PERSONNEL

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**Barbados Civil Aviation**

**Department**

BCAD Document PLAC-067

# COMMERCIAL PILOT-HELICOPTER LICENCE SKILL TEST STANDARDS

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**Subject: COMMERCIAL PILOT – HELICOPTER LICENCE SKILL TEST STANDARDS**
**BCAD Advisory Circular PLAC-067**
**Date: 07/10/30**

## FOREWORD

**1.** (1) The BCAD has developed skill test standards for airmen licences and ratings and these are published as BCAD PL Advisory Circulars (PLACs). This PLAC establishes the standards for the commercial pilot licence skill tests for the helicopter category BCAD inspectors and designated pilot skill 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 PLACs have been developed for other airmen licences and can be obtained from the BCAD website: www.bcad.gov.bb.

(2) Terms, such as "shall" and "must" are directive in nature and when used in this document indicate that an action is mandatory. Guidance information is described in terms of "should" and "may" indicating the actions are desirable or permissive, but not mandatory.

(3) The BCAD gratefully acknowledges the valuable assistance provided by the FAA in the development of these skill test standards (STS).

(4) The Barbados Civil Aviation Regulations (BCARs) can be obtained from the Barbados Government printery, Bay Street, St. Michael Barbados. BCARS General Application& Personnel Licensing, cover the requirements for personnel licensing.

(5) This PLAC may be downloaded from the BCAD website at www.bcad.gov.bb. Subsequent changes to this PLAC will also be available on BCAD web site.

(6) Comments regarding this publication should be sent to:

The Barbados Civil Aviation Department,
Grantley Adams International Airport,
Christ Church
Barbados

_____

E. A. Archer
Director of Civil Aviation

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## PURPOSE

**1.** The purpose of this BCAD Advisory Circular (PLAC) is to prescribe the standards that shall be used by BCAD inspectors and designated skill test examiners when conducting commercial pilot—helicopter 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

**2.** (1) An applicant for a Barbados Commercial Pilot licence is required under BCARS No.1 to demonstrate to the Authority through a skill test, his ability to perform as a pilot in command of an aircraft, the relevant procedures and manoeuvres prescribed by the BCARs, with a degree of competence appropriate to the privileges granted to the holder of a Commercial Pilot Licence. This PLAC has been published by the BCAD to establish the standards for the Commercial Pilot Licence skill test for the helicopter category. BCAD inspectors and designated skill test examiners shall conduct skill tests in compliance with these standards. Flight instructors and applicants should find these standards helpful in preparing students for the required skill test for a Barbados Commercial Pilot Licence.

## SKILL TEST STANDARDS CONCEPT

**3.** BCARS General Application& Personnel Licensing specifies the areas of operation in which knowledge and skill must be demonstrated by the applicant before the issue of a pilot licence or rating. The BCARs provide the flexibility to permit the BCAD to publish STSs containing the areas of operation and specific tasks in which pilot competency shall be demonstrated. The BCAD shall revise this STS whenever it is determined that changes are needed in the interest of safety. Adherence to the provisions of the BCARs and the STS is mandatory for the evaluation of private pilot applicants**.**

## SKILL TEST DESCRIPTION

**4**. (1) This BAC contains the STS for commercial pilot – helicopter licence. This includes the AREAS OF OPERATION and TASKS required for the issuance of an initial commercial pilot—helicopter licence and for the addition of other aircraft category ratings.

(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 manoeuvres appropriate to an AREA OF OPERATION.

(4) The TASKS required for each additional aircraft category rating are shown in

the Rating Task Table on page 16, if applicable.

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

(6) 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. Many of the publications listed are publications published by the Federal Aviation Administration of the United States (FAA), and adopted by BCAD in cooperation with the FAA. The most recent version of these references should be used. The STSs are based on the following references:

| | |
|---|---|
| BCAR | General Application &Personnel Licensing Regulations |
| BCAR | Airworthiness |
| BCAR | Air Operations |
| FAA-H-8083-25 | Pilot's Handbook of Aeronautical Knowledge |
| FAA-H-8083-21 | Rotorcraft Flying Handbook |
| FAA-H-8083-1 | Aircraft Weight and Balance Handbook |
| FAA AC 91-13 | Cold Weather Operation of Aircraft |
| FAA AC 00-6 | Aviation Weather |
| FAAAC 00-45 | Aviation Weather Services |
| FAA AC 60-22 | Aeronautical Decision Making |
| FAA AC 61-84 | Role of Preflight Preparation |
| FAA AC 61-134 | General Aviation Controlled Flight Into Terrain Awareness |
| FAA AC 90-48 | Pilot's Role in Collision Avoidance |
| FAA AC 90-87 | Helicopter Dynamic Rollover |
| FAA AC 90-95 | Unanticipated Right Yaw in Helicopters |
| FAA AC 91-32 | Safety In and Around Helicopter |
| FAA AC 91-42 | Hazards of Rotating Propeller and Helicopter Rotor Blades |
| FAA AC 91-55 | Reduction of Electrical System Failures Following Aircraft Engine Starting |
| FAA AC 120-51 | Crew Resource Management Training |
| AIP | Aeronautical Information Publication – Eastern Caribbean |
| AFD | Airport Facility Directory |
| HFM | BCAD Approved Helicopter Flight Manual |
| POH | Pertinent Pilot's Operation Handbooks |
| NOTAMS | Notices to Airmen |
| | Pertinent Pilot's Operating Handbooks |
| | Navigation Charts |

(7) 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.

(8) 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 |
| AFD | Airport Facility Directory |
| ATC | Air Traffic Control |
| AIP | Aeronautical Information Publication of the Eastern Caribbean |
| ATIS | Automatic Terminal Information Service |
| ATS | Air Traffic Service |
| BCARS | Barbados 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 Procedures |
| FAA AC | Federal Aviation Administration Advisory Circular |
| FDC | Flight Data Centre |
| 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 Procedures |
| IFR | Instrument Flight Rules |
| ILS | Instrument Landing System |
| IMC | Instrument Meteorological Conditions |
| 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 |
| MDA | Minimum Descent Attitude |
| MLS | Microwave Landing System |
| NAVID | Navigation Aid |

| | |
|---|---|
| NDB | Non-directional Beacon (Automatic Direction Finder) |
| NOTAM | Notice to Airmen |
| NPA | Nonprecision Approach |
| NWS | National Weather Service |
| PA | Precision Approach |
| PC | Proficiency Check |
| PIREP(s) | Pilot Weather Reports |
| RAIM | Receiver Autonomous Integrity monitoring |
| RMI | Radio Magnetic Indicator |
| RNAV | Area Navigation |
| SAS | Stability Augmentation System |
| SFR | Simplified Directional Facility |
| SIGMETS | Significant Meteorological Advisory |
| SRM | Single Pilot Resource Management |
| STAR | Standard Terminal Arrival |
| STS | Skill Test Standards |
| SUA | Single Use Airspace |
| TCAS | Traffic Alert and Collision Avoidance System |
| TFR | Temporary Flight Restriction |
| VDP | Visual Descent Point |
| VHF | Very High Frequency |
| VNAV | Vertical Navigation |
| VOR | Very High Frequency Omin-directional Range |

## USE OF SKILL TEST STANDARDS

**5.** (1) The BCAD requires that all commercial pilot skill tests be conducted in accordance with the appropriate commercial pilot STS and the policies set forth herein. Applicants shall be evaluated in all tasks included in the areas of operation of the appropriate STS (unless otherwise noted).

(2) An applicant who holds at least a commercial pilot licence seeking an additional aircraft category rating in the commercial pilot – helicopter category shall take the commercial pilot – helicopter skill test in the AREAS OF OPERATION as indicated in the Additional Rating Table on page 16. At the discretion of the examiner, an evaluation of the applicant's competence in the remaining AREAS OF OPERATION and TASKs may be conducted.

(3) In preparation for each skill test, the skill test 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.**

(4) The skill test examiner is not required to follow the precise order in which the areas of operation and tasks appear in this document. The skill test examiner may change the sequence or combine tasks with similar Objectives to have an orderly and efficient flow of the skill test.

(5) The skill test 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.

## SPECIAL EMPHASIS AREAS

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

(a) positive aircraft control;
(b) procedures for positive exchange of flight controls (who is flying the aircraft);
(c) collision avoidance;
(d) wake turbulence avoidance;
(e) runway incursion avoidance;
(f) CFIT;
(g) wire strike avoidance;
(h) ADM and risk management;
(i) checklist usage; and
(j) other areas deemed appropriate to any phase of the practical 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. In all instances, the applicant's actions will relate to the complete situation.

## SKILL TEST PREREQUISITES: COMMERCIAL PILOT - HELICOPTER LICENCE

**7**. An applicant for a commercial pilot - helicopter skill test is required by BCARs General Application &Personnel Licensing Regulations (GA&PEL) to:

(a) Age: Be less than 18 years of age.
(b) Medical fitness: hold Class 1 medical certificate issued under [Regulation 39 (n) GA&PEL ] as appropriate to the level of licence held; and.
(c) Language Proficiency: Be able to read, speak, write, and understand the English language; and
(d) Training: Obtain the applicable training and aeronautical experience prescribed for the instrument rating sought;
(e) Knowledge: Pass the appropriate knowledge test for the licence and rating sought since the beginning of the 24th month before the month in which the

skill test is completed

(f) Instructor Authorization: Obtain a written statement from an authorized flight instructor certifying that the applicant has been given flight training in preparation for the skill test within 60 days preceding the date of application. The statement 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.

## AIRCRAFT AND EQUIPMENT REQUIRED FOR THE SKILL TEST

8. (1) The commercial pilot - helicopter applicant is required to provide an airworthy, certificated aircraft for use during the skill test. Its operating limitations must not prohibit the TASKS required on the skill test. Flight instruments are those required for controlling the aircraft without outside references. The aircraft shall have fully functioning dual controls, except as authorized by the DCA.

## USE OF BCAD APPROVED FLIGHT SIMULATION TRAINING DEVICES

**9.** Reserved.

## FLIGHT INSTRUCTOR RESPONSIBILITY

**10.** (1) An appropriately rated flight instructor is responsible for training the pilot applicant to acceptable standards in all subject matter areas, procedures, and manoeuvres 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 a commercial pilot – helicopter and is competent to pass the required skill test.

(2) 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. These areas are covered, in part, in FAA AC 90-48, Pilot's Role in Collision Avoidance; FAA-H-8083-25, Pilot's Handbook of Aeronautical Knowledge; and the Aeronautical Information Publication.

## SKILL TEST EXAMINER[1] RESPONSIBILITY

**10.** (1) The skill test 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 STS. 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.

(2) If the skill test examiner determines that a task is incomplete, or the outcome uncertain, he 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 certification process. In this case, the remaining tasks of the skill test phase should be completed before repeating the questionable task.

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

## SATISFACTORY PERFORMANCE

**11.** Satisfactory performance to meet the requirements for licence issue 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

(e) Demonstrate single-pilot competence if the aircraft is type certificated for single-pilot operations.

## UNSATISFACTORY PERFORMANCE

**12.** (1) The tolerances represent the performance expected in good flying conditions. If, in the judgment of the flight test 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.

[1] The word “examiner” denotes either the BCAD inspector or BCAD designated pilot examiner who conducts the practical test.

(2) The skill test 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 flight test 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 flight test examiner to maintain safe flight;

(b) Failure to use proper and effective visual scanning techniques to clear the area before and while performing manoeuvres;

(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 flight test 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/tasks 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.

## AERONAUTICAL DECISION MAKING AND RISK MANAGEMENT

**13**. (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.

## CREW RESOURCE MANAGEMENT (CRM)

**14.** (1) 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 flight operations officers/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 STS as applied to either single pilot operations or crew. CRM competencies, grouped into three clusters of observable behaviour, are:

(a) COMMUNICATIONS PROCESSES AND DECISIONS

1. Briefing
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. For debriefing purposes, an amplified list of these competencies, expressed as behavioural markers, may be found in FAA AC 120-51, Crew Resource Management Training, as amended. These markers consider the use of various levels of automation in flight management systems.

(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 are dependent upon the composition of the crew.

## HOW THE EXAMINER APPLIES CREW RESOURCE MANAGEMENT

**15**. (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 FAA-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 requirementwas 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/MDA, 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.

## SINGLE-PILOT RESOURCE MANAGEMENT

**16**. 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.

## APPLICANT'S USE OF CHECKLISTS

**17.** 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, 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.

## USE OF DISTRACTIONS DURING SKILL TESTS

**18** 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 flight test 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.

## POSITIVE EXCHANGE OF FLIGHT CONTROLS

**19.** (1) 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.

(2) 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 by any doubt as to who is flying the aircraft.

## ADDITIONAL RATING TASK TABLES

**20**. The following table indicates the areas of operations required during a skill test for the addition of a helicopter rating to a commercial pilot licence with another aircraft category rating.

| **ADDITION OF A GLIDER RATING TO AN EXISTING COMMERCIAL PILOT LICENCE** | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **AREAS OF OPER-ATION** | Required TASKS are indicated by either the TASK letter(s) that apply(s) or an indication that all or none of the TASKS must be tested. | | | | | | | |
| | COMMERCIAL PILOT LICENCE AND AIRCRAFT CATEGORY HELD | | | | | | | |
| | **ASEL** | **ASES** | **AMEL** | **AMES** | **GYRO PLANE** | **GLIDER** | **Balloon** | **Airship** |
| **I** | F, G | F, G | F, G | F, G | F, G | F, G, I, J | F, G, I, J | F, G |
| **II** | ALL | ALL | ALL | ALL | ALL | ALL | ALL | ALL |
| **III** | B, C | B | C | B | ALL | ALL | ALL | B, C |
| **IV** | ALL | ALL | ALL | ALL | ALL | ALL | ALL | ALL |
| **V** | ALL | ALL | ALL | ALL | ALL | ALL | ALL | ALL |
| **VI** | ALL | ALL | ALL | ALL | ALL | ALL | ALL | ALL |
| **VII** | NONE | NONE | NONE | NONE | B | B, C, D | B, C, D | NONE |
| **VIII** | ALL | ALL | ALL | ALL | ALL | ALL | ALL | ALL |
| **IX** | ALL | ALL | ALL | ALL | ALL | ALL | ALL | ALL |
| **X** | ALL | ALL | ALL | ALL | ALL | ALL | ALL | ALL |

**LEGEND**

| | |
|---|---|
| **ASEL** | **Aeroplane Single-Engine Land** |
| **ASES** | **Aeroplane Single-Engine Sea** |
| **AMEL** | **Aeroplane Multiengine Land** |
| **AMES** | **Aeroplane Multiengine Sea** |

# SECTION TWO

**APPLICANT'S SKILL TEST CHECKLIST: COMMERCIAL PILOT LICENCE – HELICOPTER APPOINTMENT WITH THE FLIGHT TEST EXAMINER:**

**FLIGHT TEST EXAMINER'S NAME:** _____

**LOCATION:** _____

**DATE/TIME:** _____

## I. ACCEPTABLE AIRCRAFT

- ☐ Aircraft Documents:
  - Airworthiness Licence
  - Registration Licence
  - Operating Limitations
- ☐ Aircraft Maintenance Records:
  - Logbook Record of Airworthiness Inspections and AD Compliance
  - Applicable Airworthiness Directives
- ☐ Pilot's Operating Handbook,
- ☐ BCAD Approved Helicopter Flight Manual

## II. PERSONAL EQUIPMENT

- ☐ Skill Test Standards
- ☐ Current Aeronautical Charts
- ☐ Computer and Plotter
- ☐ Flight Plan Form
- ☐ Flight Logs
- ☐ Current and Appropriate Flight Information Publications
- ☐ View Limiting Device
- ☐ Radiotelephony Licence

## III. PERSONAL RECORDS

- ☐ Identification-Photo/Signature ID
- ☐ Pilot Licence Currently Held
- ☐ Current and Appropriate Medical Certificate
- ☐ Completed BCAD Form PL001, Application For Flight Crew Licence, Rating, Authorization or Validation Certificate with authorized instructor's Signature (If applicable)
- ☐ Original Aviation Knowledge Test Report
- ☐ Pilot Logbook or Approved Training Organization (ATO) document containing an authorized instructor's endorsement certifying the applicant is prepared for the required skill test.
- ☐ BCAD Form PL005, Notice of Denial (if applicable)
- ☐ Examiner's Fee (if applicable)

**EXAMINER'S PRACTICAL TEST CHECKLIST**
**COMMERCIAL PILOT—HELICOPTER**

**APPLICANT'S NAME**_____

**LOCATION** _____

**DATE/TIME** _____

## I. PREFLIGHT PREPARATION

- **A.** CERTIFICATES AND DOCUMENTS
- **B.** WEATHER INFORMATION
- **C.** CROSS-COUNTRY FLIGHT PLANNING
- **D.** NATIONAL AIRSPACE SYSTEM
- **E.** PERFORMANCE AND LIMITATIONS
- **F.** OPERATION OF SYSTEMS
- **G.** MINIMUM EQUIPMENT LIST
- **H.** AEROMEDICAL FACTORS
- **I.** PHYSIOLOGICAL ASPECTS OF NIGHT FLYING
- **J.** LIGHTING AND EQUIPMENT FOR NIGHT FLYING

## II. PREFLIGHT PROCEDURES

- **A.** PREFLIGHT INSPECTION
- **B.** COCKPIT MANAGEMENT
- **C.** ENGINE STARTING AND ROTOR ENGAGEMENT
- **D.** BEFORE TAKEOFF CHECK

## III. AIRPORT AND HELIPORT OPERATIONS

- **A.** RADIO COMMUNICATIONS AND ATC LIGHT SIGNALS
- **B.** TRAFFIC PATTERNS
- **C.** AIRPORT AND HELIPORT MARKINGS AND LIGHTING

## IV. HOVERING MANEUVERS

- **A.** VERTICAL TAKEOFF AND LANDING
- **B.** SLOPE OPERATIONS
- **C.** SURFACE TAXI
- **D.** HOVER TAXI
- **E.** AIR TAXI

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

- **A.** NORMAL AND CROSSWIND TAKEOFF AND CLIMB

**B.** NORMAL AND CROSSWIND APPROACH
**C.** MAXIMUM PERFORMANCE TAKEOFF AND CLIMB
**D.** STEEP APPROACH
**E.** ROLLING TAKEOFF
**F.** SHALLOW APPROACH AND RUNNING/ROLL-ON LANDING
**G.** GO-AROUND

## VI. PERFORMANCE MANEUVERS

**A.** RAPID DECELERATION
**B.** 180° AUTOROTATION

## VII. NAVIGATION

**A.** PILOTAGE AND DEAD RECKONING
**B.** RADIO NAVIGATION AND RADAR SERVICES
**C.** DIVERSION
**D.** LOST PROCEDURES

## VIII. EMERGENCY OPERATIONS

**A.** POWER FAILURE AT A HOVER
**B.** POWER FAILURE AT ALTITUDE
**C.** SYSTEMS AND EQUIPMENT MALFUNCTIONS
**D.** SETTLING-WITH-POWER
**E.** LOW ROTOR RPM RECOVERY
**F.** DYNAMIC ROLLOVER
**G.** GROUND RESONANCE
**H.** LOW G CONDITIONS
**I.** EMERGENCY EQUIPMENT AND SURVIVAL GEAR

## IX. SPECIAL OPERATIONS

**A.** CONFINED AREA OPERATION
**B.** PINNACLE/PLATFORM OPERATIONS

## X. POST-FLIGHT PROCEDURES

**A**. AFTER LANDING AND SECURING

AREAS OF OPERATION

## I. AREA OF OPERATION: PREFLIGHT PREPARATION

### A. TASK: CERTIFICATES AND DOCUMENTS

REFERENCE(S): 14 CFR parts 43, 61, 67, 91; FAA-H-8083-21, FAA-H-8083-25; POH/RFM.

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

1. Explaining—

   a. Commercial Pilot Certificate privileges, limitations, and recent flight experience requirements.
   b. medical certificate class and duration.
   c. pilot logbook or flight records.

2. Locating and explaining—

   a. airworthiness and registration certificates.
   b. operating limitations, placards, POH/RFM, and instrument markings.
   c. weight and balance data and equipment list.
   d. airworthiness directives, compliance records, maintenance requirements, and appropriate records.

### B. TASK: AIRWORTHINESS REQUIREMENTS

REFERENCE(S): 14 CFR part 91; FAA-H-8083-21.

**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 helicopter 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**

**REFERENCE(S): AC 00-6, AC 00-45, AC 61-84; FAA-H-8083-25, AIM.**

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

1. Exhibits knowledge of the elements related to weather information by analyzing available weather reports, charts, and forecasts from various sources with emphasis on—

   a. METAR, TAF, and FA.
   b. surface analysis chart.
   c. wind shear reports.
   d. winds and temperature aloft chart.
   e. AWOS, ASOS, and ATIS reports.
   f. significant weather prognostic charts.

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

**D. TASK: CROSS-COUNTRY FLIGHT PLANNING**

**NOTE:** In-flight demonstration of cross-country procedures by the applicant is tested under AREA OF OPERATION: NAVIGATION.

**REFERENCE(S): AC 61-21, AC 61-84, FAA-H-8083-25; Navigation Charts; Airport/Facility Directory; FDC NOTAMs; AIM.**

**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 flight plan should be to the first fuel stop necessary, based on maximum allowable passenger, baggage, and/or cargo loads using real-time weather.
2. Uses appropriate and current aeronautical charts.
3. Properly identifies airspace, obstructions, and terrain features, including discussion of wire strike avoidance techniques.

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 systems/facilities and communication frequencies.
8. Extracts and applies pertinent information from NOTAMs, Airport/Facility Directory, and other flight publications.
9. Completes a navigation log and simulates filing a VFR flight plan.

## E. TASK:NATIONAL AIRSPACE SYSTEM

REFERENCE(S): 14 CFR parts 71, 91; Navigation Charts; AIM.

**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 helicopter 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 airspace and other airspace areas.

## F. TASK: PERFORMANCE AND LIMITATIONS

REFERENCE(S): FAA-H-8083-1, FAA-H-8083-21; AC 91-23; POH/RFM.

**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 the computed weight and centre of gravity is within the helicopter's operating limitations and if the centre of gravity will remain within limits during all phases of flight.
3. Demonstrates the use of appropriate performance charts, tables, and data.
4. Describes the effects of various atmospheric conditions on the helicopter's performance.
5. Understands the cause and effects of retreating blade stall.
6. Considers circumstances when operating within " avoid areas" of the height/velocity diagram.
7. Is aware of situations that lead to loss of tail rotor/antitorque effectiveness (unanticipated yaw).

**G. TASK: OPERATION OF SYSTEMS**

REFERENCE(S): FAA-H-8083-21; POH/AFM.

**Objective.** To determine that the applicant exhibits knowledge of the elements related to the appropriate normal operating procedures and limitations of the following systems by explaining:

1. Primary flight controls, trim, and, if installed, stability control.
2. Powerplant.
3. Main rotor and antitorque.
4. Landing gear, brakes, steering, skids, or floats, as applicable.
5. Fuel, oil, and hydraulic.
6. Electrical.
7. Pitot-static, vacuum/pressure and associated flight instruments, if applicable.
8. Environmental.
9. Anti-icing, including carburettor heat, if applicable.
10. Avionics equipment.

**H. TASK: AEROMEDICAL FACTORS**

REFERENCE(S): FAA-H-8083-25; AIM.

**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 three (3) 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.
i. The effects of alcohol and drugs, including over-the-counter drugs.

2. The effects of nitrogen excesses during scuba dives upon a pilot and/or passenger in flight.

## I. TASK: PHYSIOLOGICAL ASPECTS OF NIGHT FLYING

REFERENCE(S): FAA-H-8083-21, FAA-H-8083-25; AIM.

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

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

## J. TASK: LIGHTING AND EQUIPMENT FOR NIGHT FLYING

REFERENCE(S): FAA-H-8083-21; FAA-H-8083-25; POH/RFM.

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

1. Exhibits knowledge of the elements related to lighting and equipment for night flying by explaining—

   a. the types and uses of various personal lighting devices.
   b. the required equipment, and location of external navigation lighting of the helicopter.
   c. the meaning of various airport, heliport, and navigation lights, the method of determining their

status, and the procedure for airborne activation of runway lights.

2. Locates and identifies switches, spare fuses, and circuit breakers pertinent to night operations.

## II. AREA OF OPERATION: PREFLIGHT PROCEDURES

### A. TASK: PREFLIGHT INSPECTION

REFERENCE(S): FAA-H-8083-21; POH/RFM.

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

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

### B. TASK: COCKPIT MANAGEMENT

REFERENCE(S): 14 CFR part 91; AC 91-32; POH/RFM.

**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 the occupants on the use of safety belts, shoulder harnesses, doors, rotor blade avoidance, and emergency procedures.

### C. TASK: ENGINE STARTING AND ROTOR ENGAGEMENT

REFERENCE(S): FAA-H-8083-21; AC 91-13, AC 91-42, AC-91-55; POH/RFM

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

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

2. Ensures proper rotor blade clearance, and frictions flight controls, as necessary.
3. Utilizes the appropriate checklist for starting procedures.

## D. TASK: BEFORE TAKEOFF CHECK

REFERENCE(S): FAA-H-8083-21; POH/RFM.

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

1. Exhibits knowledge of the elements related to the before takeoff check. Including, the reasons for checking each item and how to detect malfunctions.
2. Positions the helicopter properly considering other aircraft, wind, and surface conditions.
3. Divides attention inside and outside the cockpit.
4. Ensures that the engine temperature and pressure are suitable for run-up and takeoff.
5. Accomplishes the before takeoff check and ensures that the helicopter is in safe operating condition.
6. Reviews takeoff performance airspeeds, takeoff distances, departure, and emergency procedures.
7. Avoids runway incursions and/or ensures no conflict with traffic prior to takeoff.

## III. AREA OF OPERATION: AIRPORT AND HELIPORT OPERATIONS

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

REFERENCE(S): 14 CFR part 91; FAA-H-8083-25; AIM.

**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

REFERENCE(S): 14 CFR part 91; FAA-H-8083-21; AIM, POH/RFM.

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

1. Exhibits knowledge of the elements related to traffic patterns. Including, procedures at airports and heliports 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 traffic or avoids the flow of fixed wing aircraft.
4. Corrects for wind drift to maintain proper ground track.
5. Maintains orientation with runway/landing area.
6. Maintains traffic pattern altitude ±100 feet, and appropriate airspeed, ±10 knots.

### C. TASK: AIRPORT/HELIPORT RUNWAY, HELIPAD, AND TAXIWAY SIGNS, MARKINGS, AND LIGHTING

REFERENCE(S): 14 CFR part 91; FAA-H-8083-25; AIM.

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

1. Exhibits knowledge of the elements related to airport/heliport runway, and taxiway operations with emphasis on runway incursion avoidance.

2. Properly identifies and interprets airport/heliport, runway, and taxiway signs, markings, and lighting.

## IV. AREA OF OPERATION: HOVERING MANEUVERS

### A. TASK: VERTICAL TAKEOFF AND LANDING

REFERENCE(S): FAA-H-8083-21; AC 90-95; POH/RFM.

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

1. Exhibits knowledge of the elements related to a vertical takeoff to a hover and landing from a hover.
2. Ascends to and maintains recommended hovering altitude, and descends from recommended hovering altitude in headwind, crosswind, and tailwind conditions.
3. Maintains RPM within normal limits.
4. Establishes recommended hovering altitude, ±1/2 of that altitude within 10 feet of the surface; if above 10 feet, ±5 feet.
5. Avoids conditions that might lead to loss of tail rotor/antitorque effectiveness.
6. Keeps forward and sideward movement within 2 feet of a designated point, with no aft movement.
7. Descends vertically to within 2 feet of the designated touchdown point.
8. Maintains specified heading, ±10°.

### B. TASK: SLOPE OPERATIONS

REFERENCE(S): FAA-H-8083-21; POH/RFM.

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

1. Exhibits knowledge of the elements related to slope operations.
2. Selects a suitable slope, approach, and direction considering wind effect, obstacles, dynamic rollover avoidance, and discharging passengers.
3. Properly moves toward the slope.
4. Maintains RPM within normal limits.
5. Makes a smooth positive descent to touch the upslope skid on the sloping surface.
6. Maintains positive control while lowering the downslope skid or landing gear to touchdown.
7. Recognizes when the slope is too steep and abandons the operation prior to reaching cyclic control stops.
8. Makes a smooth transition from the slope to a stabilized hover parallel to the slope.
9. Properly moves away from the slope.

10. Maintains the specified heading throughout the operation, ±5°.

## C. TASK: SURFACE TAXI

**NOTE:** This TASK applies to only helicopters equipped with wheel-type landing gear.

REFERENCE(S): FAA-H-8083-21; AIM, POH/AFM.

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

1. Exhibits knowledge of the elements related to surface taxiing.
2. Surface taxies the helicopter from one point to another under headwind, crosswind, and tailwind conditions, with the landing gear in contact with the surface, avoiding conditions that might lead to loss of tail rotor/antitorque effectiveness.
3. Properly uses cyclic, collective, and brakes to control speed while taxiing.
4. Properly positions nosewheel/tailwheel, if applicable, locked or unlocked.
5. Maintains RPM within normal limits.
6. Maintains appropriate speed for existing conditions.
7. Stops helicopter within ± 2 feet of a specified point.
8. Maintains specified track within ± 2 feet.

## D. TASK: HOVER TAXI

REFERENCE(S): FAA-H-8083-21; AIM, POH/RFM.

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

1. Exhibits knowledge of the elements related to hover taxiing.
2. Hover taxies over specified ground references, demonstrating forward, sideward, and rearward hovering and hovering turns.
3. Maintains RPM within normal limits.
4. Maintains specified ground track within ± 2 feet on straight legs.
5. Maintains constant rate of turn at pivot points.
6. Maintains position within ± 2 feet of each pivot point during turns.
7. Makes 90°, 180°, and 360° pivoting turns, stopping within 10° of specified headings.
8. Maintains recommended hovering altitude, ±1/2 of that altitude within 10 feet of the surface, if above 10 feet, ±5 feet.

**E. TASK: AIR TAXI**

REFERENCE(S): FAA-H-8083-21; AC 90-95; AIM, POH/RFM.

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

1. Exhibits knowledge of the elements related to air taxiing.
2. Air taxies the helicopter from one point to another under headwind and crosswind conditions.
3. Maintains RPM within normal limits.
4. Selects a safe airspeed and altitude.
5. Maintains desired track and groundspeed in headwind and crosswind conditions, avoiding conditions that might lead to loss of tail rotor/antitorque effectiveness.
6. Maintains a specified altitude, ±5 feet.

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

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

**NOTE:** If a calm wind weather condition exists, the applicant's knowledge of the crosswind elements must be evaluated through oral testing; otherwise a crosswind takeoff and climb must be demonstrated.

REFERENCE(S): FAA-H-8083-21; POH/RFM.

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

1. Exhibits knowledge of the elements related to normal and crosswind takeoff and climb, including factors affecting performance, to include height/velocity information.
2. Establishes a stationary position on the surface or a stabilized hover, prior to takeoff in headwind and crosswind conditions.
3. Maintains RPM within normal limits.
4. Accelerates to manufacturer's recommended climb airspeed, ±5 knots.
5. Maintains proper ground track with crosswind correction, as necessary.
6. Remains aware of the possibility of wind shear and/or wake turbulence.

### B. TASK: NORMAL AND CROSSWIND APPROACH

**NOTE:** If a calm wind weather condition exists, the applicant's knowledge of the crosswind elements must be evaluated through oral testing; otherwise a crosswind approach and landing must be demonstrated.

REFERENCE(S): FAA-H-8083-21; POH/RFM.

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

1. Exhibits knowledge of the elements related to normal and crosswind approach.
2. Considers performance data, to include height/velocity information.
3. Considers the wind conditions, landing surface, and obstacles.
4. Selects a suitable termination point.

5. Establishes and maintains the normal approach angle, and rate of closure.
6. Remains aware of the possibility of wind shear and/or wake turbulence.
7. Avoids situations that may result in settling-with-power.
8. Maintains proper ground track with crosswind correction, as necessary.
9. Arrives at the termination point, on the surface or at a stabilized hover, ±2 feet.

**C. TASK: MAXIMUM PERFORMANCE TAKEOFF AND CLIMB**

REFERENCE(S): FAA-H-8083-21; POH/RFM.

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

1. Exhibits knowledge of the elements related to maximum performance takeoff and climb.
2. Considers situations where this manoeuvre is recommended and factors related to takeoff and climb performance, to include height/velocity information.
3. Maintains RPM within normal limits.
4. Utilizes proper control technique to initiate takeoff and forward climb airspeed attitude.
5. Utilizes the maximum available takeoff power.
6. After clearing all obstacles, transitions to normal climb attitude, airspeed, ±5 knots, and power setting.
7. Remains aware of the possibility of wind shear and/or wake turbulence.
8. Maintains proper ground track with crosswind correction, as necessary.

**D. TASK: STEEP APPROACH**

REFERENCE(S): FAA-H-8083-21; POH/RFM.

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

1. Exhibits knowledge of the elements related to a steep approach.
2. Considers situations where this manoeuvre is recommended and factors related to a steep approach, to include height/velocity information.
3. Considers the wind conditions, landing surface, and obstacles.

4. Selects a suitable termination point.
5. Establishes and maintains the recommended approach angle, (15° maximum) and proper rate of closure.
6. Avoids situations that can result in settling-with-power.
7. Remains aware of the possibility of wind shear and/or wake turbulence.
8. Maintains proper ground track with crosswind correction, if necessary.
9. Arrives at the termination point, on the surface or at a stabilized hover, ±2 feet.

**E. TASK: ROLLING TAKEOFF**

**NOTE:** This TASK applies only to helicopters equipped with wheel-type landing gear.

REFERENCE(S): FAA-H-8083-21; POH/RFM.

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

1. Exhibits knowledge of the elements related to a rolling takeoff.
2. Considers situations where this manoeuvre is recommended and factors related to takeoff and climb performance, to include height/velocity information.
3. Maintains RPM within normal limits.
4. Utilizes proper preparatory technique prior to initiating takeoff.
5. Initiates forward accelerating movement on the surface.
6. Transitions to a normal climb airspeed, ±5 knots, and power setting.
7. Remains aware of the possibility of wind shear and/or wake turbulence.
8. Maintains proper ground track with crosswind correction, if necessary.
9. Completes the prescribed checklist, if applicable.

**F. TASK: SHALLOW APPROACH AND RUNNING/ROLL-ON LANDING**

REFERENCE(S): FAA-H-8083-21; POH/RFM.

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

1. Exhibits knowledge of the elements related to shallow approach and running/roll-on landing, including the purpose

of the manoeuvre, factors affecting performance data, to include height/velocity information, and effect of landing surface texture.
2. Maintains RPM within normal limits.
3. Considers obstacles and other hazards.
4. Establishes and maintains the recommended approach angle, and proper rate of closure.
5. Remains aware of the possibility of wind shear and/or wake turbulence.
6. Maintains proper ground track with crosswind correction, if necessary.
7. Maintains a speed that will take advantage of effective translational lift during surface contact with landing gear parallel with the ground track.
8. Utilizes proper flight control technique after surface contact.
9. Completes the prescribed checklist, if applicable.

**G. TASK: GO-AROUND**

REFERENCE(S): FAA-H-8083-21; POH/AFM.

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

1. Exhibits knowledge of the elements related to a go-around and when it is necessary.
2. Makes a timely decision to discontinue the approach to landing.
3. Maintains RPM within normal limits.
4. Establishes proper control input to stop descent and initiate climb.
5. Retracts the landing gear, if applicable, after a positive rate of climb indication.
6. Maintains proper ground track with crosswind correction, if necessary.
7. Transitions to a normal climb airspeed, ±5 knots.
8. Completes the prescribed checklist, if applicable.

## VI. AREA OF OPERATION: PERFORMANCE MANEUVERS

**NOTE:** The examiner must select TASK A and at least one other TASK.

### A. TASK: RAPID DECELERATION

REFERENCE(S): FAA-H-8083-21; Helicopter Flight Manual.

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

1. Exhibits knowledge of the elements related to rapid deceleration.
2. Maintains RPM within normal limits.
3. Properly coordinates all controls throughout the execution of the manoeuvre.
4. Maintains an altitude that will permit safe clearance between the tail boom and the surface.
5. Decelerates and terminates in a stationary hover at the recommended hovering altitude.
6. Maintains heading throughout the manoeuvre, ±5°.

### B. TASK: STRAIGHT IN AUTOROTATION

REFERENCE(S): FAA-H-8083-21; POH/RFM.

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

1. Exhibits knowledge of the elements related to a straight in autorotation terminating with a power recovery to a hover.
2. Selects a suitable touchdown area.
3. Initiates the manoeuvre at the proper point.
4. Establishes proper aircraft trim and autorotation airspeed, ± 5 knots.
5. Maintains rotor RPM within normal limits.
6. Compensates for wind speed and direction as necessary to void undershooting or overshooting the selected landing area.
7. Utilizes proper deceleration, collective pitch application to a hover.
8. Comes to a hover within 100 feet of a designated point.

**C. TASK: 180° AUTOROTATION**

REFERENCE(S): FAA-H-8083-21; POH/RFM.

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

1. Exhibits knowledge of the elements related to a 180° autorotation terminating with a power recovery to a hover.
2. Selects a suitable touchdown area.
3. Initiates the manoeuvre at the proper point.
4. Establishes proper aircraft trim and autorotation airspeed, ±5 knots.
5. Maintains rotor RPM within normal limits.
6. Compensates for wind speed and direction as necessary to avoid undershooting or overshooting the selected landing area.
7. Utilizes proper deceleration, collective pitch application to a hover.
8. Comes to a hover within 100 feet of a designated point.

**D. TASK: APPROACH AND LANDING WITH SIMULATED POWERPLANT FAILURE - MULTIENGINE HELICOPER**

**NOTE:** In a multiengine helicopter manoeuvring to a landing, the applicant should follow a procedure that simulates the loss of one power plant.

REFERENCE(S): FAA-H-8083-21; POH/RFM.

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

1. Exhibits adequate knowledge of manoeuvring to a landing with a power plant inoperative, including the controllability factors associated with manoeuvring, and the applicable emergency procedures.
2. Selects a suitable touchdown point.
3. Maintains, prior to beginning the final approach segment, the desired altitude ± 100 feet, the desired airspeed ± 10 knots, the desired heading ± 5° , and maintains desired track.
4. Establishes the approach and landing configuration appropriate for the runway or landing area, and adjusts the power plant controls as required.
5. Maintains a normal approach angle and recommended airspeed to the point of transition to touchdown.
6. Terminates the approach in a smooth transition to touchdown.

7. Completes the after-landing checklist items in a timely manner, after clearing the landing area, and as recommended by the manufacturer.

## VII. AREA OF OPERATION: NAVIGATION

### A. TASK: PILOTAGE AND DEAD RECKONING

REFERENCE(S): FAA-H-8083-25; AC 61-84.

**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 the surface features to chart symbols.
4. Navigates by means of precomputed headings, groundspeeds, and elapsed time.
5. Corrects for, and records, the differences between preflight fuel, groundspeed, and heading calculations and those determined en route.
6. Verifies the helicopter's position within three (3) nautical miles of the flight planned route.
7. Corrects for, and records, the differences between preflight fuel, groundspeed, and heading calculations and those determined en route.
8. Maintains the appropriate altitude, ±100 feet and established heading, ±10°.

### B. TASK: RADIO NAVIGATION AND RADAR SERVICES

REFERENCE(S): FAA-H-8083-25, AC 61-23, AC 61-84; Navigation Equipment Operation Manuals.

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

1. Exhibits knowledge of the elements related to radio navigation and ATC radar services.
2. Selects and identifies the appropriate facilities or coordinates, as appropriate.
3. Locates the helicopter's position relative to the navigation facilities or coordinates, as appropriate.
4. Intercepts and tracks a given radial or bearing.
5. Locates position using cross radials, coordinates, or bearings.
6. Recognizes and describes the indication of station or way point passage.
7. Recognizes signal loss and takes appropriate action.

8. Uses proper communication procedures when utilizing ATC radar services.
9. Maintains the appropriate altitude, ±100 feet (30 meters).

**C. TASK: DIVERSION**

REFERENCE(S): FAA-H-8083-21; FAA-H-8083-25; AIM.

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

1. Exhibits knowledge of the elements related to procedures for diversion.
2. Selects an appropriate alternate airport or heliport and route.
3. Promptly, diverts toward the alternate airport or heliport.
4. Makes an accurate estimate of heading, groundspeed, arrival time, and fuel consumption to the alternate airport or heliport.
5. Maintains the appropriate altitude, ±100 feet and established heading, ±10°.

**D. TASK: LOST PROCEDURES**

REFERENCE(S): FAA-H-8083-21, FAA-H-8083-25; AC 61-84; AIM.

**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. Attempts to identify prominent landmark(s).
5. Uses navigation systems/facilities and/or contacts an ATC facility for assistance as appropriate.
6. Plans a precautionary landing if deteriorating weather and/or fuel exhaustion is impending.

## VIII. AREA OF OPERATION: EMERGENCY OPERATIONS

**NOTE:** Tasks F through I are knowledge only TASKS.

### A. TASK: POWER FAILURE AT A HOVER

REFERENCE(S): FAA-H-8083-21; POH/RFM.

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

1. Exhibits knowledge of the elements related to power failure at a hover.
2. Determines that the terrain below the aircraft is suitable for a safe touchdown.
3. Performs autorotation from a stationary or forward hover into the wind at recommended altitude, and RPM, while maintaining established heading, ±5°.
4. Touches down with minimum sideward movement, and no rearward movement.
5. Exhibits orientation, division of attention, and proper planning.

### B. TASK: POWER FAILURE AT ALTITUDE

**NOTE:** Simulated power failure at altitude must be given over areas where actual touchdowns can safely be completed in the event of an actual powerplant failure.

REFERENCE(S): FAA-H-8083-21; POH/RFM.

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

1. Exhibits knowledge of the elements related to power failure at altitude.
2. Establishes an autorotation and selects a suitable landing area.
3. Establishes proper aircraft trim and autorotation airspeed, ±5 knots.
4. Maintains rotor RPM within normal limits.
5. Compensates for wind speed and direction as necessary to avoid undershooting or overshooting the selected landing area.
6. Terminates approach with a power recovery at a safe altitude when directed by the examiner.

**C. TASK: SYSTEMS AND EQUIPMENT MALFUNCTIONS**

REFERENCE(S): FAA-H-8083-21; POH/RFM.

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

1. Exhibits knowledge of the elements related to causes, indications, and pilot actions for various systems and equipment malfunctions.
2. Analyzes the situation and takes action, appropriate to the helicopter used for the practical test, in at least four of the following areas—

    a. engine/oil and fuel.
    b. hydraulic, if applicable.
    c. electrical.
    d. carburettor or induction icing.
    e. smoke and/or fire.
    f. flight control/trim.
    g. pitot static/vacuum and associated flight instruments, if applicable.
    h. rotor and/or antitorque.
    i. various frequency vibrations and the possible components that may be affected.
    j. any other emergency unique to the helicopter flown.

**D. TASK: SETTLING-WITH-POWER**

REFERENCE(S): FAA-H-8083-21; POH/RFM.

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

1. Exhibits knowledge of the elements related to settling-with-power.
2. Selects an altitude that will allow recovery to be completed no less than 1,000 feet AGL or, if applicable, the manufacturer's recommended altitude, whichever is higher.
3. Promptly recognizes and announces the onset of settling-with-power.
4. Utilizes the appropriate recovery procedure.

**E. TASK: LOW ROTOR RPM RECOVERY**

**NOTE:** The examiner may test the applicant orally on this TASK if helicopter used for the practical test has a governor that cannot be disabled.

REFERENCE(S): FAA-H-8083-21; Appropriate Manufacturer's Safety Notices; POH/RFM.

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

1. Exhibits knowledge of the elements related to low rotor RPM recovery, including the combination of conditions that are likely to lead to this situation.
2. Detects the development of low rotor RPM and initiates prompt corrective action.
3. Utilizes the appropriate recovery procedure.

**F. TASK: DYNAMIC ROLLOVER**

REFERENCE(S): FAA-H-8083-21; AC 90-87; POH/RFM.

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

1. Exhibits knowledge of the elements related to the aerodynamics of dynamic rollover.
2. Understands the interaction between the antitorque thrust, crosswind, slope, CG, cyclic and collective pitch control in contributing to dynamic rollover.
3. Explains preventive flight technique during takeoffs, landings, and slope operations.

**G. TASK: GROUND RESONANCE**

REFERENCE(S): FAA-H-8083-21; POH/RFM.

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

1. Exhibits knowledge of the elements related to a fully articulated rotor system and the aerodynamics of ground resonance.
2. Understands the conditions that contribute to ground resonance.
3. Explains preventive flight technique during takeoffs and landings.

## H. TASK: LOW G CONDITIONS

REFERENCE(S): Helicopter Flight Manual.

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

1. Exhibits knowledge of the elements related to low G conditions.
2. Understands and recognizes the situations that contribute to low G conditions.
3. Explains proper recovery procedures.

## I. TASK: EMERGENCY EQUIPMENT AND SURVIVAL GEAR

REFERENCE(S): FAA-H-8083-21; POH/RFM.

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

1. Exhibits knowledge of the elements related to emergency equipment and survival gear appropriate to the helicopter environment encountered during flight.
2. Identifies appropriate equipment that should be on board the helicopter.

## IX. AREA OF OPERATION: SPECIAL OPERATIONS

### A. TASK: CONFINED AREA OPERATION

REFERENCE(S): FAA-H-8083-21; POH/RFM.

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

1. Exhibits knowledge of the elements related to confined area operations.
2. Accomplishes a proper high and low reconnaissance.
3. Selects a suitable approach path, termination point, and departure path.
4. Tracks the selected approach path at an acceptable approach angle and rate of closure to the termination point.
5. Maintains RPM within normal limits.
6. Avoids situations that can result in settling-with-power.
7. Terminates at a hover or on the surface, as conditions allow.
8. Accomplishes a proper ground reconnaissance.
9. Selects a suitable takeoff point, considers factors affecting takeoff and climb performance under various conditions.

### B. TASK: PINNACLE/PLATFORM OPERATIONS

REFERENCE(S): FAA-H-8083-21; POH/RFM.

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

1. Exhibits knowledge of the elements related to pinnacle/platform operations.
2. Accomplishes a proper high and low reconnaissance.
3. Selects a suitable approach path, termination point, and departure path.
4. Tracks the selected approach path at an acceptable approach angle and rate of closure to the termination point.
5. Maintains RPM within normal limits.
6. Terminates at a hover or on the surface, as conditions allow.
7. Accomplishes a proper ground reconnaissance.
8. Selects a suitable takeoff point, considers factors affecting takeoff and climb performance under various conditions.

## X. AREA OF OPERATION: POST-FLIGHT PROCEDURES

### A. TASK: AFTER LANDING AND SECURING

REFERENCE(S): FAA-H-8083-21; POH/RFM.

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

1. Exhibits knowledge of the elements related to after-landing, parking, and securing.
2. Minimizes the hazardous effects of rotor downwash during hovering.
3. Parks in an appropriate area, considering the safety of nearby persons and property.
4. Follows the appropriate procedure for engine shutdown.
5. Completes the appropriate checklist..
6. Conducts an appropriate postflight inspection and secures the aircraft.

## I. AREA OF OPERATION: PREFLIGHT PREPARATION

### A. TASK: CERTIFICATES AND DOCUMENTS

REFERENCE(S): 14 CFR parts 43, 61, 67, 91; FAA-H-8083-21, FAA-H-8083-25; Gyroplane Flight Manual.

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

1. Explaining—

    a. Commercial Pilot Certificate privileges and 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 gyroplane flight manual.
    c. weight and balance data and equipment list.
    d. airworthiness directives, compliance records, maintenance requirements, and appropriate records.

### B. TASK: AIRWORTHINESS REQUIREMENTS

REFERENCE(S): 14 CFR part 91; FAA-H-8083-21.

**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 gyroplane 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

REFERENCE(S): 14 CFR 91; AC 00-6, AC 00-45, AC 61-84; FAA-H-8083-25; AIM.

**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. AWOS, ASOS, and ATIS reports.

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

## D. TASK: CROSS-COUNTRY FLIGHT PLANNING

**NOTE:** In-flight demonstration of cross-country procedures by the applicant is tested under AREA OF OPERATION: NAVIGATION.

REFERENCE(S): 14 CFR part 91; FAA-H-8083-25; AC 61-84; Navigation Charts; Airport/Facility Directory; FDC NOTAMs; AIM.

**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 necessary, based on maximum allowable passenger, baggage, and/or cargo loads using real time weather.
2. Uses appropriate and current aeronautical charts.

3. Properly identifies airspace, obstacles, and terrain features, including discussion of wire strike avoidance techniques.
4. Selects easily identifiable en route checkpoints.
5. Selects the most favourable altitudes, considering weather conditions and equipment capabilities.
6. Computes headings, flight time, and fuel requirements.
7. Selects appropriate navigation systems/facilities and communication frequencies.
8. Applies pertinent information from FDC NOTAMs, Airport/Facility Directory, and other flight publications.
9. Completes a navigation log and simulates filing a VFR flight plan.

## E. TASK: NATIONAL AIRSPACE SYSTEM

REFERENCE(S): 14 CFR parts 71, 91; Navigation Charts; AIM.

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

1. Basic VFR Weather Minimums – for all classes of airspace.
2. Airspace classes – their boundaries, pilot certification, and gyroplane 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 airspace and other airspace areas.

## F. TASK: PERFORMANCE AND LIMITATIONS

REFERENCE(S): FAA-H-8083-1, FAA-H-8083-21; AC 61-84; Gyroplane Flight Manual.

**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 the computed weight and centre of gravity is within the gyroplane's operating limitations and if the weight and centre of gravity will remain within limits during all phases of flight.
3. Demonstrates the use of appropriate performance charts, tables, and data.
4. Describes the effects of atmospheric conditions on the gyroplane's performance.
5. Understands the cause, effect, and avoidance procedure of " power pushover," and " pilot induced oscillation."

## G. TASK: OPERATION OF SYSTEMS

REFERENCE(S): FAA-H-8083-25; Gyroplane Flight Manual.

**Objective.** To determine that the applicant exhibits knowledge of the elements related to the operation of systems on the gyroplane provided for the flight test by explaining at least four (4) of the following systems selected by the examiner.

1. Primary flight controls and trim.
2. Powerplant.
3. Rotor, including prerotator/spin-up control, if applicable.
4. Landing gear, brakes, and steering.
5. Fuel, oil, and hydraulic.
6. Electrical.
7. Pitot-static, vacuum/pressure, and associated flight instruments, if applicable.
8. Environmental, if applicable.
9. Anti-icing, including carburettor heat, if applicable.
10. Avionics equipment.

## H. TASK: AEROMEDICAL FACTORS

REFERENCE(S): FAA-H-8083-25; AIM.

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

1. The symptoms, causes, effects, and corrective actions of at least four (4) of the following—

    a. hypoxia.
    b. hyperventilation.
    c. middle ear and sinus problems.
    d. spatial disorientation.
    e. motion sickness.

f. carbon monoxide poisoning.
g. stress and fatigue.

2. The effects of alcohol and drugs, including over-the-counter drugs.
3. The effects of nitrogen excesses during scuba dives upon a pilot and/or passenger in flight.

## I. TASK: PHYSIOLOGICAL ASPECTS OF NIGHT FLYING

REFERENCE(S): FAA-H-8083-21, FAA-H-8083-25; AIM.

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

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

## J. TASK: LIGHTING AND EQUIPMENT FOR NIGHT FLYING

REFERENCE(S): FAA-H-8083-21, FAA-H-8083-25; AIM; Gyroplane Flight Manual.

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

1. Exhibits knowledge of the elements related to lighting and equipment for night flying by explaining—

   a. the types and uses of various personal lighting devices.
   b. the required equipment, and location of external navigation lighting of the gyroplane.
   c. the meaning of various airport and navigation lights, the method of determining their status, and the procedure for airborne activation of runway lights.

2. Locates and identifies switches, spare fuses, and circuit breakers pertinent to night operations.

## II. AREA OF OPERATION: PREFLIGHT PROCEDURES

### A. TASK: PREFLIGHT INSPECTION

REFERENCE(S): FAA-H-8083-21; Gyroplane Flight Manual.

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

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

### B. TASK: COCKPIT MANAGEMENT

REFERENCE(S): 14 CFR part 91; AC 91-32; FAA-H-8083-25; Gyroplane Flight Manual.

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

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

### C. TASK: ENGINE STARTING

REFERENCE(S): AC 91-13, AC 91-42, AC 91-55; FAA-H-8083- 21, FAA-H-8083-25; Gyroplane Flight Manual.

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

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

2. Positions the gyroplane 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**

REFERENCE(S): FAA-H-8083-21, FAA-H-8083-25; AIM; Gyroplane Flight Manual.

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

1. Exhibits knowledge of the elements related to recommended taxi procedures, including rotor blade management and the effect of wind during taxiing.
2. Performs a brake check immediately after the gyroplane begins moving.
3. Properly positions rotor blades while taxiing.
4. Controls direction and speed without excessive use of brakes.
5. Complies with airport markings, signals, ATC clearances, and instructions.
6. Avoids other aircraft and hazards.
7. Properly positions the gyroplane for runup considering other aircraft, surface conditions, and if applicable, existing wind conditions.

**E. TASK: BEFORE TAKEOFF CHECK**

REFERENCE(S): FAA-H-8083-21, FAA-H-8083-25; Gyroplane Flight Manual.

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

1. Exhibits knowledge of the elements related to the before takeoff check. Including, the reasons for checking the items and how to detect malfunctions.
2. Positions the gyroplane properly considering other aircraft, surface conditions, and wind conditions.
3. Divides attention inside and outside the aircraft.
4. Accomplishes the before takeoff check and ensures that the gyroplane is in safe operating condition.
5. Reviews takeoff performance airspeeds and expected takeoff distance.
6. Describes takeoff emergency procedures to include low speed/high speed blade flap situations.

7. Avoids runway incursions and/or ensures no conflict with traffic prior to taxiing into takeoff position.
8. Utilizes proper rotor spin-up procedure.

## III. AREA OF OPERATION: AIRPORT OPERATIONS

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

REFERENCE(S): 14 CFR part 91; FAA-H-8083-25; AIM.

**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

REFERENCE(S): 14 CFR part 91; FAA-H-8083-25; AIM; Gyroplane Flight Manual.

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

1. Exhibits knowledge of the elements related to traffic patterns. Including, 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 traffic.
4. corrects for wind drift to maintain proper ground tract.
5. Maintains orientation with the runway/landing area in use.
6. Maintains traffic pattern altitude, ±100 feet and appropriate airspeed, ±5 knots.

### C. TASK: AIRPORT MARKINGS AND LIGHTING

REFERENCE(S): FAA-H-8083-25; AIM.

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

1. Exhibits knowledge of the elements related to airport runway and taxiway operations with emphasis on runway incursion avoidance.
2. Properly identifies and interprets airport 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 calm wind weather condition exists, the applicant's knowledge of the crosswind elements must be evaluated through oral testing; otherwise a crosswind takeoff and climb must be demonstrated.

REFERENCE(S): FAA-H-8083-21; Gyroplane Flight Manual.

**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. Prerotates rotor blades to appropriate RPM.
3. Clears the area, taxies into the takeoff position, and aligns the gyroplane with takeoff path.
4. Advances the throttle as required.
5. Maintains proper directional control during acceleration on the surface.
6. Attains the proper lift-off attitude and airspeed.
7. Accelerates to appropriate climb airspeed, ±5 knots.
8. Maintains takeoff power to a safe maneuvering altitude, and then sets climb power.
9. Maintains directional control and proper wind-drift correction throughout the takeoff and climb.
10. Remains aware of the possibility of wind shear and/or wake turbulence.
11. Completes the prescribed checklist, if applicable.

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

**NOTE:** If a calm wind weather condition exists, the applicant's knowledge of the crosswind elements must be evaluated through oral testing; otherwise a crosswind approach and landing must be demonstrated.

REFERENCE(S): FAA-H-8083-21; Gyroplane Flight Manual.

**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.

3. Considers the wind conditions, landing surface, and obstructions. Selects a suitable touchdown point.
4. Establishes and maintains a stabilized approach at the recommended airspeed, with gust correction factor applied, ±5 knots.
5. Maintains proper ground track with crosswind correction, if necessary.
6. Remains aware of the possibility of wind shear and/or wake turbulence.
7. Makes smooth, timely, and correct control application during the flare and touchdown.
8. Touches down smoothly, beyond and within 50 feet (20 meters) of a specified point with no appreciable drift, and with the longitudinal axis aligned with the intended landing path.
9. Completes the prescribed checklist.

## C. TASK: SOFT-FIELD TAKEOFF AND CLIMB

REFERENCE(S): FAA-H-8083-21; Gyroplane Flight Manual.

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

1. Exhibits knowledge of the elements related to a soft-field takeoff and climb.
2. Determines and utilizes best takeoff procedure based on the capabilities of this gyroplane and current conditions.
3. Positions the flight controls for existing wind conditions and to maximize lift as quickly as possible.
4. Prerotates rotor blades to appropriate RPM.
5. Clears the area, taxies onto the takeoff surface at a speed consistent with safety, without stopping, while advancing the throttle smoothly to takeoff power.
6. Maintains proper directional control.
7. Lifts off and remains in ground effect while accelerating to recommended climb airspeed.
8. Maintains recommended climb airspeed, ±5 knots.
9. Maintains takeoff power to a safe manoeuvring altitude, then sets climb power.
10. Maintains proper ground track with crosswind correction, if necessary.
11. Remains aware of the possibility of wind shear and/or wake turbulence.
12. Completes the prescribed checklist.

## D. TASK: SOFT-FIELD APPROACH AND LANDING

REFERENCE(S): FAA-H-8083-21; Gyroplane Flight Manual.

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

1. Exhibits knowledge of the elements related to soft-field approach and landing.
2. Considers the wind conditions, landing surface, and obstacles, and selects the most suitable touchdown area.
3. Establishes and maintains a stabilized approach at the recommended airspeed, with gust correction factor applied, ±5 knots.
4. Maintains proper ground track with crosswind correction, if necessary.
5. Remains aware of the possibility of wind shear and/or wake turbulence.
6. Makes smooth, timely, and correct control application during the flare and touchdown.
7. Touches down smoothly, at a minimum descent rate and airspeed with no appreciable drift, and with the longitudinal axis aligned with the intended landing path.
8. Completes the appropriate checklist.

## E. TASK: SHORT-FIELD TAKEOFF AND CLIMB

REFERENCE(S): FAA-H-8083-21; Gyroplane Flight Manual.

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

1. Exhibits knowledge of the elements related to short-field takeoff and maximum performance climb.
2. Properly positions controls.
3. Prerotates rotor blades to appropriate RPM.
4. Clears the area, taxies into the takeoff position, and aligns the gyroplane for maximum utilization of available takeoff area.
5. Advances the throttle as required.
6. Climbs at manufacturer' s recommended airspeed, or in its absence at V, ± 5 knots until the obstacle is cleared, or until the gyroplane is at least 50 feet above the surface.
7. After clearing the obstacle, accelerates to appropriate airspeed, ±5 knots.
8. Maintains takeoff power to a safe manoeuvring altitude, then sets climb power.

9. Maintains directional control and proper wind-drift correction throughout the takeoff and climb.
10. Remains aware of the possibility of wind shear and/or wake turbulence.
11. Completes the prescribed checklist, if applicable.

## F. TASK: SHORT-FIELD APPROACH AND LANDING

REFERENCE(S): FAA-H-8083-21; Gyroplane Flight Manual.

**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, and obstacles.
3. Selects a suitable touchdown point.
4. Establishes and maintains a stabilized approach at the recommended airspeed, with gust correction factor applied, ±5 knots.
5. Maintains proper ground track with crosswind correction, if necessary.
6. Remains aware of the possibility of wind shear and/or wake turbulence.
7. Makes smooth, timely, and correct control application during the flare and touchdown.
8. Touches down smoothly, with little or no float beyond and within 50 feet of a specified point with no appreciable drift, and with the longitudinal axis aligned with the intended landing path.
9. Applies brakes, as necessary, to stop in the shortest distance consistent with safety.
10. Completes the prescribed checklist, if applicable.

## G. TASK: GO-AROUND

REFERENCE(S): FAA-H-8083-21; Gyroplane Flight Manual.

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

1. Exhibits knowledge of the elements related to a go-around and when it is necessary.
2. Makes a timely decision to discontinue the approach to landing.
3. Applies appropriate power and establishes a climb at the appropriate airspeed, ±5 knots.

4. Maintains takeoff power to a safe maneuvering altitude, then sets climb power.
5. Maintains proper ground track with crosswind correction, if necessary.
6. Completes the prescribed checklist, if applicable.

## V. AREA OF OPERATION: PERFORMANCE MANEUVER

### A. TASK: STEEP TURNS

REFERENCE(S): FAA-H-8083-21; Gyroplane Flight Manual.

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

1. Exhibits knowledge of the elements related to steep turns.
2. Selects a safe altitude.
3. Establishes the manufacturers recommended airspeed or if one is not stated, a safe airspeed not to exceed Va.
4. Smoothly enters a coordinated steep 360° turn with a 40° bank, ±5°, immediately followed by at least a 360° turn in the opposite direction.
5. Divides attention between gyroplane control and orientation.
6. Maintains the entry altitude, ± 100 feet, airspeed, ± 10 knots, bank, ± 5° and rolls out on the entry heading ± 10° .

## VI. AREA OF OPERATION: NAVIGATION

### A. TASK: PILOTAGE AND DEAD RECKONING

REFERENCE(S): FAA-H-8083-25; AC 61-84.

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

1. Exhibits knowledge of the elements related to pilotage and dead reckoning.
2. Correctly flies to at least the first planned checkpoint to demonstrate accuracy in computations.
3. Identifies landmarks by relating the surface features to chart symbols.
4. Navigates by means of precomputed heading groundspeed, and elapsed time.
5. Verifies the gyroplane's position within 1 nautical mile of flight planned route at all times.
6. Arrives at the en route checkpoints within 3 minutes of the initial or revised ETA and provides a destination estimate.
7. Maintains the appropriate altitude, ±100 feet and established heading, ±10°.

### B. TASK: RADIO NAVIGATION AND RADAR SERVICES

**NOTE:** If the gyroplane is not equipped with radio navigation aids, competency will be evaluated through oral testing.

REFERENCE(S): FAA-H-8083-25; AC 61-84; Navigation Equipment Operation Manuals.

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

1. Exhibits knowledge of the elements related to radio navigation and ATC radar services.
2. Demonstrates the ability to use an airborne electronic navigation system.
3. Locates the gyroplane'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 or way point passage as appropriate.
6. Recognizes signal loss and takes appropriate action.
7. Uses proper communication procedures when utilizing ATC radar services.

9. Maintains the appropriate altitude, ± 100 feet and headings ± 10° .

## C. TASK: DIVERSION

REFERENCE(S): FAA-H-8083-21, FAA-H-8083-25; AC 61-84.

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

1. Exhibits knowledge of the elements related to procedures for 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, ±100 feet and established heading, ±10°.

## D. TASK: LOST PROCEDURES

REFERENCE(S): FAA-H-8083-25; AC 61-84; AIM.

**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 available navigation aids and/or contacts an appropriate facility for assistance, if gyroplane is radio equipped.
6. Plans a precautionary landing if deteriorating weather and/or fuel exhaustion is impending.

## VII. AREA OF OPERATION: FLIGHT AT SLOW AIRSPEEDS

### A. TASK: STRAIGHT-AND-LEVEL, TURNS, CLIMBS, AND DESCENTS AT SLOW AIRSPEEDS

REFERENCE(S): FAA-H-8083-21; Gyroplane Flight Manual.

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

1. Exhibits knowledge of the elements related to flight characteristics and controllability associated with manoeuvring during slow flight.
2. Selects a safe altitude.
3. Establishes and maintains a specified airspeed, +5,-0, in straight-and-level flight, turns, climbs, and descents as directed.
4. Maintains the specified altitude, ±50 feet.
5. Maintains the specified heading during straight flight, ±5°.
6. Maintains specified bank angle, ±5°, during turning flight.
7. Rolls out on specified headings, ±5°.
8. Divides attention between gyroplane control and orientation

### B. TASK: HIGH RATE OF DESCENT AND RECOVERY

REFERENCE(S): FAA-H-8083-21; Gyroplane Flight Manual.

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

1. Exhibits knowledge of the elements related to aerodynamic factors associated with a high rate of descent and recovery and how this relates to actual approach and landing situations.
2. Selects an entry altitude that allows the task to be completed no lower than 500 feet AGL.
3. Establishes an airspeed that will induce a high rate of descent in high or low power settings.
4. Recognizes the onset of a high rate of descent.
5. Promptly recovers with or without power as directed.
6. Maintains the specified heading, ±10°.
7. Resumes normal cruising flight.

## VIII. AREA OF OPERATION: EMERGENCY OPERATIONS

**NOTE:** TASK B may be tested orally at the discretion of the examiner, TASKS C through E are knowledge only items.

### A. TASK: EMERGENCY APPROACH AND LANDING

REFERENCE(S): FAA-H-8083-21; Gyroplane Flight Manual.

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

1. Exhibits knowledge of the elements related to emergency approach and landing with a power failure.
2. Establishes and maintains the appropriate airspeed, ±5 knots.
3. Selects a suitable landing area, considering the possibility of an actual forced landing.
4. Plans and follows a flight pattern to the selected landing area, considering altitude, wind, terrain, obstacles, and other factors.
5. Attempts to determine the reason for the simulated malfunction, if time permits.
6. Completes the prescribed checklist, if applicable.

### B. TASK: LIFT-OFF AT LOW AIRSPEED AND HIGH ANGLE OF ATTACK

REFERENCE(S): FAA-H-8083-21; Gyroplane Flight Manual.

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

1. Exhibits knowledge of the elements related to lift-off at low airspeed and high angle of attack, including combination of conditions, which are likely to lead to this situation.
2. Properly positions the controls.
3. Prerotates rotor blades to appropriate RPM, if applicable.
4. Clears the area, taxies into the takeoff position and aligns the gyroplane with the takeoff path.
5. Maintains proper directional control during acceleration on the surface.
6. Rotates for takeoff prior to normal lift-off airspeed with high angle of attack.
7. Detects the development of a low airspeed and high angle of attack, and initiates prompt corrective action.
8. Accelerates to appropriate climb airspeed, ±5 knots.

**C. TASK: GROUND RESONANCE**

REFERENCE(S): FAA-H-8083-25; Gyroplane Flight Manual.

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

1. Exhibits knowledge of the elements related to a fully articulated rotor system and the aerodynamics of ground resonance.
2. Understands the conditions that contribute to ground resonance.
3. Explains preventive flight techniques used during takeoffs and landings.

**D. TASK: SYSTEMS AND EQUIPMENT MALFUNCTIONS**

REFERENCE(S): Gyroplane Flight Manual.

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

1. Exhibits knowledge of the elements related to causes, I indications, and pilot actions for various systems and equipment malfunctions.
2. Analyzes the situation and takes action, appropriate to the gyroplane used for the practical test, in at least four (4) of the following areas—

    a. engine/oil and fuel.
    b. hydraulic, if applicable.
    c. electrical.
    d. carburettor or induction icing.
    e. smoke and/or fire.
    f. flight control/trim.
    g. pitot static/vacuum and associated flight instruments, if applicable.
    h. rotor and/or propeller.
    i. any other emergency unique to the gyroplane flown.

**E. TASK: EMERGENCY EQUIPMENT AND SURVIVAL GEAR**

REFERENCE(S): FAA-H-8083-21; Gyroplane Flight Manual.

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

1. Exhibits knowledge of the elements related to emergency equipment appropriate to the gyroplane used for the practical test by describing¾
2. Identifies appropriate equipment that should be aboard the gyroplane.

## IX. AREA OF OPERATION: POST-FLIGHT PROCEDURES

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

REFERENCE(S): FAA-H-8083-21, FAA-H-8083-25; AIM; Gyroplane Flight Manual.

**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 post flight inspection and secures the aircraft.

# APPENDIX

# TASK VS. FLIGHT SIMULATION TRAINING DEVICE CREDIT

**Reserved**