



SKILL TEST STANDARDS

FLIGHT INSTRUCTOR – HELICOPTER

SECTION 1 GENERAL

1.1 PURPOSE

This Advisory Circular (AC) provides guidance to individuals, organizations and examiners regarding the determination that an individual's skill level is adequate for the issuance of a Flight Instructor License with a Helicopter rating.

1.2 STATUS OF THIS ADVISORY CIRCULAR

This is an original issuance of this AC.

1.3 BACKGROUND

- A. ICAO Standards in Annex 1, Personnel Licensing, -I, require that, before issuing an Flight Instructor License, the State must assess the knowledge and skill of the individual to perform such operations.
- B. BASR Schedule 8 establishes the specific requirements for Flight Instructor testing that parallel the ICAO Standards.
- C. This AC provides amplified standards for a Flight Instructor applicant and the person assigned to conduct the skill test for license

1.4 APPLICABILITY

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

1.5 RELATED REGULATIONS

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

- BASR Schedule 8, Personnel Licensing
- BASR Schedule 10, Operations of Aircraft

- Advisory circulars containing Skill Test Standards (STS) are published to prescribe the implementation, performance and competency determined to be necessary to meet aeronautical skill requirements of BASR Schedule 8.
- The application of different standards can only be applied when specifically authorized by the Authority.
- Where an AC is referred to in a 'Note' below the regulation, the AC remains as guidance material,
- ACs should always be read in conjunction with the referenced regulations.

1.6 RELATED PUBLICATIONS

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

- 1) BCAD-FSI
 - ◆ AC 08-001, Personnel Licensing
 - ◆ AC 08-003, English Language Proficiency Standards
 - ◆ AC 08-005, Flight Testing
 - ◆ AC 08-006, Private Pilot–Helicopter Skill Test Standards
 - ◆ AC 08-012, Commercial Pilot–Helicopter Skill Test Standards
 - ◆ AC 08-024, Airline Transport Pilot–Helicopter Skill Test Standards
- 2) Manufacturer of the aircraft to be used for the skill test
 - ◆ Pilot Operating Handbook, or
 - ◆ Approved Flight Manual
- 3) United States Federal Aviation Administration (FAA)
 - ◆ AC 00-45, Aviation Weather
 - ◆ FAA-H-8083-9, Aviation Instructor's Manual
 - ◆ FAA-H-80-83-23, Rotorcraft Flying Handbook
 - ◆ FAA-H-80-83-25, Pilot Handbook of Aeronautical Knowledge
- 4) International Civil Aviation Organization (ICAO)
 - ◆ Annex, 1, Personnel Licensing

Copies may be obtained from the Flight Standards Inspectorate.

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

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

1.7 DEFINITIONS & ACRONYMS

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

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

SECTION 2 INTRODUCTORY INFORMATION

2.1 FLIGHT INSTRUCTOR – HELICOPTER SKILL TEST PREREQUISITES

An applicant for the Flight Instructor–Helicopter Skill Test is required to—

- 1) Be at least 18 years of age;
- 2) Be able to read, speak, write, and understand the Portuguese language;
- 3) Hold either a commercial/instrument pilot or airline transport pilot license with an aircraft category rating appropriate to the flight instructor rating sought;
- 4) Have passed the Fundamentals of Instruction knowledge test since the beginning of the 24 month in which the skill test is to be taken.

FOI test results not required for—

 - Holders of a current Flight Instructor License;
 - Certificated school teachers..
- 5) Have passed the appropriate flight instructor knowledge test since the beginning of the 24th month before the month in which the skill test is to be taken;
- 6) Have satisfactorily accomplished the required training and obtained the aeronautical experience prescribed;
- 7) Possess at least a current Class 2 medical certificate;
- 8) Have an endorsement from an authorized instructor certifying that the applicant—
 - (a) Has received and logged training time within 60 days preceding the date of application in preparation for the skill test, and
 - (b) Is prepared for the skill test; and
- 9) Also have an endorsement certifying that the applicant has demonstrated satisfactory knowledge of the subject areas in which the applicant was deficient on the airman knowledge test.

2.2 APPLICANT SKILL TEST PREPARATION CHECKLIST

The following guidance is provided to ensure that the applicant arrives at the appointment with all equipment and documents necessary for the administration of the skill test, including—

2.2.1 APPOINTMENT WITH EXAMINER

- A. Contact the FSI to be assigned an examiner for the purpose of the skill test.
- B. Contact the examiner to arrange a suitable location, date and time.
- C. Plan to arrive at the designated location before the actual time of the appointment.

2.2.2 ACCEPTABLE AIRCRAFT

The applicant must provide a suitable aircraft for the type of skill test to be administered, and provide the following associated documentation—

- 1) Airworthiness certificate
- 2) Registration certificate
- 3) Operating limitations
- 4) Aircraft logbook maintenance records of airworthiness inspections and AD compliance

- 5) Pilot's Operating Handbook and/or the Approved Rotocraft Flight Manual

2.2.3 PERSONAL EQUIPMENT

The applicant must provide the following personal equipment for the skill test—

- 1) View-limiting device
- 2) Current aeronautical charts
- 3) Computer and plotter
- 4) Flight plan form
- 5) Flight logs
- 6) Appropriate route guide and other flight information publications

2.2.4 PERSONAL RECORDS

The applicant must provide the following personal records before the skill test can be administered—

- 1) Identification-photo/signature ID
- 2) Pilot certificate
- 3) Current and appropriate medical certificate
- 4) Completed FSI Form 41, Airman Certificate and/or Rating Application, with Instructor's Signature (If applicable)
- 5) Aeronautical knowledge test report
- 6) Pilot Logbook with appropriate instructor endorsements
- 7) FSI-Form 51, Notice of Disapproval (if applicable)
- 8) Graduation certificate from an Approved Training Organization (if applicable)
- 9) Examiner's fee

2.3 SKILL TEST STANDARDS FORMAT

- A. **Areas Of Operation** are phases of the skill test arranged in a logical sequence within each standard.
- They begin with Preflight Preparation and end with Postflight Procedures.
 - The examiner, however, may conduct the operational portions of the skill test in any sequence that will result in a complete and efficient test.
 - However the ground portion of the skill test shall be accomplished before the flight portion.
- B. **Tasks** are titles of knowledge areas, flight procedures, or maneuvers appropriate to an Area Of Operation.
- An accompanying note may be used to emphasize special considerations required in the AREA OF OPERATION or TASK.
- C. The **Objective** lists the elements that must be satisfactorily performed to demonstrate competency in a TASK. The Objective includes—
- 1) Specifically what the applicant should be able to do;
 - 2) Conditions under which the *Task* is to be performed; and
 - 3) Acceptable performance standards.
- The tolerances specified in the individual skill test tasks represent the performance expected in good flying conditions.

2.4 FLIGHT INSTRUCTOR SKILL TEST CONSIDERATIONS

2.4.1 SCOPE OF SKILL STANDARDS

A. The BCAD-FSI requires that all Flight Instructor skill tests be conducted in accordance with the appropriate Flight Instructor Skill Test Standards and the policies set forth in AC 07-005.

The flight instructor applicant must be prepared to demonstrate the ability to instruct effectively in ALL TASKs included in the AREAS OF OPERATION of the appropriate skill test standards, unless otherwise noted.

B. All of the procedures and maneuvers in the Private Pilot and Commercial Pilot Skill Test Standards have been included in the Flight Instructor Skill Test Standards.

- But, the flight instructor STS allows the examiner to select one or more Tasks in each Area Of Operation therefore allowing the skill test for initial certification to be completed within a reasonable time frame.
- In certain Areas Of Operation, there are required Tasks, which the examiner must select. These required TASKs are identified by Notes immediately following the Area Of Operation titles.

2.4.2 INSTRUCTION KNOWLEDGE

The term "instructional knowledge" as used in the Flight Instructor STS means the instructor applicant is capable of using the appropriate reference to provide the "application or correlative level of knowledge" of a subject matter topic, procedure, or maneuver.

The flight instructor applicant's discussions, explanations, and descriptions should follow the recommended teaching procedures and techniques explained in the, Aviation Instructor's Handbook.

2.4.3 PROFICIENCY VS. DEMONSTRATION

- A. The intent of Tasks using the term "proficiency" is to ensure that the flight instructor applicant is tested on proficiency for the purpose of teaching to students these Tasks that are required for pilot certification.
- B. The intent of Tasks using the term "demonstration" is to ensure that the flight instructor applicant is knowledgeable and proficient in these maneuvers and can teach them to students for both familiarization and awareness purposes.


2.4.4 DEMONSTRATE & EXPLAIN

- A. With the exception of the required TASKs, the examiner shall not tell the applicant in advance, which TASKs will be included in the "plan of action." The applicant should be well prepared in all knowledge and skill areas included in the standards.
- B. Throughout the flight portion of the skill test, the examiner will evaluate the applicant's ability to simultaneously demonstrate and explain procedures and maneuvers, and to give flight instruction to students at various stages of flight training and levels of experience.

2.4.5 INCLUSION OF COMMON ERRORS

- A. The purpose for including common errors in certain Tasks is to assist the examiner in determining that the flight instructor applicant has the ability to recognize, analyze, and

correct such errors. The common errors listed in the Task Objectives may or may not be found in the TASK References. .

	<ul style="list-style-type: none"> ● The examiner is expected to use good judgment in the performance of simulated emergency procedures. The use of the safest means for simulation is expected. ● Consideration must be given to local conditions, both meteorological and topographical, at the time of the test, as well as the applicant's workload, and the condition of the aircraft used. ● If the procedure being evaluated would jeopardize safety, it is expected that the applicant will simulate that portion of the maneuver.
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2.5 WAIVERS FOR PREVIOUS ACCOMPLISHMENT OF TASK

- A. The actual accomplishment of the required Areas of Operation or specific Tasks in those operations may be waived at the examiner's discretion when the applicant holds another Flight Instructor rating in which—
- 1) Those tasks were accomplished; and
 - 2) There are no obvious skill differences for the accomplishment of those tasks between the category or class ratings.

2.6 SATISFACTORY PERFORMANCE

The skill test is passed if, in the judgment of the examiner, the applicant demonstrates satisfactory performance with regard to—

- 1) Knowledge of the fundamentals of instructing;
- 2) Knowledge of the technical subject areas;
- 3) Knowledge of the flight instructor's responsibilities concerning the pilot certification process;
- 4) Knowledge of the flight instructor's responsibilities concerning logbook entries and pilot certificate endorsements;
- 5) Ability to demonstrate the procedures and maneuvers selected by the examiner to at least the Commercial Pilot skill level while giving effective instruction;
- 6) Competence in teaching the procedures and maneuvers selected by the examiner;
- 7) Competence in describing, recognizing, analyzing, and correcting common errors simulated by the examiner; and
- 8) Knowledge of the development and effective use of a course of training, a syllabus, and a lesson plan.

2.7 UNSATISFACTORY PERFORMANCE

- A. If, in the judgment of the examiner, the applicant does not meet the standards of performance of any TASK performed, the associated AREA OF OPERATION is failed and therefore, the skill test is failed.
- B. The examiner or applicant may discontinue the test at any time when the failure of an AREA OF OPERATION makes the applicant ineligible for the certificate or rating sought.
- The test may be continued ONLY with the consent of the applicant.

- C. If the test is discontinued, the applicant is entitled credit for only those AREAS OF OPERATION and their associated TASKs satisfactorily performed.

The applicant must understand that during a retest, and at the discretion of the examiner, any TASK may be re-evaluated, including those previously passed.

- D. Examples of specific reasons for disqualification are—

- 1) Failure to perform a procedure or maneuver to the COMMERCIAL PILOT skill level while giving effective flight instruction;
- 2) Failure to provide an effective instructional explanation while demonstrating a procedure or maneuver (explanation during the demonstration must be clear, concise, technically accurate, and complete with no prompting from the examiner);
- 3) Any action or lack of action by the applicant which requires corrective intervention by the examiner to maintain safe flight;
- 4) Failure to use proper and effective visual scanning techniques to clear the area before and while performing maneuvers.

SECTION 3 AREA OF OPERATION: FUNDAMENTALS OF INSTRUCTING

3.1 TASK: THE LEARNING PROCESS

Objective. To determine that the applicant exhibits instructional knowledge of the elements of the learning process by describing—

The examiner shall select at least Tasks 3.5 and 3.6 from this Area of Operation.

- 1) The definition and characteristics of learning.
- 2) Practical application of the laws of learning.
- 3) Factors involved in how people learn.
- 4) Recognition and proper use of the various levels of learning.
- 5) Principles that are applied in learning a skill.
- 6) Factors related to forgetting and retention.
- 7) How the transfer of learning affects the learning process.
- 8) How the formation of habit patterns affects the learning process.

3.2 TASK: HUMAN BEHAVIOR

Objective. To determine that the applicant exhibits instructional knowledge of the elements related to human behavior by describing—

- 1) Control of human behavior.
- 2) Development of student potential.
- 3) Relationship of human needs to behavior and learning.
- 4) Relationship of defense mechanisms to student learning and pilot decision making.
- 5) General rules which a flight instructor should follow during student training to ensure good human relations.

3.3 TASK: THE TEACHING PROCESS

Objective. To determine that the applicant exhibits instructional knowledge of the elements of the teaching process by describing—

- 1) Preparation of a lesson for a ground or flight instructional period.
- 2) Presentation of knowledge and skills, including the methods, which are suitable in particular situations.
- 3) Application, by the student, of the knowledge and skills presented by the instructor.
- 4) Review of the material presented and the evaluation of student performance and accomplishment.

3.4 TASK: TEACHING METHODS

Objective. To determine that the applicant exhibits instructional knowledge of the elements of teaching methods by describing—

- 1) The organization of a lesson, i.e., introduction, development, and conclusion.
- 2) The lecture method.
- 3) The guided discussion method.
- 4) The demonstration-performance method.
- 5) Computer/video assisted instruction.

3.5 TASK: CRITIQUE & EVALUATION

Objective. To determine that the applicant exhibits instructional knowledge of the elements of critique and evaluation by describing—

- 1) Purpose and characteristics of an effective critique.
- 2) Difference between critique and evaluation.
- 3) Characteristics of effective oral questions and what type to avoid.
- 4) Responses to student questions.
- 5) Characteristics and development of effective written tests.
- 6) Characteristics and uses of performance tests, specifically, the skill test standards.

3.6 TASK: FLIGHT INSTRUCTOR CHARACTERISTICS & RESPONSIBILITIES

Objective. To determine that the applicant exhibits instructional knowledge of the elements of flight instructor characteristics and responsibilities by describing—

- 1) Major characteristics and qualifications of a professional flight instructor.
- 2) Role of the flight instructor in dealing with student stress, anxiety, and psychological abnormalities.
- 3) Flight instructor's responsibility with regard to student pilot supervision and surveillance.
- 4) Flight instructor's authority and responsibility for endorsements and recommendations.
- 5) Flight instructor's responsibility in the conduct of the required FAA flight review.

3.7 TASK: PLANNING INSTRUCTIONAL ACTIVITY

Objective. To determine that the applicant exhibits instructional knowledge of the elements related to the planning of instructional activity by describing—

- 1) Development of a course of training.
- 2) Content and use of a training syllabus.
- 3) Purpose, characteristics, proper use, and items of a lesson plan.
- 4) Flexibility features of a course of training, syllabus, and lesson plan required to accommodate students with varying backgrounds, levels of experience, and ability.

SECTION 4 AREA OF OPERATION: TECHNICAL SUBJECTS

4.1 TASK: AEROMEDICAL FACTORS

Objective. To determine that the applicant exhibits instructional knowledge of the elements related to aeromedical factors by describing—

The examiner shall select Task 3.12 and at least one other Task from this Area of Operation.

- 1) Hypoxia, its symptoms, effects, and corrective action.
- 2) Hyperventilation, its symptoms, effects, and corrective action.
- 3) Middle ear and sinus problems, their causes, effects, and corrective action.
- 4) Spatial disorientation, its causes, effects, and corrective action.
- 5) Motion sickness, its causes, effects, and corrective action.
- 6) Effects of alcohol and drugs, and their relationship to safety.
- 7) Carbon monoxide poisoning, its symptoms, effects, and corrective action.
- 8) How evolved gas from scuba diving can affect a pilot during flight.
- 9) Fatigue, its effects and corrective action.

4.2 TASK: VISUAL SCANNING & COLLISION AVOIDANCE

Objective. To determine that the applicant exhibits instructional knowledge of the elements related to visual scanning and collision avoidance by describing—

- 1) Relationship between a pilot's physical or mental condition and vision.
- 2) Environmental conditions and optical illusions that affect vision.
- 3) "See and avoid" concept.
- 4) Practice of "time sharing" of attention inside and outside the cockpit.
- 5) Proper visual scanning technique.
- 6) Relationship between poor visual scanning habits, aircraft speed differential, and increased collision risk.
- 7) Appropriate clearing procedures.
- 8) Situations which involve the greatest collision risk.

4.3 TASK: USE OF DISTRACTIONS DURING FLIGHT TRAINING

Objective. To determine that the applicant exhibits instructional knowledge of the elements related to use of distractions during flight training by describing—

- 1) Flight situations where pilot distraction can be a causal factor related to aircraft accidents.
- 2) Selection of realistic distractions for specific flight situations.
- 3) Relationship between division of attention and flight instructor use of distractions.
- 4) Difference between proper use of distractions and harassment.

4.4 TASK: PRINCIPLES OF FLIGHT

Objective. To determine that the applicant exhibits instructional knowledge of the elements related to principles of flight by describing—

- 1) Characteristics of different rotor systems.
- 2) Effect of lift, weight, thrust, and drag during various flight maneuvers.
- 3) Retreating blade stall.
- 4) Torque effect.
- 5) Dissymmetry of lift.
- 6) Blade flapping and coning.
- 7) Coriolis effect.
- 8) Translating tendency.
- 9) Translational lift.
- 10) Transverse flow effect.
- 11) Pendulum action.

4.5 TASK: HELICOPTER FLIGHT CONTROLS

Objective. To determine that the applicant exhibits instructional knowledge of the elements related to flight controls of the helicopter used for the skill test by describing—

- 1) Collective pitch control.
- 2) Cyclic pitch control.
- 3) Anti-torque control.
- 4) Throttle control.

4.6 TASK: HELICOPTER WEIGHT & BALANCE

Objective. To determine that the applicant exhibits instructional knowledge of the elements related to weight and balance by describing—

- 1) Weight and balance terms.
- 2) Effect of weight and balance on performance.
- 3) Determination of total weight, center of gravity (longitudinal and lateral), and changes that occur when adding, removing, or shifting weight.

4.7 TASK: NAVIGATION & FLIGHT PLANNING

Objective. To determine that the applicant exhibits instructional knowledge of the elements related to navigation and flight planning by describing—

- 1) Terms used in navigation.
- 2) Features of aeronautical charts.
- 3) Importance of using proper and current aeronautical charts.
- 4) Identification of various types of airspace.
- 5) Method of plotting a course, selection of fuel stops and alternates, and appropriate actions in the event of unforeseen situations.
- 6) Fundamentals of pilotage and dead reckoning.
- 7) Fundamentals of radio navigation.
- 8) Diversion to an alternate.
- 9) Lost procedures.
- 10) Computation of fuel requirement.
- 11) Importance of preparing and properly using a flight log.
- 12) Importance of a weather check and the use of good judgment in making a “go/no-go” decision.
- 13) Purpose of, and procedure used in, filing a flight plan.
- 14) Global positioning system (GPS).

4.8 TASK: NIGHT OPERATIONS

Objective. To determine that the applicant exhibits instructional knowledge of the elements related to night operations by describing—

- 1) Factors related to night vision, disorientation, and optical illusions.
- 2) Weather considerations specific to night operations.
- 3) Preflight inspection, including windshield and window cleanliness.
- 4) Proper adjustment of interior lights, including availability of flashlight.
- 5) Use of position and anticollision lights prior to, during, and after engine start.
- 6) Hover taxiing and orientation on an airport or heliport.
- 7) Takeoff and climb-out.
- 8) Inflight orientation.
- 9) Importance of verifying the helicopter's attitude by visual references and flight instruments.
- 10) Recovery from critical flight attitudes by visual references and flight instruments.
- 11) Emergencies such as electrical failure, engine malfunction, and emergency landings.
- 12) Traffic patterns.
- 13) Approaches and landings with and without landing lights.

4.9 TASK: REGULATIONS & PUBLICATIONS

Objective. To determine that the applicant exhibits instructional knowledge of the elements related to pertinent regulations and publications, their purpose, general content, availability, and method of revision, by describing—

- 1) Bahamas Aviation Safety Regulations, Schedules 1, 8 and 10.
- 2) BCAD-FSI advisory circulars.
- 3) Flight information publications.
- 4) Skill Test Standards.
- 5) Helicopter Flight Manual (as applicable).

4.10 TASK: AIRWORTHINESS REQUIREMENTS

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

- 1) Explaining—
 - (a) Required instruments and equipment for day/night VFR.
 - (b) Procedures and limitations for determining airworthiness of the 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.

4.11 TASK: NATIONAL AIRSPACE SYSTEM

Objective. To determine that the applicant exhibits instructional knowledge of the elements of the national airspace system by describing—

- 1) Basic VFR Weather Minimums—for all classes of airspace.
- 2) Airspace classes—the operating rules, pilot certification, and aircraft 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.
- 4) Temporary flight restrictions (TFRs).

4.12 TASK: LOGBOOK ENTRIES & CERTIFICATE ENDORSEMENTS

Objective. To determine that the applicant exhibits instructional knowledge of the elements related to logbook entries and certificate endorsements by describing—

- 1) Required logbook entries for instruction given.
- 2) Required student pilot certificate endorsements, including appropriate logbook entries.
- 3) Preparation of a recommendation for a pilot skill test, including appropriate logbook entry.
- 4) Required endorsement of a pilot logbook for the satisfactory completion of an FAA flight review.
- 5) Required flight instructor records.

SECTION 5 AREA OF OPERATION: PREFLIGHT PREPARATION

5.1 TASK: CERTIFICATES & DOCUMENTS

The examiner shall select at least one Task from this Area of Operation.

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

- 1) Requirements for the issuance of pilot and flight instructor certificates and ratings, and the privileges and limitations of those certificates and ratings.
- 2) Medical certificates, class, duration, and how to obtain them.
- 3) Airworthiness and registration certificates.
- 4) Helicopter handbooks and manuals.
- 5) Helicopter maintenance requirements and records.

5.2 TASK: WEATHER INFORMATION

Objective. To determine that the applicant exhibits instructional knowledge of the elements related to weather information by describing—

- 1) Importance of a thorough weather check.
- 2) Various sources for obtaining weather information.
- 3) Use of weather reports, forecasts, and charts.
- 4) Use of PIREPs, SIGMETs, and AIRMETs.
- 5) Recognition of aviation weather hazards to include wind shear.
- 6) Factors to be considered in making a “go/no-go” decision.

5.3 TASK: OPERATION OF SYSTEMS

Objective. To determine that the applicant exhibits instructional knowledge of the elements related to operation of systems, as applicable to the helicopter used for the skill test, by describing—

- 1) Powerplant, including controls, indicators, cooling, and fire detection.
- 2) Main rotor system.
- 3) Anti-torque system.

- 4) Landing gear, brakes, and steering system.
- 5) Fuel, oil, and hydraulic systems.
- 6) Electrical system.
- 7) Environmental system.
- 8) Pitot static/vacuum system and associated instruments.
- 9) Anti-icing systems.
- 10) Avionics equipment.

5.4 TASK: PERFORMANCE & LIMITATIONS

Objective. To determine that the applicant exhibits instructional knowledge of the elements related to performance and limitations by describing—

- 1) Determination of weight and balance condition.
- 2) Use of performance charts and other data for determining performance in various phases of flight.
- 3) Effects of density altitude and other atmospheric conditions on performance.
- 4) Factors to be considered when operating within “avoid” areas of the height/velocity diagram.
- 5) Conditions that may cause loss of tail rotor effectiveness/ unanticipated loss of directional control.
- 6) Other factors to be considered in determining that required performance is within the helicopter's capabilities.

SECTION 6 AREA OF OPERATION: PREFLIGHT LESSON ON A MANEUVER TO BE PERFORMED IN FLIGHT

6.1 TASK: MANEUVER LESSON

Objective. To determine that the applicant exhibits instructional knowledge of the selected maneuver by—

- 1) Using a lesson plan that includes all essential items to make an effective and organized presentation.
- 2) Stating the objective.
- 3) Giving an accurate, comprehensive oral description of the maneuver, including the elements and associated common errors.
- 4) Using instructional aids, as appropriate.
- 5) Describing the recognition, analysis, and correction of common errors.

- Examiner shall select at least one maneuver from the Areas Of Operations in Sections 9 through 14.
- Applicant will be required to present a preflight lesson on the selected maneuver as the lesson would be taught to a student.
- Previously developed lesson plans from the applicant's library may be used.

SECTION 7 AREA OF OPERATION: PREFLIGHT PROCEDURES

7.1 TASK: PREFLIGHT INSPECTION

The examiner shall select at least one Task from this Area of Operation.

Objective. To determine that the applicant—

- 1) Exhibits instructional knowledge of the elements of a preflight inspection, as applicable to the helicopter used for the skill test, by describing—
 - (a) Reasons for the preflight inspection, items that should be inspected, and how defects are detected.
 - (b) Importance of using the appropriate checklist.
 - (c) Removal of control locks, rotor blade tie-down, and wheel chocks, if applicable.
 - (d) Determination of fuel, oil, and hydraulic fluid quantity, possible contamination and/or leaks.
 - (e) Inspection of flight controls.
 - (f) Detection of visible structural damage.
 - (g) Importance of proper loading and securing of baggage and equipment.
 - (h) Use of sound judgment in determining whether the helicopter is in condition for safe flight.
- 2) Exhibits instructional knowledge of common errors related to a preflight inspection by describing—
 - (a) Failure to use or improper use of checklist.
 - (b) Hazards which may result from allowing distractions to interrupt a preflight inspection.
 - (c) Inability to recognize discrepancies.
 - (d) Failure to ensure servicing with the proper fuel and oil.
- 3) Demonstrates and simultaneously explains a preflight inspection from an instructional standpoint.

7.2 TASK: SINGLE-PILOT RESOURCE MANAGEMENT

Objective. To determine that the applicant—

- 1) Exhibits instructional knowledge of the elements of crew resource management by describing—
 - (a) Proper arranging and securing of essential materials and equipment in the cockpit.
 - (b) Proper use and/or adjustment of such cockpit items as safety belts, shoulder harnesses, anti-torque pedals, and seats.
 - (c) Occupant briefing on emergency procedures, rotor blade avoidance, and use of safety belts and shoulder harnesses.
 - (d) Utilization of all available human resources, maintenance personnel, weather briefers, and air traffic control, and other groups routinely working with the pilot who are involved in decisions that are required to operate a flight safely.
- 2) Exhibits instructional knowledge of common errors related to crew resource management by describing—

- (a) Failure to place and secure essential materials and equipment for easy access during flight.
 - (b) Improper adjustment of equipment and controls.
 - (c) Failure to brief occupants on emergency procedures, rotor blade avoidance, and use of safety belts and shoulder harnesses.
 - (d) Failure to utilize all available human resources, maintenance personnel, weather briefers, air traffic control, and other groups routinely working with the pilot who are involved in decisions that are required to operate a flight safely.
- 3) Demonstrates and simultaneously explains crew resource management from an instructional standpoint.

7.3 TASK: ENGINE STARTING & ROTOR ENGAGEMENT

Objective. To determine that the applicant—

- 1) Exhibits instructional knowledge of the elements of engine starting and rotor engagement, as appropriate to the helicopter used for the skill test, by describing—
 - (a) Safety precautions related to engine starting and rotor engagement.
 - (b) Proper positioning of helicopter to avoid hazards.
 - (c) Use of external power.
 - (d) Effect of atmospheric conditions on engine starting and rotor engagement.
 - (e) Importance of proper friction adjustment.
 - (f) Importance of following the appropriate checklist.
 - (g) Adjustment of engine and flight controls during engine start and rotor engagement.
 - (h) Prevention of undesirable helicopter movement during and after engine start and rotor engagement.
- 2) Exhibits instructional knowledge of common errors related to engine starting and rotor engagement by describing—
 - (a) Failure to use or improper use of checklist.
 - (b) Exceeding starter time limitations.
 - (c) Excessive engine RPM and/or temperatures during start.
 - (d) Failure to ensure adequate main rotor or tail rotor clearance.
- 3) Demonstrates and simultaneously explains engine starting and rotor engagement from an instructional standpoint.

7.4 TASK: BEFORE TAKEOFF CHECK

Objective. To determine that the applicant—

- 1) Exhibits instructional knowledge of the elements of the before takeoff check by describing—
 - (a) Division of attention inside and outside the cockpit.
 - (b) Importance of following the checklist and responding to each item.
 - (c) Reasons for ensuring suitable engine temperatures and pressures for run-up and takeoff.
 - (d) Method used to determine that the helicopter is in safe operating condition.

- (e) Importance of reviewing emergency procedures.
 - (f) Method used for ensuring that takeoff area or path is free of hazards.
 - (g) Method used for ensuring adequate clearance from other traffic.
- 2) Exhibits instructional knowledge of common errors related to the before takeoff check by describing—
 - (a) Failure to use or the improper use of the checklist.
 - (b) Acceptance of marginal helicopter performance.
 - (c) An improper check of controls.
 - 3) Demonstrates and simultaneously explains a before takeoff check from an instructional standpoint.
 - 4) Analyzes and corrects simulated common errors related to a before takeoff check.

SECTION 8 AREA OF OPERATION: AIRPORT & HELIPORT OPERATIONS

8.1 TASK: RADIO COMMUNICATIONS & ATC LIGHT SIGNALS

Objective. To determine that the applicant—

The examiner shall select at least one Task from this Area of Operation.

- 1) Exhibits instructional knowledge of the elements of radio communications and ATC light signals by describing—
 - (a) Selection and use of appropriate radio frequencies.
 - (b) Recommended procedure and phraseology for radio voice communications.
 - (c) Receipt, acknowledgment of, and compliance with, ATC clearances and other instructions.
 - (d) Prescribed procedure for radio communications failure.
 - (e) Interpretation of, and compliance with, ATC light signals.
- 2) Exhibits instructional knowledge of common errors related to radio communications and ATC light signals by describing—
 - (a) Use of improper frequencies.
 - (b) Improper techniques and phraseologies when using radio voice communications.
 - (c) Failure to acknowledge, or properly comply with, ATC clearances and other instructions.
 - (d) Use of improper procedures for radio communications failure.
 - (e) Failure to understand, or to properly comply with, ATC light signals.

8.2 TASK: TRAFFIC PATTERNS

Objective. To determine that the applicant—

- 1) Exhibits instructional knowledge of the elements of traffic pattern operations by describing—
 - (a) Operations at controlled and uncontrolled airports and heliports.
 - (b) Adherence to traffic pattern procedures, instructions, and appropriate regulations.
 - (c) How to maintain appropriate spacing from other traffic.

- (d) How to maintain desired ground track.
 - (e) Wind shear and wake turbulence.
 - (f) Orientation with landing area or heliport in use.
 - (g) How to establish an approach to the landing area or heliport.
 - (h) Use of checklist.
- 2) Exhibits instructional knowledge of common errors related to traffic patterns by describing—
 - (a) Failure to comply with traffic pattern instructions, procedures, and rules.
 - (b) Improper correction for wind drift.
 - (c) Inadequate spacing from other traffic.
 - (d) Improper altitude or airspeed control.
 - 3) Demonstrates and simultaneously explains traffic patterns from an instructional standpoint.
 - 4) Analyzes and corrects simulated common errors related to traffic patterns.

8.3 TASK: AIRPORT & HELIPORT MARKINGS & LIGHTING

Objective. To determine that the applicant exhibits instructional knowledge of the elements of airport and heliport markings and lighting by describing—

- 1) Identification and proper interpretation of airport and heliport markings.
- 2) Identification and proper interpretation of airport and heliport lighting.

SECTION 9 AREA OF OPERATION: HOVERING MANEUVERS

9.1 TASK: VERTICAL TAKEOFF & LANDING

Objective. To determine that the applicant—

The examiner shall select at least one Task from this Area of Operation.

- 1) Exhibits instructional knowledge of the elements of a vertical takeoff and landing by describing—
 - (a) How to establish and maintain proper RPM.
 - (b) Proper position of collective pitch, cyclic, and anti-torque pedals prior to initiating takeoff.
 - (c) Ascending vertically, at a suitable rate, to the recommended hovering altitude, in headwind, crosswind, and tailwind conditions.
 - (d) Descending vertically, at a suitable rate, to a selected touchdown point.
 - (e) Touching down vertically in headwind, crosswind, and tailwind conditions.
 - (f) How to maintain desired heading during the maneuver.
- 2) Exhibits instructional knowledge of common errors related to a vertical takeoff and landing by describing—
 - (a) Improper RPM control.
 - (b) Failure to ascend and descend vertically at a suitable rate.
 - (c) Failure to recognize and correct undesirable drift.
 - (d) Improper heading control.

- (e) Terminating takeoff at an improper altitude.
 - (f) Overcontrol of collective pitch, cyclic, or anti-torque pedals.
 - (g) Failure to reduce collective pitch to the full-down position, smoothly and positively, upon surface contact.
- 3) Demonstrates and simultaneously explains a vertical takeoff and landing from an instructional standpoint.
 - 4) Analyzes and corrects simulated common errors related to a vertical takeoff and landing.

9.2 TASK: SURFACE TAXI

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

Objective. To determine that the applicant—

- 1) Exhibits instructional knowledge of the elements of surface taxi by describing—
 - (a) Positioning of cyclic and collective to begin forward movement.
 - (b) Proper use of cyclic, collective, and brakes to control speed while taxiing.
 - (c) Use of anti-torque pedals to maintain directional control.
 - (d) Use of brakes during minimum radius turns.
 - (e) Proper position of tailwheel (if applicable) locked or unlocked.
 - (f) Positioning of controls to slow and stop helicopter.
- 2) Exhibits instructional knowledge of common errors related to surface taxi by describing—
 - (a) Improper positioning of cyclic and collective to start and stop movement.
 - (b) Improper use of brakes.
 - (c) Hazards of taxiing too fast.
 - (d) Improper use of anti-torque pedals.
- 3) Demonstrates and simultaneously explains surface taxi from an instructional standpoint.
- 4) Analyzes and corrects simulated common errors related to surface taxi.

9.3 TASK: HOVER TAXI

Objective. To determine that the applicant—

- 1) Exhibits instructional knowledge of the elements of hover taxi by describing—
 - (a) How to maintain proper Revolutions Per Minute (RPM).
 - (b) Maintaining desired ground track and heading.
 - (c) How to make precise turns to headings.
 - (d) Holding recommended hovering altitude.
 - (e) Appropriate groundspeed.
- 2) Exhibits instructional knowledge of common errors related to hover taxi by describing—
 - (a) Improper RPM control.
 - (b) Improper control of heading and track.
 - (c) Erratic altitude control.
 - (d) Misuse of flight controls.

- 3) Demonstrates and simultaneously explains hover taxi from an instructional standpoint.
- 4) Analyzes and corrects simulated common errors related to hover taxi.

9.4 TASK: AIR TAXI

Objective. To determine that the applicant—

- 1) Exhibits instructional knowledge of the elements of air taxi by describing—
 - (a) How to maintain proper RPM.
 - (b) Selection of an altitude and airspeed appropriate for the operation.
 - (c) Proper use of collective pitch, cyclic, and anti-torque pedals to maintain desired track and groundspeed in headwind and crosswind conditions.
 - (d) Compensation for wind effect.
- 2) Exhibits instructional knowledge of common errors related to air taxi by describing—
 - (a) Improper RPM control.
 - (b) Erratic altitude and airspeed control.
 - (c) Improper use of collective pitch, cyclic, and anti-torque pedals during operation.
 - (d) Improper use of controls to compensate for wind effect.
- 3) Demonstrates and simultaneously explains air taxi from an instructional standpoint.
- 4) Analyzes and corrects simulated common errors related to air taxi.

9.5 TASK: SLOPE OPERATION

Objective. To determine that the applicant—

- 1) Exhibits instructional knowledge of the elements of a slope operation by describing—
 - (a) Factors to consider in selection of slope.
 - (b) Planning and performance of a slope operation, considering wind effect, obstacles, and discharging of passengers.
 - (c) Effect of slope surface texture.
 - (d) How to maintain proper RPM.
 - (e) Control technique during descent to touchdown on a slope.
 - (f) Use of brakes (if applicable).
 - (g) Factors that should be considered to avoid dynamic rollover.
 - (h) Technique during a slope takeoff and departure.
- 2) Exhibits instructional knowledge of common errors related to a slope operation by describing—
 - (a) Improper planning selection of, approach to, or departure from the slope.
 - (b) Failure to consider wind effects.
 - (c) Improper RPM control.
 - (d) Turning tail of the helicopter upslope.
 - (e) Lowering downslope skid or wheels too rapidly.
 - (f) Sliding downslope.

- (g) Improper use of brakes (if applicable).
- (h) Conditions that, if allowed to develop, may result in dynamic rollover.
- 3) Demonstrates and simultaneously explains a slope operation from an instructional standpoint.
- 4) Analyzes and corrects simulated common errors related to a slope operation.

SECTION 10 AREA OF OPERATION: TAKEOFFS, LANDINGS, & GO-AROUNDS

10.1 TASK: NORMAL & CROSSWIND TAKEOFF & CLIMB

Objective. To determine that the applicant—

- 1) Exhibits instructional knowledge of the elements of a normal and crosswind takeoff and climb by describing—
 - (a) Consideration of wind conditions.
 - (b) Factors affecting takeoff and climb performance.
 - (c) How to maintain proper RPM.
 - (d) How to establish a stationary position on the surface or a stabilized hover, prior to takeoff in headwind and crosswind conditions.
 - (e) Presence of effective translational lift.
 - (f) Acceleration to a normal climb.
 - (g) Climb airspeed and power setting.
 - (h) Crosswind correction and ground track during climb.
- 2) Exhibits instructional knowledge of common errors related to a normal and crosswind takeoff and climb by describing—
 - (a) Improper RPM control.
 - (b) Improper use of cyclic, collective pitch, or anti-torque pedals.
 - (c) Failure to use sufficient power to avoid settling prior to entering effective translational lift.
 - (d) Improper coordination of attitude and power during initial phase of climb-out.
 - (e) Failure to establish and maintain climb power and airspeed.
 - (f) Drift during climb.
- 3) Demonstrates and simultaneously explains a normal or a crosswind takeoff and climb from an instructional standpoint.
- 4) Analyzes and corrects simulated common errors related to a normal or a crosswind takeoff and climb.

The examiner shall select at least one takeoff Task and one approach Task from this Area of Operation.

10.2 TASK: MAXIMUM PERFORMANCE TAKEOFF & CLIMB

Objective. To determine that the applicant—

- 1) Exhibits instructional knowledge of the elements of a maximum performance takeoff and climb by describing—
 - (a) Importance of considering performance data, to include height/velocity diagram.

- (b) Factors related to takeoff and climb performance of the aircraft.
 - (c) How to establish and maintain proper RPM.
 - (d) Preparatory technique prior to increasing collective pitch to initiate takeoff.
 - (e) Technique to initiate takeoff and establish a forward climb attitude to clear obstacles
 - (f) Transition to normal climb power and airspeed.
 - (g) Crosswind correction and track during climb.
- 2) Exhibits instructional knowledge of common errors related to a maximum performance takeoff and climb by describing—
 - (a) Failure to consider performance data, including height/velocity diagram.
 - (b) Improper RPM control.
 - (c) Improper use of cyclic, collective pitch, or anti-torque pedals.
 - (d) Failure to use the predetermined power setting for establishing attitude and airspeed appropriate to the obstacles to be cleared.
 - (e) Failure to resume normal climb power and airspeed after obstacle clearance.
 - (f) Drift during climb.
 - 3) Demonstrates and simultaneously explains a maximum performance takeoff and climb from an instructional standpoint.
 - 4) Analyzes and corrects simulated common errors related to a maximum performance takeoff and climb.

10.3 TASK: ROLLING TAKEOFF

This Task applies only to helicopters equipped with wheel- type landing gear.

Objective. To determine that the applicant—

- 1) Exhibits instructional knowledge of the elements of a rolling takeoff by describing—
 - (a) Situations where this maneuver is recommended.
 - (b) Factors related to takeoff and climb performance of the aircraft.
 - (c) How to establish and maintain proper RPM.
 - (d) Preparatory technique prior to initiating takeoff.
 - (e) How to initiate forward accelerating movement on the surface.
 - (f) Indication of reaching effective translational lift.
 - (g) Transition to a normal climb airspeed and power setting.
 - (h) Crosswind correction and track during climb.
- 2) Exhibits instructional knowledge of common errors related to a rolling takeoff by describing—
 - (a) Improper RPM control.
 - (b) Improper use of cyclic, collective pitch, or anti-torque pedals.
 - (c) Failure to maintain heading and ground track.
 - (d) Failure to attain effective translational lift prior to attempting transition to flight.
 - (e) Use of excessive forward cyclic during the surface run.
 - (f) Settling back to the takeoff surface after becoming airborne.

- (g) Excessive altitude prior to attaining climb airspeed.
- (h) Failure to establish and maintain climb power and airspeed.
- 3) Demonstrates and simultaneously explains a rolling takeoff from an instructional standpoint.
- 4) Analyzes and corrects simulated common errors related to a rolling takeoff.

10.4 TASK: NORMAL & CROSSWIND APPROACH

Objective. To determine that the applicant—

- 1) Exhibits instructional knowledge of the elements of a normal and crosswind approach by describing—
 - (a) Factors affecting performance.
 - (b) How to maintain proper RPM.
 - (c) Establishment and maintenance of the recommended approach angle and rate of closure.
 - (d) Coordination of flight controls.
 - (e) Crosswind correction and ground track.
 - (f) Loss of effective translational lift.
 - (g) How to terminate the approach.
- 2) Exhibits instructional knowledge of common errors related to a normal and crosswind approach by describing—
 - (a) Improper RPM control.
 - (b) Improper approach angle.
 - (c) Improper use of cyclic to control rate of closure and collective pitch to control approach angle.
 - (d) Failure to coordinate pedal corrections with power changes.
 - (e) Failure to arrive at the termination point at zero groundspeed.
- 3) Demonstrates and simultaneously explains a normal or a crosswind approach from an instructional standpoint.
- 4) Analyzes and corrects simulated common errors related to a normal or a crosswind approach.

10.5 TASK: STEEP APPROACH

Objective. To determine that the applicant—

- 1) Exhibits instructional knowledge of the elements of a steep approach by describing—
 - (a) Purpose of the maneuver.
 - (b) Importance of considering performance data, to include height/velocity diagram.
 - (c) Selection of proper approach angle for obstacle clearance.
 - (d) How to maintain proper RPM.
 - (e) Establishment and maintenance of the appropriate approach angle and rate of closure.
 - (f) Coordination of flight controls.

- (g) Crosswind correction and ground track.
 - (h) Location where effective translational lift is lost.
 - (i) How to terminate the approach.
- 2) Exhibits instructional knowledge of common errors related to a steep approach by describing—
- (a) Improper approach angle.
 - (b) Improper RPM control.
 - (c) Improper use of cyclic to control rate of closure and collective pitch to control approach angle.
 - (d) Failure to coordinate pedal corrections with power changes.
 - (e) Failure to arrive at the termination point at zero groundspeed.
 - (f) Inability to determine location where effective translational lift is lost.
- 3) Demonstrates and simultaneously explains a steep approach from an instructional standpoint.
- 4) Analyzes and corrects simulated common errors related to a steep approach.

10.6 TASK: SHALLOW APPROACH & RUNNING/ROLL-ON LANDING

Objective. To determine that the applicant—

- 1) Exhibits instructional knowledge of the elements of a shallow approach and running/roll-on landing by describing—
- (a) Purpose of the maneuver.
 - (b) Effect of landing surface texture.
 - (c) Factors affecting performance.
 - (d) How to maintain proper RPM.
 - (e) Obstacles and other hazards, which should be considered.
 - (f) Establishment and maintenance of the recommended approach angle and rate of closure.
 - (g) Coordination of flight controls.
 - (h) Crosswind correction and ground track.
 - (i) Loss of effective translational lift.
 - (j) Transition from descent to surface contact.
 - (k) Flight control technique after surface contact.
- 2) Exhibits instructional knowledge of common errors related to a shallow approach and running/roll-on landing by describing—
- (a) Improper RPM control.
 - (b) Improper approach angle.
 - (c) Improper use of cyclic to control rate of closure and collective pitch to control approach angle.
 - (d) Failure to coordinate pedal corrections with power changes.
 - (e) Failure to maintain a speed that will take advantage of effective translational lift during the final phase of approach.

- (f) Touching down at an excessive groundspeed.
 - (g) Failure to touch down in appropriate attitude.
 - (h) Failure to maintain directional control after touchdown.
- 3) Demonstrates and simultaneously explains a shallow approach and running/roll-on landing from an instructional standpoint.
 - 4) Analyzes and corrects simulated common errors related to a shallow approach and running/roll-on landing.

10.7 TASK: GO-AROUND

Objective. To determine that the applicant—

- 1) Exhibits instructional knowledge of the elements of a go-around by describing—
 - (a) Situations where a go-around is necessary.
 - (b) Importance of making a timely decision, considering obstacles, loss of translational lift, and engine response time.
 - (c) Proper use of power throughout maneuver.
 - (d) Timely and coordinated application of flight controls during transition to climb attitude.
 - (e) Proper track and obstacle clearance during climb.
- 2) Exhibits instructional knowledge of common errors related to a go-around by describing—
 - (a) Failure to recognize a situation where a go-around is necessary.
 - (b) Hazards of delaying the decision to go around.
 - (c) Improper application of flight controls during transition to climb attitude.
 - (d) Failure to control drift and clear obstacles safely.
- 3) Demonstrates and simultaneously explains a go-around from an instructional standpoint.
- 4) Analyzes and corrects simulated common errors related to a go-around.

10.8 TASK: APPROACH & LANDING WITH SIMULATED POWERPLANT FAILURE - MULTIENGINE HELICOPTER

Objective. To determine that the applicant—

- 1) Exhibits instructional knowledge of the elements an approach and landing with simulated powerplant failure.
- 2) Exhibits adequate knowledge of maneuvering to a landing with a powerplant inoperative, including the controllability factors associated with maneuvering, and the applicable emergency procedures.
- 3) Selects a suitable touchdown point.
- 4) Maintains, prior to beginning the final approach segment, the desired altitude ± 100 feet, the desired airspeed ± 10 knots, the desired heading $\pm 5^\circ$, and maintains desired track.
- 5) Establishes the approach and landing configuration appropriate for the runway or landing area, and adjusts the powerplant controls as required.

In a multiengine helicopter maneuvering to a landing, the applicant should follow a procedure that simulates the loss of one powerplant.

- 6) Maintains a normal approach angle and recommended airspeed to the point of transition to touchdown.
- 7) Terminates the approach in a smooth transition to touchdown.
- 8) Completes the after-landing checklist items in a timely manner, after clearing the landing area, and as recommended by the manufacturer.
- 9) Exhibits instructional knowledge of common errors related to approach and landing with simulated powerplant failure by describing—
 - (a) Hazards resulting from not following manufacturer's recommended procedures in the event of a powerplant failure.
 - (b) Failure of the pilot to follow the appropriate checklist.
- 10) Demonstrates and simultaneously explains approaching and landing procedures with a simulated powerplant failure.
- 11) Analyzes and corrects simulated common errors related to an approach and landing with simulated powerplant failure.

SECTION 11 AREA OF OPERATION: FUNDAMENTALS OF FLIGHT

11.1 TASK: STRAIGHT-AND-LEVEL FLIGHT

The examiner shall select at least one Task from this Area of Operation.

Objective. To determine that the applicant—

- 1) Exhibits instructional knowledge of the elements of straight-and-level flight by describing—
 - (a) Effect and use of flight controls.
 - (b) The Integrated Flight Instruction method.
 - (c) Trim technique.
 - (d) Methods that can be used to overcome tenseness and over controlling.
- 2) Exhibits instructional knowledge of common errors related to straight-and-level flight by describing—
 - (a) Improper coordination of flight controls.
 - (b) Failure to cross-check and correctly interpret outside and instrument references.
 - (c) Faulty trim technique.
- 3) Demonstrates and simultaneously explains straight-and-level flight from an instructional standpoint.
- 4) Analyzes and corrects simulated common errors related to straight-and-level flight.

11.2 TASK: LEVEL TURNS

Objective. To determine that the applicant—

- 1) Exhibits instructional knowledge of the elements of level turns by describing—
 - (a) Effect and use of flight controls.
 - (b) The Integrated Flight Instruction method.
 - (c) Trim technique.
 - (d) Methods that can be used to overcome tenseness and over controlling.

- 2) Exhibits instructional knowledge of common errors related to level turns by describing—
 - (a) Improper coordination of flight controls.
 - (b) Failure to cross-check and correctly interpret outside and instrument references.
 - (c) Faulty trim technique.
- 3) Demonstrates and simultaneously explains level turns from an instructional standpoint.
- 4) Analyzes and corrects simulated common errors related to level turns.

11.3 TASK: STRAIGHT CLIMBS & CLIMBING TURNS

Objective. To determine that the applicant—

- 1) Exhibits instructional knowledge of the elements of straight climbs and climbing turns by describing—
 - (a) Effect and use of flight controls.
 - (b) The Integrated Flight Instruction method.
 - (c) Trim technique.
 - (d) Methods that can be used to overcome tenseness and over controlling.
- 2) Exhibits instructional knowledge of common errors related to straight climbs and climbing turns by describing—
 - (a) Improper coordination of flight controls.
 - (b) Failure to cross-check and correctly interpret outside and instrument references.
 - (c) Faulty trim technique.
- 3) Demonstrates and simultaneously explains straight climbs and climbing turns from an instructional standpoint.
- 4) Analyzes and corrects simulated common errors related to straight climbs and climbing turns.

11.4 TASK: STRAIGHT DESCENTS & DESCENDING TURNS

Objective. To determine that the applicant—

- 1) Exhibits instructional knowledge of the elements of straight descents and descending turns by describing—
 - (a) Effect and use of flight controls.
 - (b) The Integrated Flight Instruction method.
 - (c) Trim technique.
 - (d) Methods that can be used to overcome tenseness and over controlling.
- 2) Exhibits instructional knowledge of common errors related to straight descents and descending turns by describing—
 - (a) Improper coordination of flight controls.
 - (b) Failure to cross-check and correctly interpret outside and instrument references.
 - (c) Faulty trim technique.
- 3) Demonstrates and simultaneously explains straight descents and descending turns from an instructional standpoint.

- 4) Analyzes and corrects simulated common errors related to straight descents and descending turns.

SECTION 12 AREA OF OPERATION: PERFORMANCE MANEUVERS

- The examiner shall select at least Task 12.2 or 12.3
- In addition, applicant shall provide a helicopter appropriate for demonstrating touchdown autorotations.

12.1 TASK: RAPID DECELERATION

Objective. To determine that the applicant—

- 1) Exhibits instructional knowledge of the elements of a rapid deceleration by describing—
 - (a) Purpose of the maneuver.
 - (b) How to maintain proper RPM throughout maneuver.
 - (c) Evaluation of wind direction and speed, terrain, and obstructions.
 - (d) Proper use of anti-torque pedals.
 - (e) Selection of an altitude that will permit safe clearance between tail boom and terrain.
 - (f) Coordinated use of cyclic and collective controls throughout maneuver.
- 2) Exhibits instructional knowledge of common errors related to a rapid deceleration by describing—
 - (a) Improper RPM control.
 - (b) Improper use of anti-torque pedals.
 - (c) Improper coordination of cyclic and collective controls.
 - (d) Failure to properly control the rate of deceleration.
 - (e) Stopping of forward motion in a tail-low attitude.
 - (f) Failure to maintain safe clearance over terrain.
- 3) Demonstrates and simultaneously explains a rapid deceleration from an instructional standpoint.
- 4) Analyzes and corrects simulated common errors related to a rapid deceleration.

12.2 TASK: STRAIGHT-IN AUTOROTATION

Objective. To determine that the applicant—

- 1) Exhibits instructional knowledge of the elements of a straight-in autorotation by describing—
 - (a) Purpose of maneuver.
 - (b) Selection of a suitable touchdown area.
 - (c) How to maintain proper engine and rotor RPM.
 - (d) Evaluation of wind direction and speed.
 - (e) Effect of density altitude, gross weight, rotor RPM, airspeed, and wind to determine a touchdown point.
 - (f) How and at what point maneuver is initiated.
 - (g) Flight control coordination, aircraft attitude, and autorotational speed.
 - (h) Deceleration, collective pitch application, and touchdown technique, or

- (i) Technique for performing a power recovery to a hover.
- 2) Exhibits instructional knowledge of common errors related to a straight-in autorotation by describing—
 - (a) Improper engine and rotor RPM control.
 - (b) Uncoordinated use of flight controls, particularly anti-torque pedals.
 - (c) Improper attitude and airspeed during descent.
 - (d) Improper judgment and technique during termination.
- 3) Demonstrates and simultaneously explains a straight-in autorotation to touchdown from an instructional standpoint.
- 4) Analyzes and corrects simulated common errors related to a straight-in autorotation.

12.3 TASK: 180° AUTOROTATION

Objective. To determine that the applicant—

- 1) Exhibits instructional knowledge of the elements of a 180° autorotation by describing—
 - (a) Purpose of maneuver.
 - (b) Selection of a suitable touchdown area.
 - (c) How to maintain proper engine and rotor RPM.
 - (d) Evaluation of wind direction and speed.
 - (e) Effect of density altitude, gross weight, rotor RPM, airspeed, and wind to determine a touchdown point.
 - (f) How and at what point the maneuver is initiated.
 - (g) Flight control coordination, aircraft attitude, and autorotation airspeed.
 - (h) Proper planning and performance of the autorotative turn.
 - (i) Deceleration, collective pitch application, and touchdown technique, or
 - (j) Technique for performing a power recovery to a hover.
- 2) Exhibits instructional knowledge of common errors related to a 180° autorotation by describing—
 - (a) Improper engine and rotor RPM control.
 - (b) Uncoordinated use of flight controls, particularly anti-torque pedals.
 - (c) Improper attitude and airspeed during descent.
 - (d) Improper judgment and technique during the termination.
- 3) Demonstrates and simultaneously explains a 180° autorotation to touchdown from an instructional standpoint.
- 4) Analyzes and corrects simulated common errors related to a 180° autorotation.

SECTION 13 AREA OF OPERATION: EMERGENCY OPERATIONS

13.1 TASK: POWER FAILURE AT A HOVER

Objective. To determine that the applicant—

- The examiner shall select at least one TASK from 13.1 through 13.4 to be accomplished in flight; and
- At least one Task from 13.5, through 13.10 to be accomplished orally on the ground.

- 1) Exhibits instructional knowledge of the elements related to power failure at a hover by describing—
 - (a) Recognition of power failure.
 - (b) How to maintain a constant heading.
 - (c) Correction for drift.
 - (d) Effect of density altitude, height above the surface, gross weight, wind, and rotor RPM on performance.
 - (e) Autorotation and touchdown technique from a stationary or forward hover.
- 2) Exhibits instructional knowledge of common errors related to power failure at a hover by describing—
 - (a) Failure to apply correct and adequate pedal when power is reduced.
 - (b) Failure to correct drift prior to touchdown.
 - (c) Improper application of collective pitch.
 - (d) Failure to touch down in a level attitude.
- 3) Demonstrates and simultaneously explains a simulated power failure at a hover from an instructional standpoint.
- 4) Analyzes and corrects simulated common errors related to a simulated power failure at a hover.

13.2 TASK: POWER FAILURE AT ALTITUDE

Objective. To determine that the applicant—

- 1) Exhibits instructional knowledge of the elements related to power failure at altitude by describing—
 - (a) Importance of being continuously aware of suitable landing areas.
 - (b) Technique for establishing and maintaining proper rotor RPM, airspeed, and pedal trim during autorotation.
 - (c) Method used to evaluate wind direction and speed.
 - (d) Effect of density altitude, gross weight, rotor RPM, airspeed, and wind to determine landing area.
 - (e) Selection of a suitable landing area.
 - (f) Planning and performance of approach to the selected landing area.
 - (g) Importance of dividing attention between flying the approach and accomplishing the emergency procedure, as time permits.
 - (h) Techniques that can be used to compensate for undershooting or overshooting selected landing area.
 - (i) When and how to terminate approach.
- 2) Exhibits instructional knowledge of common errors related to power failure at altitude by describing—
 - (a) Failure to promptly recognize the emergency, establish and maintain proper rotor RPM, and confirm engine condition.
 - (b) Improper judgment in selection of a landing area.

Examiner shall direct the applicant to terminate this TASK with a power recovery at an altitude high enough to ensure a safe touchdown could be accomplished in the event of an actual power failure.

- (c) Failure to estimate approximate wind direction and speed.
 - (d) Uncoordinated use of flight controls during autorotation entry and descent.
 - (e) Improper attitude and airspeed during autorotation entry and descent.
 - (f) Failure to fly the most suitable pattern for existing situation.
 - (g) Failure to accomplish the emergency procedure, as time permits.
 - (h) Undershooting or overshooting selected landing area.
 - (i) Uncoordinated use of flight controls during power recovery.
- 3) Demonstrates and simultaneously explains a simulated power failure at altitude from an instructional standpoint.
 - 4) Analyzes and corrects simulated common errors related to power failure at altitude.

13.3 TASK: SETTLING-WITH-POWER

Objective. To determine that the applicant—

- 1) Exhibits instructional knowledge of the elements related to settling-with-power by describing—
 - (a) Conditions that are likely to result in settling-with-power.
 - (b) Timely recognition of settling-with-power.
 - (c) Techniques for recovery.
- 2) Exhibits instructional knowledge of common errors related to settling-with-power by describing—
 - (a) Failure to recognize conditions that are conducive to development of settling-with-power.
 - (b) Failure to detect first indications of settling-with-power.
 - (c) Improper use of controls during recovery.
- 3) Demonstrates and simultaneously explains settling-with-power from an instructional standpoint.

13.4 TASK: LOW ROTOR RPM RECOVERY

Objective. To determine that the applicant—

- 1) Exhibits instructional knowledge of the elements related to low rotor RPM recovery by describing—
 - (a) Conditions that are likely to result in low rotor RPM.
 - (b) Potential problems from low rotor RPM if not corrected timely.
 - (c) Techniques for recovery.
- 2) Exhibits instructional knowledge of common errors related to low rotor RPM recovery by describing—
 - (a) Failure to recognize conditions that are conducive to the development of low rotor RPM.
 - (b) Failure to detect the development of low rotor RPM and to initiate prompt corrective action.
 - (c) Improper use of controls.

The examiner may accomplish this Task orally if the helicopter used for the skill test has a governor that cannot be disabled.

- 3) Demonstrates and simultaneously explains low rotor RPM recovery from an instructional standpoint.

13.5 TASK: ANTI-TORQUE SYSTEM FAILURE

Objective. To determine that the applicant exhibits instructional knowledge of the elements related to anti-torque system failure by describing—

- 1) Helicopter aerodynamics related to failure.
- 2) Indications of failure.
- 3) Recommended pilot technique to maintain controlled flight.
- 4) How to select a landing area.
- 5) Recommended technique to accomplish a safe landing, when failure occurs.

13.6 TASK: DYNAMIC ROLLOVER

Objective. To determine that the applicant exhibits instructional knowledge of the elements related to dynamic rollover by describing—

- 1) Helicopter aerodynamics involved.
- 2) How interaction between anti-torque thrust, crosswind, slope, cyclic and collective pitch control contribute to dynamic rollover.
- 3) Preventive actions used for takeoffs and landings on different surfaces.

13.7 TASK: GROUND RESONANCE

Objective. To determine that the applicant exhibits instructional knowledge of the elements related to ground resonance by describing—

- 1) Aerodynamics involved and association with a fully articulated rotor system.
- 2) Conditions that are conducive to the development of ground resonance.
- 3) Preventive actions used for takeoffs and landings on different surfaces.

13.8 TASK: LOW "G" CONDITIONS

Objective. To determine that the applicant exhibits instructional knowledge of the elements of low "G" conditions by describing—

- 1) Situations that will cause a low "G" condition.
- 2) Recognition of low "G" conditions.
- 3) Proper recovery procedures to prevent mast bumping.
- 4) Effects of this condition on different types of rotor systems.

13.9 TASK: SYSTEMS & EQUIPMENT MALFUNCTIONS

Objective. To determine that the applicant exhibits instructional knowledge of the elements related to systems and equipment malfunctions by describing recommended pilot action, appropriate to the helicopter used for the skill test, in the following areas—

- 1) Smoke or fire during ground or flight operations.
- 2) Engine/oil and fuel system.

- 3) Carburetor or induction icing.
- 4) Hydraulic system.
- 5) Electrical system.
- 6) Flight controls.
- 7) Rotor/drive system.
- 8) Pitot/static system.
- 9) Any other system or equipment.

13.10 TASK: EMERGENCY EQUIPMENT & SURVIVAL GEAR

Objective. To determine that the applicant exhibits instructional knowledge of the elements related to emergency equipment and survival gear appropriate to the helicopter used for the skill test by describing—

- 1) Location in the helicopter.
- 2) Method of operation or use.
- 3) Servicing.
- 4) Storage.
- 5) Equipment and gear appropriate for operation in various climates, over various types of terrain, and over water.

SECTION 14 AREA OF OPERATION: SPECIAL OPERATIONS

14.1 TASK: CONFINED AREA OPERATION

The examiner shall select at least one Task from this Area of Operation.

Objective. To determine that the applicant—

- 1) Exhibits instructional knowledge of the elements of a confined area operation by describing—
 - (a) Conduct of high and low reconnaissance.
 - (b) Method used to evaluate wind direction and speed, turbulence, terrain, obstacles, and emergency landing areas.
 - (c) Selection of a suitable approach path, termination point, and departure path.
 - (d) How to maintain proper RPM.
 - (e) How to track the selected approach path to the termination point, establishing an acceptable approach angle and rate of closure.
 - (f) Factors that should be considered in determining whether to terminate at a hover or on the surface.
 - (g) Conduct of ground reconnaissance and selection of a suitable takeoff point, considering wind and obstructions.
 - (h) Factors affecting takeoff and climb performance.
 - (i) Factors to consider in performing a takeoff and climb under various conditions.
- 2) Exhibits instructional knowledge of common errors related to a confined area operation by describing—
 - (a) Failure to perform, or improper performance of high and low reconnaissance.

- (b) Failure to track the selected approach path or to fly an acceptable approach angle and rate of closure.
 - (c) Improper RPM control.
 - (d) Inadequate planning to ensure obstacle clearance during the approach or the departure.
 - (e) Failure to consider emergency landing areas.
 - (f) Failure to select a definite termination point during the high reconnaissance.
 - (g) Failure to change the termination point, if conditions so dictate.
 - (h) Failure to consider effect of wind direction or speed, turbulence, or loss of effective translational lift during the approach.
 - (i) Improper takeoff and climb technique for existing conditions.
- 3) Demonstrates and simultaneously explains a confined area operation from an instructional standpoint.
 - 4) Analyzes and corrects simulated common errors related to a confined area operation.

14.2 TASK: PINNACLE/PLATFORM OPERATION

Objective. To determine that the applicant—

- 1) Exhibits instructional knowledge of the elements of a pinnacle/platform operation by describing—
 - (a) Conduct of high and low reconnaissance.
 - (b) Methods used to evaluate wind direction and speed, turbulence, terrain, obstacles, and emergency landing areas.
 - (c) Selection of a suitable approach path, termination point, and departure path.
 - (d) How to maintain proper RPM.
 - (e) How to track the selected approach path to the termination point, and establish an acceptable approach angle and rate of closure.
 - (f) Factors that should be considered in determining whether to terminate in a hover or on the surface.
 - (g) Selection of a suitable takeoff point, considering wind and obstructions.
 - (h) Factors affecting takeoff and climb performance.
 - (i) Factors to consider in performing a takeoff and climb under various conditions.
- 2) Exhibits instructional knowledge of common errors related to a pinnacle/platform operation by describing—
 - (a) Failure to perform, or improper performance of, high and low reconnaissance.
 - (b) Failure to track selected approach path or to fly an acceptable approach angle and rate of closure.
 - (c) Improper RPM control.
 - (d) Inadequate planning to assure obstacle clearance during approach or departure.
 - (e) Failure to consider emergency landing areas.
 - (f) Failure to select a definite termination point during the high reconnaissance.
 - (g) Failure to change the termination point, if conditions so dictate.

- (h) Failure to consider effect of wind direction or speed, turbulence, or loss of effective translational lift during the approach.
- (i) Improper takeoff and climb technique for existing conditions.
- 3) Demonstrates and simultaneously explains a pinnacle/platform operation from an instructional standpoint.
- 4) Analyzes and corrects simulated common errors related to a pinnacle/platform operation.

SECTION 15 AREA OF OPERATION: POSTFLIGHT PROCEDURES

15.1 TASK: AFTER-LANDING & SECURING

Objective. To determine that the applicant—

- 1) Exhibits instructional knowledge of the elements of after-landing and securing by describing—
 - (a) Methods to minimize hazardous effects of rotor downwash during hovering to parking area.
 - (b) Engine temperature stabilization and shutdown.
 - (c) Method to secure rotor blades and cockpit.
 - (d) Safety concerns for passenger(s) when exiting.
 - (e) Postflight inspection to include use of checklist.
 - (f) Refueling procedures, including safety concerns.
- 2) Exhibits instructional knowledge of common errors related to after-landing and securing by describing—
 - (a) Hazards resulting from failure to follow recommended procedures.
 - (b) Failure to conduct a postflight inspection and use a checklist.
- 3) Demonstrates and simultaneously explains after-landing and securing from an instructional standpoint.
- 4) Analyzes and corrects simulated common errors related to after-landing and securing.

End of Skill Test Standard