if applicable)
- Approved Training Organization (ATO) Graduation Certificate (if applicable)
- Examiner's Fee (if applicable)

## EXAMINER'S SKILL TEST CHECKLIST

### AEROPLANE MULTIENGINE LAND

APPLICANT'S NAME:

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LOCATION:

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DATE/TIME:

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#### I. PREFLIGHT PREPARATION

- A. Certificates and Documents
- B. Airworthiness Requirements
- C. Weather Information
- D. Cross-Country Flight Planning
- E. National Airspace System
- F. Performance and Limitations
- G. Operation of Systems
- H. Principles of Flight—Engine Inoperative
- I. Aeromedical Factors

#### II. PREFLIGHT PROCEDURES

- A. Preflight Inspection
- B. Cockpit Management
- C. Engine Starting
- D. Taxiing
- E. Before Takeoff Check

#### III. AERODROME AND SEAPLANE BASE OPERATIONS

- A. Radio Communications and ATC Light Signals
- B. Traffic Patterns
- C. Aerodrome/Seaplane Base, Runway, and Taxiway Signs, Markings, and Lighting

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

- A. Normal and Crosswind Takeoff and Climb
- B. Normal and Crosswind Approach and Landing
- C. Short-Field Takeoff and Maximum Performance Climb
- D. Short-Field Approach and Landing
- E. Go-Around/Rejected Landing

#### V. PERFORMANCE MANOEUVRE

- Steep Turns

#### VI. NAVIGATION

- A. Pilotage and Dead Reckoning
- B. Navigation Systems and Radar Services
- C. Diversion

- D. Lost Procedures

## VII. SLOW FLIGHT AND STALLS

- A. Manoeuvring During Slow Flight
- B. Power-Off Stalls
- C. Power-On Stalls
- D. Spin Awareness

## VIII. EMERGENCY OPERATIONS

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

## IX. HIGH ALTITUDE OPERATIONS

- A. Supplemental Oxygen
- B. Pressurization

## X. MULTIENGINE OPERATIONS

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

## XI. POSTFLIGHT PROCEDURES

- A. After Landing, Parking, and Securing

## **ANNEX B**

### **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**

**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. mass and balance data and equipment list.

#### **B. TASK: AIRWORTHINESS REQUIREMENTS**

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

1. Explaining—
  - a. required instruments and equipment for day/night VFR.
  - b. procedures and limitations for determining airworthiness of the aeroplane with inoperative instruments and equipment with and without an MEL.
  - c. requirements and procedures for obtaining a special flight permit.
2. Locating and explaining—
  - a. airworthiness directives.
  - b. compliance records.
  - c. maintenance/inspection requirements.
  - d. appropriate record keeping.

#### **C. TASK: WEATHER INFORMATION**

**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 PLANNING**

**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 practical 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 favourable 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**

**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 licences, and aeroplane equipment requirements for the following—
  - a. Class A.
  - b. Class B.
  - c. Class C.
  - d. Class D.
  - e. Class E.
  - f. Class G.

3. Special use and other airspace areas.

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

**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 mass and balance. Determines if the computed mass and centre of gravity is within the aeroplane’s operating limitations and if the mass and centre of gravity will remain within limits during all phases of flight.
3. Demonstrates use of the appropriate performance charts, tables, and data.
4. Describes the effects of atmospheric conditions on the aeroplane's performance.

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

**Objective.** To determine that the applicant exhibits knowledge of the elements related to the operation of systems on the aeroplane provided for the practical 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. De-icing and anti-icing.

#### **H. TASK: PRINCIPLES OF FLIGHT—ENGINE INOPERATIVE**

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

1. meaning of the term “critical engine.”
2. effects of density altitude on the VMC demonstration.
3. effects of aeroplane mass and centre of gravity on control.
4. effects of angle of bank on VMC.
5. relationship of VMC to stall speed.
6. reasons for loss of directional control.
7. indications of loss of directional control.
8. importance of maintaining the proper pitch and bank attitude, and the proper coordination of controls.
9. loss of directional control recovery procedure.
10. engine failure during takeoff including planning, decisions, and single-engine operations.

#### **I. TASK: AEROMEDICAL FACTORS**

**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**

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

1. Exhibits knowledge of the elements related to preflight inspection. This shall include which items must be inspected, the reasons for checking each item, and how to detect possible defects.
2. Inspects the aeroplane with reference to an appropriate checklist.
3. Verifies that the aeroplane is in condition for safe flight.

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

**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**

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

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

## **D. TASK: TAXIING**

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

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

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

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

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

## **III. AREA OF OPERATION: AERODROME OPERATIONS**

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

**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/CIRCUTS**

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

1. Exhibits knowledge of the elements related to traffic patterns. This shall include procedures at aerodromes with and without operating control towers, prevention of runway incursions, collision avoidance, wake turbulence avoidance, and wind shear.
2. Complies with proper traffic pattern procedures.
3. Maintains proper spacing from other aircraft.
4. Corrects for wind-drift to maintain proper ground track.
5. Maintains orientation with runway/landing area in use.
6. Maintains traffic pattern altitude  $\pm 100$  feet (30 meters), and appropriate airspeed  $\pm 10$  knots.

## **C. TASK: AERODROME/SEAPLANE BASE, RUNWAY, AND TAXIWAY SIGNS, MARKINGS, AND LIGHTING**

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

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

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

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

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

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

1. Exhibits knowledge of the elements related to normal and crosswind takeoff, climb operations, and rejected takeoff procedures.
2. Positions the flight controls for the existing wind conditions.
3. Clears the area, taxis onto the takeoff surface and aligns the aeroplane on the runway centre/takeoff path.
4. Advances the throttles smoothly to takeoff power.
5. Establishes and maintains the most efficient planning/lift off attitude
6. Lifts off at the recommended airspeed and accelerates to VY.
7. Establishes a pitch attitude that will maintain VY  $\pm 5$  knots.
8. Retracts the landing gear, if appropriate, and flaps after a positive rate of climb is established.
9. Maintains takeoff power and VY  $\pm 5$  knots to a safe manoeuvring 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**

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

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

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

## **C. TASK: SHORT-FIELD TAKEOFF AND MAXIMUM PERFORMANCE CLIMB**

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

1. Exhibits knowledge of the elements related to a short-field 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 aeroplane on the runway centre/takeoff path.
4. Applies brakes (if appropriate) while advancing the throttles smoothly to takeoff power.
5. Establishes and maintains the most efficient planning/lift off attitude
6. Lifts off at the recommended airspeed, and accelerates to recommended obstacle clearance airspeed, or VX.
7. Establishes a pitch attitude that will maintain the recommended obstacle clearance airspeed, or VX,  $+5/-0$  knots, until the obstacle is cleared, or until the aeroplane is 50 feet (20 meters) above the surface.
8. After clearing the obstacle, establishes the pitch attitude for VY, accelerates to VY, and maintains VY,  $\pm 5$  knots, during the climb.
9. Retracts the landing gear, if appropriate, and flaps after clear of any obstacles or as recommended by manufacturer.
10. Maintains takeoff power and VY  $\pm 5$  knots to a safe manoeuvring altitude.
11. Maintains directional control and proper wind-drift correction throughout the takeoff and climb.
12. Completes appropriate checklist.

## **D. TASK: SHORT-FIELD APPROACH AND LANDING**

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

1. Exhibits knowledge of the elements related to a short-field approach and landing.
2. Considers the wind conditions, landing surface, obstructions, and selects the most suitable touchdown point.
3. Establishes the recommended approach and landing configuration and airspeed; adjusts pitch attitude and power as required.

4. Maintains a stabilized approach and recommended approach airspeed, or in its absence, not more than 1.3 VSO,  $\pm 5$  knots, with wind gust factor applied.
5. Makes smooth, timely, and correct control application during the roundout and touchdown.
6. Touches down smoothly at minimum control airspeed.
7. Touches down at or within 100 feet (30 meters) beyond a specified point, with no side drift, minimum float, and with the aeroplane's longitudinal axis aligned with and over the runway centre/landing path.
8. Maintains crosswind correction and directional control throughout the approach and landing sequence.
9. Applies brakes, as necessary, to stop in the shortest distance consistent with safety.
10. Completes appropriate checklist.

## **E. TASK: GO-AROUND/REJECTED LANDING**

**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 VY and maintains VY  $\pm 5$  knots.
4. Retracts flaps, as appropriate.
5. Retracts the landing gear if appropriate after a positive rate of climb is established.
6. Manoeuvres to the side of runway/landing area to clear and avoid conflicting traffic.
7. Maintains takeoff power and VY  $\pm 5$  knots to a safe manoeuvring altitude.
8. Maintains directional control and proper wind-drift correction throughout the climb.
9. Completes the appropriate checklist.

## **V. AREA OF OPERATION: PERFORMANCE MANOEUVRE**

### **A. TASK: STEEP TURNS**

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

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

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

### **A. TASK: PILOTAGE AND DEAD RECKONING**

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

1. Exhibits knowledge of the elements related to pilotage and dead reckoning.
2. Follows the preplanned course by reference to landmarks.
3. Identifies landmarks by relating surface features to chart symbols.
4. Navigates by means of precomputed headings, groundspeed, and elapsed time.
5. Corrects for and records differences between preflight groundspeed and heading calculations and those determined en route.
6. Verifies the aeroplane's position within two (2) nautical miles of flight planned route.

7. Arrives at the en route checkpoints within three (3) minutes of the initial or revised ETA and provides a destination estimate.
8. Maintains appropriate altitude,  $\pm 100$  feet (30 meters), and heading,  $\pm 10^\circ$ .

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

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

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

## **C. TASK: DIVERSION**

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

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

## **D. TASK: LOST PROCEDURES**

**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: MANOEUVRING DURING SLOW FLIGHT**

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

1. Exhibits knowledge of the elements related to manoeuvring during slow flight.
2. Selects an entry altitude that will allow the task to be completed no lower than 3,000 feet (920 meters) AGL.
3. Establishes and maintains an airspeed at which any further increase in angle of attack, increase in load factor, or reduction in power, would result in an immediate stall.
4. Accomplishes coordinated straight-and-level flight, turns, climbs, and descents with landing gear and flap configurations specified by the examiner.
5. Divides attention between aeroplane control and orientation.
6. Maintains the specified altitude,  $\pm 50$  feet (15 meters); specified heading,  $\pm 10^\circ$ ; airspeed  $+5/-0$  knots, and specified angle of bank,  $\pm 5^\circ$ .

## **B. TASK: POWER-OFF STALLS**

**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 levelling the wings to return to a straight-and-level flight attitude with a minimum loss of altitude appropriate for the aeroplane.
7. Retracts the flaps to the recommended setting, retracts the landing gear, if retractable, after a positive rate of climb is established.
8. Accelerates to VX or VY speed before the final flap retraction; returns to the altitude, heading, and airspeed specified by the examiner.

## **C. TASK: POWER-ON STALLS**

**NOTE:** In some high performance aeroplanes, the power setting may have to be reduced below the practical test standards guideline power setting to prevent excessively high pitch attitudes (greater than  $30^\circ$  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.
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 levelling the wings to return to a straight-and-level flight attitude, with a minimum loss of altitude appropriate for the aeroplane.
7. Retracts flaps to the recommended setting, retracts the landing gear if retractable, after a positive rate of climb is established.
8. Accelerates to VX or VY speed before the final flap retraction; returns to the altitude, heading, and airspeed specified by the examiner.

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

**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**

**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 VMC (SIMULATED)**

**NOTE:** Engine failure (simulated) shall be accomplished before reaching 50 percent of the calculated VMC.

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

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

#### **C. TASK: ENGINE FAILURE AFTER LIFT-OFF (SIMULATED)**

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

1. Exhibits knowledge of the elements related to the procedure used for engine failure after lift-off.
2. Recognizes a simulated engine failure promptly, maintains control, and utilizes appropriate emergency procedures.
3. Reduces drag, identifies and verifies the inoperative engine after simulated engine failure.
4. Simulates feathering the propeller on the inoperative engine. Examiner shall then establish zero-thrust on the inoperative engine.
5. Establishes VYSE; If obstructions are present, establishes VXSE or VMC +5 knots, whichever is greater, until obstructions are cleared. Then transitions to VYSE.
6. Banks toward the operating engine as required for best performance.
7. Monitors operating engine and makes adjustments, as necessary.
8. Recognizes the aeroplane's performance capabilities. If a climb is not possible at VYSE, maintain VYSE and return to the departure aerodrome for landing, or initiates an approach to the most suitable landing area available.
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)**

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

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

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

1. Exhibits knowledge of the elements related to systems and equipment malfunctions appropriate to the aeroplane provided for the practical test.
2. Analyzes the situation and takes appropriate action for simulated emergencies appropriate to the aeroplane provided for the practical test for at least five (5) of the following—
  - a. partial or complete power loss.
  - b. engine roughness or overheat.
  - c. carburettor 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 aeroplane.
3. Follows the appropriate checklist or procedure.

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

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

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

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

#### **A. TASK: SUPPLEMENTAL OXYGEN**

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

1. Supplemental oxygen requirements for flight crew and passengers when operating non-pressurized aeroplanes.
2. Identification and differences between “aviators” breathing oxygen” and other types.
3. Operational characteristics of continuous flow, demand, and pressure-demand oxygen systems.

## **B. TASK: PRESSURIZATION**

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

1. Exhibits knowledge of the elements related to pressurization by explaining—
  - a. fundamental concept of cabin pressurization.
  - b. supplemental oxygen requirements when operating aeroplanes with pressurized cabins.
  - c. physiological hazards associated with high altitude flight and decompression.

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

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

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

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

### **A. TASK: MANOEUVRING WITH ONE ENGINE INOPERATIVE**

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

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

1. Exhibits knowledge of the elements related to manoeuvring 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: VMC DEMONSTRATION**

**NOTE #1** An applicant seeking an aeroplane—multiengine land rating, “Limited to Centre Thrust,” is not required to be evaluated on this TASK.

**NOTE #2** Aeroplanes with normally aspirated engines will lose power as altitude increases because of the reduced density of the air entering the induction system of the engine. This loss of power will result in a VMC lower than the stall speed at higher altitudes. Therefore, recovery should be made at the first indication of loss of directional control, stall warning, or buffet.

Do not perform this manoeuvre by increasing the pitch attitude to a high angle with both engines operating and then reducing power on the critical engine. This technique is hazardous and may result in loss of aeroplane control.

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

1. Exhibits knowledge of the elements related to VMC by explaining the causes of loss of directional control at airspeeds less than VMC, the factors affecting VMC, and safe recovery procedures.
2. Configures the aeroplane at VSSE/VYSE, as appropriate—
  - a. Landing gear retracted.
  - b. Flaps set for takeoff.
  - c. Cowl flaps set for takeoff.
  - d. Trim set for takeoff.
  - e. Propellers set for high RPM.
  - f. Power on critical engine reduced to idle.
  - g. Power on operating engine set to takeoff or maximum available power.
3. Establishes a single-engine climb attitude with the airspeed at approximately 10 knots above VSSE or VYSE, as appropriate.
4. Establishes a bank toward the operating engine, as required for best performance and controllability.
5. Increases the pitch attitude slowly to reduce the airspeed at approximately 1 knot per second while applying rudder pressure to maintain directional control until full rudder is applied.
6. Recognizes indications of loss of directional control, stall warning or buffet.
7. Recovers promptly by simultaneously reducing power sufficiently on the operating engine while decreasing the angle of attack as necessary to regain airspeed and directional control. Recovery SHOULD NOT be attempted by increasing the power on the simulated failed engine.
8. Recovers within 20° of the entry heading.
9. Advances power smoothly on operating engine and accelerates to VXSE/VYSE, as appropriate,  $\pm 5$  knots, during the recovery.

### **C. TASK: ENGINE FAILURE DURING FLIGHT (By Reference to Instruments)**

**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)**

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

1. Exhibits knowledge of the elements by explaining the procedures used during a published instrument approach with one engine inoperative.
2. Recognizes engine failure, sets the engine controls, reduces drag, identifies and verifies the inoperative engine, and simulates feathering appropriate engine propeller.
3. Establishes and maintains a bank toward the operating engine, as required, for best performance in straight and level.
4. Follows the prescribed checklists to verify procedures for securing the inoperative engine.
5. Monitors the operating engine and makes necessary adjustments.
6. Requests and receives an actual or a simulated ATC clearance for an instrument approach.
7. Follows the actual or a simulated ATC clearance for an instrument approach.
8. Maintains altitude within 100 feet (30 meters), the airspeed within  $\pm 10$  knots if within the aircraft's capability, and heading  $\pm 10^\circ$ .
9. Establishes a rate of descent that will ensure arrival at the MDA or DH/DA, with the aeroplane in a position from which a descent to a landing, on the intended runway can be made, either straight in or circling as appropriate.
10. On final approach segment, no more than three-quarter-scale deflection of the CDI/glide slope indicator. 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.

### **A. TASK: AFTER LANDING, PARKING, AND SECURING**

**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.