



**SKILL TEST STANDARDS:
AIRLINE TRANSPORT PILOT & TYPE RATING: HELICOPTER**

SECTION 1 GENERAL

1.1 PURPOSE

- A. This Advisory Circular (AC) provides guidance to individuals, organizations and examiners regarding the determination that an individual's skill level is adequate for the issuance of an Airline Transport Pilot License with a Helicopter rating.
- B. This AC also provides the skill test standards for the conduct and evaluation of proficiency checks and instrument checks in helicopters.

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, require that, before issuing an Airline Transport Pilot License, the State must assess the knowledge and skill of the individual to perform such operations.
- B. Part 2 of the Ghana Civil Aviation Directives establishes the specific requirements for ATPL knowledge and skill testing that parallel the ICAO Standards.
- C. This AC provides amplified standards for a ATPL or ATPL Type Rating 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 ATPL privileges and ATPL privileges for helicopter-specific type ratings.
- B. Flight instructors are expected to use these standards when preparing applicants for their ATPL skill tests.
- C. Applicants should be familiar with these skill test standards and refer to them during their training.
- D. These Skill Test Standards are also applicable to the pilot-in-commands of helicopters involved in commercial air transport operations and the designees that administer those proficiency checks.

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

1.5 RELATED DIRECTIVES

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

- GCADs Part 7, Instruments & Equipment
- GCADs Part 2, Personnel Licensing
- GCADs Part 08, Operations of Aircraft
- GCADs Part 09, AOC Personnel Qualification
- GCADs Part 09, AOC Operational Control
- GCADs Part 09, AOC Mass & Balance & Performance

1.6 RELATED PUBLICATIONS

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

- 1) Ghana Civil Aviation Authority (GCAA)
 - ◆ AC 02-002, Personnel Licensing
 - ◆ AC 02-005, Flight Testing

Copies may be obtained from the Safety Regulation Department.
- 2) Manufacturer of the aircraft to be used for the skill test
 - ◆ Flight Crew Operating Handbook
 - ◆ Pilot Operating Handbook, or
 - ◆ Approved Flight Manual
- 3) United States Federal Aviation Administration (FAA)
 - ◆ AC 00-45, Aviation Weather
 - ◆ FAA-H-8083-1, Aircraft Weight & Balance Handbook
 - ◆ FAA-H-80-8325, Pilot Handbook of Aeronautical Knowledge
 - ◆ FAA-H-80-83-23, Rotorcraft Flying Handbook
 - ◆ FAA-H-8083-15, Instrument Flying Handbook
 - ◆ FAA-H-8083-23, Seaplane Operations Handbook
 - ◆ FAA-H-8261-1, Instrument Procedures Handbook

- Copies are normally available through flight schools and instructors.
 - Contact the GCAA-SRD if unable to find copies.
- 4) International Civil Aviation Organization (ICAO)
 - ◆ Annex, 1, Personnel Licensing

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

1.7 DEFINITIONS & ACRONYMS

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

- 1) **Aircraft – category.** Classification of aircraft according to specified basic characteristics, e.g. aeroplane, rotorcraft, glider, lighter-than-air, powered-lift.
- 2) **Competency.** A combination of skills, knowledge and attitudes required to perform a task to the prescribed standard.

- 3) **Crew resource management.** A program designed to improve the safety of flight operations by optimizing the safe, efficient, and effective use of human resources, hardware, and information through improved crew communication and coordination.
 - 4) **Error.** An action or inaction by the flight crew that leads to deviations from organizational or flight crew intentions or expectations.
 - 5) **Error management.** The process of detecting and responding to errors with countermeasures that reduce or eliminate the consequences of errors and mitigate the probability of further errors or undesired aircraft states.
 - 6) **Examiner.** A qualified person designated by GCAA to conduct a proficiency test, a skill test for an licence or rating, or a knowledge test under the Ghana directives.
 - 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) **Practical Test.** For the purpose of this advisory circular, a portion of the skill test that includes Tasks accomplished before the flight portion.
 - 11) **Rating.** An authorisation entered on or associated with a licence and forming part thereof, stating special conditions, privileges or limitations pertaining to such licence.
 - 12) **Scenario.** A plan of action that includes the provision for accomplishing each Task specified in the skill test standards in practical and logical manner.
 - 13) **Threat management.** The process of detecting and responding to threats with countermeasures that reduce or eliminate the consequences of threats and mitigate the probability of errors or undesired aircraft states
 - 14) **Threat.** Events or errors that occur beyond the influence of the flight crew, increase operational complexity and must be managed to maintain the margin of safety.
- B. The following acronyms are used in this advisory circular—
- 1) **AC** – Advisory Circular
 - 2) **ADF** – Automatic Direction Finder
 - 3) **APV** – Approach with Vertical Guidance
 - 4) **ATC** – Air Traffic Control

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- 5) **ATIS** – Automatic Terminal Information Service
 - 6) **ATPL** – Airline Transport Pilot
 - 7) **ATPL-H** – Airline Transport Pilot–Helicopter
 - 8) **ATS** – Air Traffic Service
 - 9) **CDI** – Course Deviation Indicator
 - 10) **CFIT** – Controlled Flight into Terrain
 - 11) **DA/DH** – Decision Altitude/Decision Height
 - 12) **DH** – Decision Height
 - 13) **DME** – Distance Measuring Equipment
 - 14) **DP**– Departure Procedures
 - 15) **FMS** – Flight Management System
 - 16) **GCAA** – Ghana Civil Aviation Authority
 - 17) **GCADs** – Ghana Civil Aviation Directives
 - 18) **GNSS** – Global Navigation Satellite System
 - 19) **GPS** – Global Positioning System
 - 20) **GPWS** – Ground Proximity Warning System
 - 21) **IAP** – Instrument Approach Procedures
 - 22) **IFR** – Instrument Flight Rules
 - 23) **ILS** – Instrument Landing System
 - 24) **IMC** – Instrument Meteorological Conditions
 - 25) **LCD** – Liquid Crystal Display
 - 26) **LDA** – Localizer-type Directional Aid
 - 27) **LED** – Light Emitting Diode
 - 28) **LOC** – ILS Localizer
 - 29) **MAP** – Missed Approach Point
 - 30) **MDA** – Minimum Descent Attitude
 - 31) **NAVAID** – Navigation Aid
 - 32) **NDB** – Non-directional Beacon (Automatic Direction Finder)
 - 33) **NOTAM** – Notice to Airmen
 - 34) **NPA** – Nonprecision Approach
 - 35) **PA** – Precision Approach
 - 36) **PC** – Proficiency Check
 - 37) **PEL** – Personnel Licensing
 - 38) **PPL** – Private Pilot License
 - 39) **RAIM** – Receiver Autonomous Integrity Monitoring
 - 40) **RMI** – Radio Magnetic Indicator

- 41) **RNAV** – Area Navigation
- 42) **SAS** – Stability Augmentation System
- 43) **SDF** – Simplified Directional Facility
- 44) **SIGMETS** – Significant Meteorological Advisory
- 45) **SRD** – Safety Regulation Department
- 46) **STAR** – Standard Terminal Arrival
- 47) **STS** – Skill Test Standard
- 48) **TCAS** – Traffic Alert and Collision Avoidance System
- 49) **VDP** – Visual Descent Point
- 50) **VHF** – Very High Frequency
- 51) **VNAV** – Vertical Navigation
- 52) **VOR** – Very High Frequency Omnidirectional Range

SECTION 2 INTRODUCTORY INFORMATION

2.1 ATPL & TYPE RATING SKILL TEST PREREQUISITES

2.1.1 AIRLINE TRANSPORT PILOT

- A. An applicant for the original issuance of an airline transport pilot license is required (prior to the skill test) by GCADs Part 2 to—
- 1) Have passed the appropriate airline transport pilot knowledge test within 24 months before the date of the skill test;
 - 2) Have the aeronautical experience prescribed in Part 2, that applies to the aircraft category and class rating;
 - 3) Have a minimum of a Class 1 medical certificate, if a medical certificate is required;
 - 4) Be at least 23 years of age; and
 - 5) Be able to read, speak, write, and understand the English language.

The ATP license will contain the limitation NOT VALID FOR INTERNATIONAL FLIGHT if the applicant has not demonstrated at least Level 4 English language proficiency.

2.1.2 AIRCRAFT TYPE RATING

- A. An applicant for a type rating in a helicopter is required by Part 2 to have—
- 1) The applicable experience;
 - 2) A minimum of a Class 1 medical certificate, if a medical certificate is required (not required for simulator);
 - 3) The appropriate category and class rating, or accomplish the appropriate TASKs in the private/commercial pilot STS;
 - 4) Received and logged ground training from an authorized ground or flight instructor and flight training from an authorized flight instructor, on the AREAS OF OPERATION in this skill test standard that apply to the aircraft type rating sought; and
 - 5) Received a logbook endorsement from the instructor who conducted the training, certifying that the applicant completed all the training on the AREAS OF OPERATION in this skill test standard that apply to the aircraft type rating sought.

- B. If the applicant is an employee of an AOC holder, the applicant may present a training record that shows the satisfactory completion of that AOC holder's approved pilot in command training program for the aircraft type rating sought, instead of the requirements of 4 and 5 above.
- C. An applicant who holds a private pilot or limited commercial pilot certificate is required to have passed the appropriate instrument rating knowledge test since the beginning of the 24th month before the skill test is taken if the test is for the concurrent issuance of an instrument rating and an aircraft type rating.

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 GCAA-SRD 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 Rotorcraft 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 GCAA Form 547, 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) GCAA-Form 551, 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 Post flight Procedures.
 - The examiner, however, may conduct the operational portions of the skill test in any sequence that will result in a complete and efficient test.
 - However, the ground portion of the skill test shall be accomplished before the flight portion.
- B. **Tasks** are titles of knowledge areas, flight procedures, or maneuvers appropriate to an Area of Operation.
- C. The **Objective** lists the elements that must be satisfactorily performed to demonstrate competency in a TASK. The Objective includes—
- 1) Specifically, what the applicant should be able to do;
 - 2) Conditions under which the *Task* is to be performed; and
 - 3) Acceptable performance standards.

NOTE TO EXAMINERS:

- An accompanying note is used to emphasize special considerations required in the AREA OF OPERATION or TASK.

2.4 REGULATORY STANDARDS OF PERFORMANCE

2.4.1 DEGREE OF COMPETENCY

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

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

2.4.2 ADDITIONAL AIRLINE TRANSPORT LICENSE DEMONSTRATIONS

The following additional pilot-in-command demonstrations are required for the airline transport license—

- 1) Pre-flight procedures, including the preparation of the operational flight plan and filing of the air traffic services flight plan;

- 2) Normal flight procedures during all phases of flight;
- 3) Abnormal and emergency procedures and manoeuvres related to failures and malfunctions of equipment, such as power plant, systems and airframes;
- 4) *For helicopters*, procedures and manoeuvres for instrument flight, including simulated engine failure;

2.4.3 AIRCRAFT CERTIFIED FOR TWO PILOT OPERATIONS

The airline transport pilot applicant of a helicopter certified for operation with a minimum crew of at least two pilots under VFR and IFR shall also be required to demonstrate the following competency as the pilot flying—

- 1) Operation of the aircraft in the mode of automation appropriate to the phase of flight and to maintain awareness of the active mode of automation;
- 2) Effectively communications with other flight crew members to perform procedures for crew coordination, including—
 - (a) Allocation of pilot tasks,
 - (b) Crew cooperation,
 - (c) Adherence to standard operating procedures and use of checklists. and
 - (d) Crew incapacitation.

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 helicopter category and class rating in which—
 - 1) Those tasks were accomplished; and
 - 2) There are no obvious skill differences for the accomplishment of those tasks between the class ratings.

2.6 SKILL STANDARDS SPECIFIED BY THE DIRECTIVE

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

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

2.7 AIRCRAFT & EQUIPMENT: INSTRUMENT RATING SKILL TEST

2.7.1 INSTRUMENTS & EQUIPMENT

- A. The instrument rating applicant is required to provide an airworthy, certificated aircraft for use during the skill test.

- 1) Its operating limitations must not prohibit the TASKs required on the skill test.
- 2) Flight instruments are those required for controlling the aircraft without outside references.
- 3) The required radio equipment is that which is necessary for—
 - (a) Communications with ATC, and
 - (b) For the performance of two of the following nonprecision approaches: VOR, NDB, GPS, LOC, LDA, SDF, or RNAV; and
 - (c) One precision approach: ILS, GLS, or MLS.
 - (d) GPS equipment must be instrument certified and contain the current database.

2.7.2 AIRCRAFT WITH MODERN TECHNOLOGY

A. Modern technology has introduced into aviation a new method of displaying flight instruments, such as—

- Electronic Flight instrument systems,
- Integrated flight deck displays, and
- Other similar systems.

For the purpose of the skill test standards, any flight instrument display that utilizes LCD or picture tube like displays will be referred to as "Electronic Flight Instrument Display."

- B. Aircraft equipped with this technology may or may not have separate backup flight instruments installed.
- C. The abnormal or emergency procedure for loss of the electronic flight instrument display appropriate to the aircraft will be evaluated in the Loss of Primary Instruments TASK.
- D. The loss of the primary electronic flight instrument display must be tailored to failures that would normally be encountered in the aircraft.
- E. If the aircraft is capable, total failure of the electronic flight instrument display, or a supporting component, with access only to the standby flight instruments or backup display shall be evaluated.

2.7.3 VIEW LIMITING DEVICE

The applicant is required to provide an appropriate view limiting device that is acceptable to the examiner.

- 1) This device shall be used during all testing that requires testing "solely by reference to instruments."
- 2) This device must prevent the applicant from having visual reference outside the aircraft, but not prevent the examiner from having visual reference outside the aircraft.



- A procedure should be established between the applicant and the examiner as to when and how this device should be donned and removed
- This procedure briefed before the flight.

2.7.4 AUTOPILOT AND/OR FLIGHT MANAGEMENT SYSTEM

The applicant is expected to utilize an autopilot and/or flight management system (FMS), if properly installed, during the instrument skill test to assist in the management of the aircraft.

- 1) The examiner is expected to test the applicant's knowledge of the systems that are installed and operative during the oral and flight portions of the skill test.
- 2) The applicant will be required to demonstrate the use of the autopilot and/or FMS during one of the nonprecision approaches.

2.7.5 GLOBAL POSITIONING SYSTEM (GPS)

If the skill test is conducted in the aircraft, and the aircraft has an operable and properly installed GPS, the applicant must demonstrate GPS approach proficiency when asked.

- If the applicant has contracted for training in an approved course that includes GPS training in the system that is installed in the helicopter/simulator/FTD and the helicopter/simulator/FTD used for the checking/testing has the same system properly installed and operable, the applicant must demonstrate GPS approach proficiency.

2.8 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. Typical areas of unsatisfactory performance and grounds for disqualification are—
- 1) Any action or lack of action by the applicant that requires corrective intervention by the examiner to maintain safe flight.
 - 2) Failure to use proper and effective visual scanning techniques to clear the area before and while performing maneuvers.
 - 3) Consistently exceeding tolerances stated in the skill test TASK Objectives.
- E. Failure to take prompt corrective action when tolerances are exceeded.

SECTION 3 AREA OF OPERATION: PREFLIGHT PREPARATION

3.1 TASK: EQUIPMENT EXAMINATION

Objective. To determine that the applicant—

- 1) Exhibits adequate knowledge appropriate to the helicopter; its systems and components; its normal, abnormal, and emergency procedures; and uses the correct terminology with regard to the following items—
 - (a) Landing gear—indicators, brakes, tires, nosewheel steering, skids, and shocks.
 - (b) Power plant—controls and indications, induction system, carburetor and fuel injection, exhaust and turbocharging, cooling, fire detection/protection, mounting points, turbine wheels, compressors, and other related components.
 - (c) Fuel system—capacity; drains; pumps; controls; indicators; crossfeeding; transferring; jettison; fuel grade, color and additives; fueling and defueling procedures; and emergency substitutions, if applicable.
 - (d) Oil system—capacity, grade, quantities, and indicators.
 - (e) Hydraulic system—capacity, pumps, pressure, reservoirs, grade, and regulators.

- (f) Electrical system—alternators, generators, battery, circuit breakers and protection devices, controls, indicators, and external and auxiliary power sources and ratings.
 - (g) Environmental systems—heating, cooling, ventilation, oxygen and pressurization, controls, indicators, and regulating devices.
 - (h) Avionics and communications—autopilot; flight director; Electronic Flight Indicating Systems (EFIS); Flight Management System(s) (FMS); Long Range Navigation (LORAN) systems; Doppler Radar; Inertial Navigation Systems (INS); Global Positioning System (GPS/DGPS/WGPS); VOR, NDB, ILS/MLS, RNAV systems and components; indicating devices; transponder; and emergency locator transmitter.
 - (i) Ice protection—anti-ice, deice, pitot-static system protection, windshield, airfoil surfaces, and rotor protection.
 - (j) Crewmember and passenger equipment—oxygen system, survival gear, emergency exits, evacuation procedures and crew duties, and quick donning oxygen mask for crewmembers and passengers.
 - (k) Main/tail rotor systems—transmissions, gear boxes, oil/fluid levels, tolerances, rotor brake if installed, and limitations.
 - (l) Pitot-static system with associated instruments and the power source for the flight instruments.
- 2) Exhibits adequate knowledge of the contents of the Pilot's Operating Handbook or RFM with regard to the systems and components listed in paragraph 1 (above); the Minimum Equipment List (MEL), if appropriate; and the Operations Specifications

3.2 TASK: PERFORMANCE & LIMITATIONS

Objective. To determine that the applicant—

- 1) Exhibits adequate knowledge of performance and limitations, including a thorough knowledge of the adverse effects of exceeding any limitation.
- 2) Demonstrates proficient use of (as appropriate to the helicopter) performance charts, tables, graphs, or other data relating to items such as—
 - (a) Takeoff performance—all engines, engine(s) inoperative.
 - (b) Climb performance—all engines, engine(s) inoperative, and other engine malfunctions.
 - (c) Service ceiling—all engines, engines(s) inoperative.
 - (d) Cruise performance.
 - (e) Fuel consumption, range, and endurance.
 - (f) Descent performance.
 - (g) Go-around from rejected landings.
 - (h) Hovering in and out of ground effect.
 - (i) Other performance data (appropriate to the helicopter).
- 3) Describes (as appropriate to the helicopter) the performance airspeeds used during specific phases of flight.
- 4) Describes the effects of meteorological conditions upon performance characteristics and correctly applies these factors to a specific chart, table, graph or other performance data.
- 5) Computes the center-of-gravity location for a specific load condition (as specified by the examiner), including adding, removing, or shifting weight.

- 6) Determines if the computed center of gravity is within the forward, aft, and lateral (if applicable) center-of-gravity limits for takeoff and landing.
- 7) Demonstrates good planning and knowledge of procedures in applying operational factors affecting helicopter performance.

SECTION 4 AREA OF OPERATION: PREFLIGHT PROCEDURES

4.1 TASK: PREFLIGHT INSPECTION

Objective. To determine that the applicant—

- 1) Exhibits adequate knowledge of the preflight inspection procedures, while explaining briefly—
 - (a) The purpose of inspecting the items which must be checked.
 - (b) How to detect possible defects.
 - (c) The corrective action to take.
- 2) Exhibits adequate knowledge of the operational status of the helicopter by locating and explaining the significance and importance of related helicopter documents such as—
 - (a) Airworthiness and registration certificates.
 - (b) Operating limitations, handbooks, and manuals.
 - (c) Minimum equipment list (MEL) (if appropriate).
 - (d) Weight and balance data.
 - (e) Maintenance requirements, tests, and appropriate records applicable to the proposed flight or operation; and maintenance that may be performed by the pilot or other designated crewmember.
- 3) Uses the approved checklist to systematically inspect the helicopter externally and internally.
- 4) Uses the challenge-and-response (or other approved) method with the other crewmember(s), where applicable, to accomplish the checklist procedures.
- 5) Verifies the helicopter is safe for flight by emphasizing (as appropriate to the helicopter) the need to look at and explain the purpose of inspecting items such as—
 - (a) Power plant, including controls and indicators.
 - (b) Fuel quantity, grade, type, contamination safeguards, and servicing procedures.
 - (c) Oil quantity, grade, and type.
 - (d) Hydraulic fluid quantity, grade, type, and servicing procedures.
 - (e) Oxygen quantity, pressures, servicing procedures, and associated systems and equipment for crew and passengers.
 - (f) Skid tubes or landing gear, brakes, and steering system, where applicable.
 - (g) Tires for condition, inflation, and correct mounting, where applicable.
 - (h) Fire protection/detection systems for proper operation, servicing, pressures, and discharge indications.
 - (i) Pneumatic system pressures and servicing.
 - (j) Ground environmental systems for proper servicing and operation.
 - (k) Auxiliary power unit (APU) for servicing and operation.

- (l) Flight control systems including trim, rotor blades, and associated components.
- (m) Main rotor and anti-torque systems.
- (n) Anti-ice, deice systems, servicing, and operation.
- 6) Coordinates with ground crew and ensures adequate clearance prior to moving any devices such as doors or hatches.
- 7) Complies with the provisions of the appropriate Operations Specifications, if applicable, as they pertain to the particular helicopter and operation.
- 8) Demonstrates proper operation and verification of all helicopter systems.
- 9) Notes any discrepancies, determines if the helicopter is airworthy and safe for flight, or takes the proper corrective action.
- 10) Checks the general area around the helicopter for hazards to the safety of the helicopter and personnel.

4.2 TASK: POWERPLANT START

Objective. To determine that the applicant—

- 1) Exhibits adequate knowledge of the correct power plant start procedures including the use of an external power source, starting under various atmospheric conditions, normal and abnormal starting limitations, and the proper action required in the event of a malfunction.
- 2) Ensures the ground safety procedures are followed during the before-start, start, and after-start phases.
- 3) Ensures the use of appropriate ground crew personnel during the start procedures.
- 4) Performs all items of the start procedures by systematically following the approved checklist items for the before-start, start, and after-start phases.
- 5) Demonstrates sound judgment and operating practices in those instances where specific instructions or checklist items are not published.

4.3 TASK: TAXIING

Objective. To determine that the applicant—

- 1) Exhibits adequate knowledge of safe and appropriate taxi procedures.
- 2) Demonstrates proficiency by maintaining correct and positive helicopter control such as hover height (when within 10 feet of the surface, maintains $\pm\frac{1}{2}$ of the hover altitude; when above 10 feet, maintains ± 5 feet of the hovering altitude), turns, and speed.

- This includes hovering taxi (maintains within 2 feet of desired track), air taxiing (maintains altitude within 10 feet of desired); and in helicopters with wheels, includes ground taxiing.
 - In helicopters equipped with float devices, this includes water taxiing, approaching a buoy, and docking.
- 3) Maintains proper spacing on other aircraft and persons taking into consideration rotorwash and flying debris. Avoids conditions that may cause loss of tail rotor/antitorque effectiveness.
- 4) Accomplishes the applicable checklist items and performs recommended procedures.
- 5) Maintains desired and appropriate track and speed.
- 6) Complies with instructions issued by ATC (or the examiner simulating ATC).

- 7) Observes runway hold lines, localizer and glide slope critical areas, and other surface control markings and lighting.
- 8) Maintains constant vigilance and control of the helicopter during taxi operation.

4.4 TASK: PRETAKEOFF CHECKS

Objective. To determine that the applicant—

- 1) Exhibits adequate knowledge of the pre takeoff checks by stating the reason for checking the items outlined on the approved checklist and explaining how to detect possible malfunctions.
- 2) Divides attention inside and outside cockpit.
- 3) Ensures that all systems are within their normal operating range prior to beginning, during the performance of, and at the completion of those checks required by the approved checklist.
- 4) Explains, as may be requested by the examiner, any normal or abnormal system operating characteristic or limitation; and the corrective action for a specific malfunction.
- 5) Determines if the helicopter is safe for the proposed flight or requires maintenance.
- 6) Determines the helicopter's takeoff performance, considering such factors as wind, density altitude, helicopter weight, temperature, pressure altitude, and departure route or routing.
- 7) Determines airspeeds/V-speeds and properly sets all instrument references, flight director and autopilot controls, and navigation and communications equipment.
- 8) Reviews procedures for emergency and abnormal situations which may be encountered during takeoff, and states the corrective action required of the pilot in command and other concerned crewmembers.
- 9) Obtains and correctly interprets the takeoff and departure clearance as issued by ATC.

SECTION 5 AREA OF OPERATION: TAKEOFF & DEPARTURE PHASE

5.1 TASK: NORMAL & CROSSWIND TAKEOFF

Objective. To determine that the applicant—

- 1) Exhibits adequate knowledge of normal and crosswind takeoffs and climbs including (as appropriate to the helicopter) airspeeds, configurations, and emergency/ abnormal procedures.
- 2) Performs all required pre takeoff checks as required by the appropriate checklist items.
- 3) Adjusts the power plant controls as recommended by the manufacturer-approved guidance for the existing conditions.
- 4) Notes any obstructions or other hazards in the takeoff path.
- 5) Verifies and correctly applies the existing wind component to the takeoff performance.
- 6) Completes required checks prior to starting takeoff to verify the expected power plant performance.
- 7) Aligns the helicopter on the runway centerline, or with the takeoff path.
- 8) Applies the controls correctly to maintain longitudinal alignment on the centerline of the runway or intended flightpath, prior to initiating and during the takeoff.

- 9) Sets power smoothly and positively to a predetermined value.
- 10) Monitors power plant controls, settings, and instruments during takeoff to ensure all predetermined parameters are met.
- 11) Accelerates through effective translational lift to normal climb speed.
- 12) Uses the applicable noise abatement and wake turbulence avoidance procedures, as required.
- 13) Accomplishes the appropriate checklist items.
- 14) Maintains the appropriate climb segment airspeed/V-speeds.
- 15) Maintains the desired heading within $\pm 5^\circ$ and the desired airspeed/V-speed within ± 5 knots.

5.2 TASK: INSTRUMENT TAKEOFF

Objective. To determine that the applicant—

- 1) Exhibits adequate knowledge of an instrument takeoff with instrument meteorological conditions simulated at or before reaching an altitude of 100 feet (30 meters) AGL.

If accomplished in a flight simulator, visibility should be no greater than one-quarter (1/4) mile, or as specified by operations specifications.
- 2) Takes into account, prior to beginning the takeoff, operational factors which could affect the maneuver such as helicopter characteristics, takeoff path, surface conditions, wind, obstructions, and other related factors that could adversely affect safety.
- 3) Accomplishes the appropriate checklist items to ensure that the helicopter systems applicable to the instrument takeoff are operating properly.
- 4) Sets the applicable flight instruments to the desired setting prior to initiating the takeoff.
- 5) Transitions smoothly and accurately from visual meteorological conditions to actual or simulated instrument meteorological conditions.
- 6) Maintains the appropriate climb attitude.
- 7) Maintains desired heading within $\pm 5^\circ$ and desired airspeeds within ± 5 knots.
- 8) Complies with ATC clearances and instructions issued by ATC (or the examiner simulating ATC).

5.3 TASK: POWERPLANT FAILURE DURING TAKEOFF

Objective. To determine that the applicant—

- 1) Exhibits adequate knowledge of the procedures used during power plant failure on takeoff, the appropriate reference airspeeds, and the specific pilot actions required.
- 2) Takes into account, prior to beginning the takeoff, operational factors which could affect the maneuver such as helicopter characteristics, takeoff path, surface conditions, wind, obstructions, and other related factors that could adversely affect safety.
- 3) Maintains the helicopter aligned with the runway heading or takeoff path appropriate for climb performance and terrain clearance when power plant failure occurs.
- 4) **Single-Engine Helicopters:** Establishes a power-off descent approximately straight-ahead, if the power plant failure occurs after becoming airborne. The failure of the power plant should be simulated during a normal takeoff (no lower than 500 feet or 150 meters AGL).

- 5) **Multiengine Helicopters:** Continues the takeoff if the power plant failure occurs at a point where the helicopter can continue to a specified airspeed and altitude at the end of the runway commensurate with the helicopter's performance capabilities and operating limitations. The failure of one power plant should be simulated during a normal takeoff—
 - (a) At an appropriate airspeed that will allow continued climb performance in forward flight; or
 - (b) At an appropriate airspeed that is 50 percent of normal cruise speed, if there is no published single-engine airspeed for that type helicopter.
- 6) Maintains (in a multiengine helicopter), after a simulated power plant failure and after a climb has been established, the desired heading within $\pm 5^\circ$ and desired airspeed within ± 5 knots.

5.4 TASK: REJECTED TAKEOFF

Objective. To determine that the applicant understands when to reject or continue the takeoff and—

- 1) Exhibits adequate knowledge of the technique and procedure for accomplishing a rejected takeoff after power plant /system(s) failure/warnings, including related safety factors.
- 2) Takes into account, prior to beginning the takeoff, operational factors which could affect the maneuver such as helicopter characteristics, takeoff path, surface conditions, wind, obstructions, and other related factors that could adversely affect safety.
- 3) Aligns the helicopter on the runway centerline or takeoff path.
- 4) Performs all required pre takeoff checks as required by the appropriate checklist items.
- 5) Increases power smoothly and positively, if appropriate to the helicopter, to a predetermined value based on existing conditions.
- 6) Maintains directional control on the runway heading or takeoff path.
- 7) Aborts the takeoff if, in a single-engine helicopter, the power plant (or other) failure occurs prior to becoming airborne; or in a multiengine helicopter, the power plant (or other) failure occurs at a point during the takeoff where the abort procedure can be initiated and the helicopter can be safely landed and stopped.
- 8) Reduces the power smoothly and promptly, if appropriate to the helicopter, when power plant failure is simulated.
- 9) Maintains positive control, and accomplishes the appropriate power plant failure procedures as recommended by the appropriate checklist.

In a wheeled helicopter, the failure will be simulated at a reasonable airspeed determined after giving due consideration to the helicopter's characteristics, Height Velocity Diagram, length of landing area, surface conditions, wind direction and velocity, and any other factors that may adversely affect safety.

5.5 TASK: INSTRUMENT DEPARTURE

Objective. To determine that the applicant—

- 1) In actual or simulated instrument conditions, exhibits adequate knowledge of SIDs, En Route Low and High Altitude Charts, STARs, and related pilot/controller responsibilities.
- 2) Uses the current and appropriate navigation publications for the proposed flight.

- 3) Selects and uses the appropriate communications frequencies, and selects and identifies the navigation aids associated with the proposed flight.
- 4) Performs the appropriate checklist items.
- 5) Establishes communications with ATC, using proper phraseology.
- 6) Complies, in a timely manner, with all instructions and airspace restrictions.
- 7) Exhibits adequate knowledge of two-way radio communications failure procedures.
- 8) Intercepts, in a timely manner, all courses, radials, and bearings appropriate to the procedure, route, clearance, or as directed by the examiner.
- 9) Maintains the appropriate airspeed within ± 10 knots, headings within $\pm 10^\circ$, altitude within ± 100 feet (30 meters); and accurately tracks a course, radial, or bearing.
- 10) Conducts the departure phase to a point where, in the opinion of the examiner, the transition to the en route environment is complete.

SECTION 6 AREA OF OPERATION: INFLIGHT MANEUVERS

6.1 TASK: STEEP TURNS

Objective. To determine that the applicant—

- 1) In actual or simulated instrument conditions, exhibits adequate knowledge of steep turns (if applicable to helicopter) and the factors associated with performance; and, if applicable, angle of bank, and pitch and power requirements.
- 2) Selects an altitude recommended by the manufacturer, training syllabus, or other training directive.
- 3) Establishes the recommended entry airspeed.
- 4) Rolls into a coordinated turn of 180° or 360° with a bank as appropriate, not to exceed 30° . Maintains the bank angle within $\pm 5^\circ$ while in smooth, stabilized flight.
- 5) Applies smooth coordinated pitch, bank, and power to maintain the specified altitude within ± 100 feet (30 meters) and the desired airspeed within ± 10 knots.
- 6) Rolls out of the turn (at approximately the same rate as used to roll into the turn) within $\pm 10^\circ$ of the entry or specified heading, stabilizes the helicopter in a straight-and-level attitude or, at the discretion of the examiner, reverses the direction of turn and repeats the maneuver in the opposite direction.
- 7) Avoids any indication of abnormal flight attitude, or exceeding any structural, rotor, or operating limitation during any part of the maneuver.

6.2 TASK: POWERPLANT FAILURE: MULTIENGINE HELICOPTER

Objective. To determine that the applicant—

- 1) Exhibits adequate knowledge of the flight characteristics and controllability associated with maneuvering with power plant(s) inoperative (as appropriate to the helicopter).
- 2) Sets power plant controls, correctly identifies and verifies the inoperative power plant(s) after the simulated failure.
- 3) Maintains positive helicopter control.
- 4) Determines the reason for the power plant(s) failure.
- 5) Follows the prescribed helicopter checklist, and verifies the procedures for securing the inoperative power plant(s). Determines if a restart is a viable option.
- 6) Maintains the operating power plant(s) within acceptable operating limits.
- 7) Maintains desired altitude within ± 100 feet (30 meters), when a constant altitude is specified and is within the capability of the helicopter.
- 8) Maintains the desired airspeed within ± 10 knots.
- 9) Maintains the desired heading within $\pm 10^\circ$ of the specified heading.
- 10) Demonstrates proper power plant restart procedures in accordance with GCAA-approved procedure/checklist or the manufacturer's recommended procedures and pertinent checklist items.

- When this TASK is accomplished in an approved flight simulator, the engine shutdown and restart may be performed in conjunction with another procedure or maneuver, and at any location or altitude at the discretion of the examiner.
- When this task is accomplished in the helicopter, the engine failure and restart procedure shall be simulated.
- This TASK shall be performed by reducing the power to idle on the selected engine.
- This task must be initiated at an altitude from which a safe landing can be made in the event of actual engine problems.
- When authorized and conducted in a flight simulator, shutdown may be performed in conjunction with any procedure or maneuver, and at any location or altitude at the discretion of the examiner.

6.3 TASK: POWERPLANT FAILURE: SINGLE-ENGINE HELICOPTER

Objective. To determine that the applicant—

- 1) Exhibits adequate knowledge of the flight characteristics, approach and forced (emergency) landing procedures, and related procedures to use in the event of a power plant failure (as appropriate to the helicopter).
- 2) Enters autorotation promptly when the examiner simulates a power plant failure by—
 - (a) Lowering the collective as necessary to maintain rotor RPM within acceptable limits,
 - (b) Establishing and maintaining the recommended autorotation airspeed within ± 5 knots, and
 - (c) Maintaining proper longitudinal trim.
- 3) Selects a suitable airport or landing area which is within the performance capability of the helicopter.
- 4) Establishes a proper flight pattern to the selected airport or landing area, taking into account altitude, wind, terrain, obstructions, and other pertinent operational factors.

- No simulated power plant failure shall be given by the examiner in a helicopter when an actual touchdown could not be safely completed should it become necessary, nor when an autorotative descent might constitute a violation of the GCAD's
- The examiner shall direct the applicant to terminate this TASK in a power recovery at an altitude high enough to assure that a safe touchdown could be accomplished in the event an actual power plant failure should occur during recovery procedures.

- 5) Avoids undershooting or overshooting the selected landing area.
- 6) Determines the cause for the simulated power plant failure (if altitude permits) and if a restart is a viable option.
- 7) Performs the emergency memory checklist items appropriate to the helicopter.
- 8) Maintains positive helicopter control throughout the maneuver.
- 9) Uses helicopter configuration devices (such as landing gear) in a manner recommended by the manufacturer and/or approved by the GCAA.
- 10) Terminates the autorotation by performing a power recovery, at a safe altitude or as briefed by the examiner, prior to the flight.

6.4 TASK: RECOVERY FROM UNUSUAL ATTITUDES

Objective. To determine that the applicant—

- 1) In actual or simulated instrument conditions, exhibits adequate knowledge of recovery from unusual attitudes.
- 2) Recovers from both nose-high and nose-low unusual attitudes, using proper pitch, bank, and power techniques.

6.5 TASK: SETTLING-WITH-POWER

Objective. To determine that the applicant—

- 1) Exhibits adequate knowledge of the conditions which contribute to, and may result in, "settling-with-power."
- 2) Describes the relationship of gross weight, RPM, and density altitude to the severity of the vertical rate of descent.
- 3) At an altitude above 1,500 feet (450 meters) AGL or as recommended by the manufacturer if it is higher, demonstrates entry into "settling-with-power," using the recommended procedures in the correct sequence.
- 4) Recovers immediately at the first indication of "settling-with-power," using the recommended procedures in the correct sequence.
- 5) Demonstrates smooth, positive helicopter control and prompt recovery techniques.

SECTION 7 AREA OF OPERATION: INSTRUMENT PROCEDURES

7.1 TASK: INSTRUMENT ARRIVAL

Objective. To determine that the applicant—

- 1) While in actual or simulated instrument conditions, exhibits adequate knowledge of En Route Low and High Altitude Charts, STARs, Instrument Approach Procedure Charts, and related pilot and controller responsibilities.
- 2) Uses the current and appropriate navigation publications for the proposed flight.
- 3) Selects and correctly identifies the appropriate navigation frequencies and facilities associated with the area arrival.
- 4) Performs the helicopter checklist items appropriate to the area arrival.
- 5) Establishes communications with ATC, using proper phraseology.

- 6) Complies, in a timely manner, with all ATC clearances, instructions, and restrictions.
- 7) Exhibits adequate knowledge of two-way communications failure procedures.
- 8) Intercepts, in a timely manner, all courses, radials, and bearings appropriate to the procedure, route, ATC clearance, or as directed by the examiner.
- 9) Adheres to airspeed restrictions and adjustments required by directives, ATC, the RFM, or the examiner.
- 10) Establishes, where appropriate, a rate of descent consistent with the helicopter operating characteristics and safety.
- 11) Maintains the appropriate airspeed/V-speed within ± 10 knots; heading $\pm 10^\circ$; altitude within ± 100 feet (30 meters); and accurately tracks radials, courses, and bearings.
- 12) Complies with the provisions of the Profile Descent, STAR, and other arrival procedures, as appropriate.

7.2 TASK: HOLDING

Objective. To determine that the applicant—

- 1) While in actual or simulated instrument conditions, exhibits adequate knowledge of holding procedures for standard and non-standard, published and non-published holding patterns.

If appropriate, demonstrates adequate knowledge of holding endurance, including, but not necessarily limited to, fuel on board, fuel flow while holding, fuel required to alternate, etc.

- 2) Changes to the recommended holding airspeed appropriate for the helicopter and holding altitude, so as to cross the holding fix at or below maximum holding airspeed.
- 3) Recognizes arrival at the clearance limit or holding fix.
- 4) Remains within protected airspace.
- 5) Complies with ATC reporting requirements.
- 6) Uses the proper timing criteria required by the holding altitude and ATC or examiner's instructions.
- 7) Complies with the holding pattern leg length when a DME distance is specified.
- 8) Arrives over the holding fix as close as possible to the "expect further clearance" time.
- 9) Maintains the appropriate airspeed/V-speed within ± 10 knots, altitude within ± 100 feet (30 meters); headings within $\pm 10^\circ$; and accurately tracks radials, courses, and bearings.

7.3 TASK: PRECISION INSTRUMENT APPROACHES

Objective. To determine that the applicant—

- 1) Exhibits adequate knowledge of the precision instrument approach procedures with all engines operating, and with one engine inoperative.
- 2) Establishes two-way communications with ATC as appropriate to the phase of flight or approach segment and uses the proper communications phraseology and techniques.
- 3) Accomplishes the appropriate precision instrument approach procedure as selected by the examiner.
- 4) Complies, in a timely manner, with all clearances, instructions, and procedures.
- 5) Advises ATC anytime the helicopter is unable to comply with a clearance.
- 6) Establishes the appropriate helicopter configuration and airspeed/V-speed considering turbulence, wind shear, microburst conditions, or other meteorological and operating conditions.
- 7) Completes the helicopter checklist items appropriate to the phase of flight or approach segment.
- 8) Prior to beginning the final approach segment, maintains the desired altitude ± 100 feet (30 meters), the desired airspeed within ± 10 knots, the desired heading within $\pm 5^\circ$; and accurately tracks radials, courses, and bearings.
- 9) Selects, tunes, identifies, and monitors the operational status of ground and helicopter navigation equipment used for the approach.
- 10) Applies the necessary adjustments to the published Decision Height and visibility criteria for the helicopter approach category as required, such as—
 - (a) FDC and Class II NOTAMs.
 - (b) Inoperative helicopter and ground navigation equipment.
 - (c) Inoperative visual aids associated with the landing environment.
 - (d) National Weather Service (NWS) reporting factors and criteria.
- 11) Establishes a predetermined rate of descent at the point where the electronic glide slope begins which approximates that required for the helicopter to follow the glide slope.
- 12) Maintains a stabilized final approach, arriving at Decision Height with no more than one-quarter scale deflection of the localizer, or the glide slope indicators and the airspeed/V-speed within ± 5 knots of that desired.
- 13) Avoids descent below the Decision Height before initiating a missed approach procedure or transitioning to a landing.
- 14) Initiates immediately the missed approach procedure, when at the Decision Height, and the required visual references for the runway or intended landing area are not distinctly visible and identifiable.

- Two precision approaches must be accomplished in actual or simulated instrument conditions.
- For a multiengine helicopter, at least one manually controlled precision approach must be accomplished with a simulated failure of one power plant.
- The simulated power plant, failure should occur before initiating the final approach segment and must continue to touchdown or throughout the missed approach procedure.
- As the markings on localizer/glide slope indicators vary, a one-quarter scale deflection of either the localizer, or glide slope indicator is when it is displaced one-fourth of the distance that it may be deflected from the on glide slope or on localizer position.

- 15) Transitions to a normal landing approach only when the helicopter is in a position from which a descent to a landing on the runway or intended landing area can be made at a normal rate of descent using normal maneuvering.

7.4 TASK: NONPRECISION INSTRUMENT APPROACHES

Objective. To determine that the applicant—

- 1) Exhibits adequate knowledge of nonprecision approach procedures representative of those the applicant is likely to use.
- 2) Establishes two-way communications with ATC as appropriate to the phase of flight or approach segment and uses proper communications phraseology and techniques.
- 3) Accomplishes the nonprecision instrument approach procedures selected by the examiner.
- 4) Complies with all clearances issued by ATC.
- 5) Advises ATC or the examiner any time the helicopter is unable to comply with a clearance.
- 6) Establishes the appropriate helicopter configuration and airspeed, and completes all applicable checklist items.
- 7) Maintains, prior to beginning the final approach segment, the desired altitude ± 100 feet (30 meters), the desired airspeed ± 10 knots, the desired heading $\pm 5^\circ$; and accurately tracks radials, courses, and bearings.
- 8) Selects, tunes, identifies, and monitors the operational status of ground and helicopter navigation equipment used for the approach.
- 9) Applies the necessary adjustments to the published Minimum Descent Altitude and visibility criteria for the helicopter approach category when required, such as—
 - (a) Notices to Airmen, including Flight Data Center Procedural NOTAMs.
 - (b) Inoperative helicopter and ground navigation equipment.
 - (c) Inoperative visual aids associated with the landing environment.
 - (d) National Weather Service (NWS) reporting factors and criteria.
- 10) Establishes a rate of descent that will ensure arrival at the Minimum Descent Altitude with the helicopter in a position from which a descent to a landing on the intended runway or landing area can be made at a normal rate using normal maneuvering.

- The applicant must accomplish at least two nonprecision approaches (one of which must include a procedure turn) in simulated or actual weather conditions approach using two different approach systems
- At least one nonprecision approach must be flown manually without receiving radar vectors.
- The examiner will select nonprecision approaches that are representative of that which the applicant is likely to use.
- The choices must utilize two different systems; i.e., NDB and one of the following: VOR, LOC, LDA, GPS, or LORAN.

- 11) Allows, while on the final approach segment, not more than quarter-scale deflection of the Course Deviation Indicator (CDI) or $\pm 5^\circ$ in the case of the RMI or bearing pointer, and maintains airspeed within ± 5 knots of that desired.
- 12) Maintains the Minimum Descent Altitude, when reached, within -0, +50 feet (-0, +15 meters) to the missed approach point.
- 13) Executes the missed approach procedure if the required visual references for the intended runway are not distinctly visible and identifiable at the missed approach point.
- 14) Executes a normal landing from a straight-in approach.

- If TASK 7.4, Nonprecision Instrument Approaches, is performed in a training device (other than an FTD or flight simulator) and the applicant has completed an approved training course for the helicopter type involved, not more than one of the required instrument procedures may be observed by a person qualified to act as an instructor or check airman under that approved training program.
- The instrument approach is considered to begin when the helicopter is over the initial approach fix for the procedure being used and ends when the helicopter touches down on the runway or landing area, or when transition to a missed approach configuration is completed. Instrument conditions need not be simulated below the minimum altitude for the approach being accomplished.

7.5 TASK: MISSED APPROACH

Objective. To determine that the applicant—

- 1) While in actual or simulated instrument conditions, exhibits adequate knowledge of missed approach procedures associated with standard instrument approaches.
- 2) Initiates the missed approach procedure promptly by the timely application of power, establishes the proper climb attitude, and reduces drag in accordance with the approved procedures.
- 3) Reports to ATC, beginning the missed approach procedure.
- 4) Complies with the appropriate missed approach procedure or ATC clearance.
- 5) Advises ATC any time the helicopter is unable to comply with a clearance.
- 6) Follows the recommended helicopter checklist items appropriate to the go-around procedure for the helicopter used.
- 7) Requests clearance, if appropriate, to the alternate airport, another approach, a holding fix, or as directed by the examiner.
- 8) Maintains the desired altitudes ± 100 feet (30 meters), airspeed ± 5 knots, heading $\pm 5^\circ$, and accurately tracks courses, radials, and bearings.

- The applicant must be required to perform at least two missed approach procedures with at least one missed approach from a precision approach (ILS, MLS, or GPS).
- A complete approved missed approach procedure must be accomplished at least once and a simulated power plant failure (in a multiengine helicopter) will be required during one of the missed approaches.
- Going below the MDA or DH, as appropriate, prior to the initiation of the missed approach procedure shall be considered unsatisfactory performance, except in those instances where the required visual references for the runway or intended landing area are distinctly visible and identifiable at the MDA or DH.

SECTION 8 AREA OF OPERATION: LANDINGS & APPROACHES TO LANDINGS

8.1 TASK: NORMAL & CROSSWIND APPROACHES & LANDINGS

Objective. To determine that the applicant—

- 1) Exhibits adequate knowledge of normal and crosswind approaches and landings including recommended approach angles, airspeeds, V-speeds, configurations, performance limitations, wake turbulence, and safety factors (as appropriate to the helicopter).
- 2) Establishes the approach and landing configuration appropriate for the runway or designated landing area and meteorological conditions, and adjusts the power plant controls as required.
- 3) Maintains a ground track, within $\pm 5^\circ$, that ensures the desired traffic pattern will be flown, taking into account any obstructions and ATC or examiner instructions.
- 4) Verifies existing wind conditions, makes proper correction for drift, and maintains a precise ground track.
- 5) Maintains a normal approach angle and recommended airspeed and a normal rate of closure to the point of transition to a hover or touchdown.
- 6) Terminates the approach in a smooth transition to a hover or to a touchdown within 2 feet (.6 meter) of the designated point. (If a hover termination is specified, it will be within ± 2 feet (.6 meter) of recommended hovering altitude.)
- 7) Completes the applicable after-landing checklist items in a timely manner and as recommended by the manufacturer.

- Notwithstanding the authorizations for the combining of maneuvers and for the waiver of maneuvers, the applicant must make at least four landings to a hover or to the ground.
- These landings must include the types listed in this AREA OF OPERATION; however, more than one type may be combined where appropriate (i.e., crosswind and landing from a precision approach or landing with simulated power plant failure, etc.).

8.2 TASK: APPROACH & LANDING WITH SIMULATED POWERPLANT FAILURE: MULTIENGINE HELICOPTER

Objective. To determine that the applicant—

- 1) Exhibits adequate knowledge of maneuvering to a landing with a power plant inoperative, including the controllability factors associated with maneuvering, and the applicable emergency procedures.
- 2) Proceeds toward the nearest suitable airport or landing area.
- 3) Maintains, prior to beginning the final approach segment, the desired altitude ± 100 feet (30 meters), the desired airspeed ± 10 knots, the desired heading $\pm 5^\circ$, and accurately tracks courses, radials, and bearings.
- 4) Establishes the approach and landing configuration appropriate for the runway or landing area, and meteorological conditions; 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 runway, and as recommended by the manufacturer.

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

8.3 TASK: REJECTED LANDING

Objective. To determine that the applicant—

- 1) Exhibits adequate knowledge of a rejected landing procedure, including the conditions that dictate a rejected landing, the importance of a timely decision, the recommended airspeed/V-speeds, and also the applicable "clean-up" procedure.
- 2) Makes a timely decision to reject the landing for actual or simulated circumstances.
- 3) Applies the appropriate power setting for the flight condition and establishes a pitch attitude necessary to obtain the desired performance.
- 4) Adjusts helicopter configuration and retracts the landing gear, if appropriate, in the correct sequence and at a safe altitude, establishes a positive rate of climb and the appropriate airspeed/V-speed within ± 5 knots.
- 5) Trims the helicopter as necessary, and maintains the proper ground track, within $\pm 5^\circ$, during the rejected landing procedure.
- 6) Accomplishes the appropriate checklist items in a timely manner in accordance with approved procedures.

- The maneuver may be combined with instrument or missed approach procedures, but instrument conditions need not be simulated below 100 feet (30 meters) above the runway or landing area.
- This maneuver should be initiated approximately 50 feet (15 meters) above the runway and approximately over the runway threshold or as recommended by the aircraft manufacturer.

SECTION 9 AREA OF OPERATION: NORMAL & ABNORMAL PROCEDURES

Objective. To determine that the applicant—

- 1) Possesses adequate knowledge of the normal and abnormal procedures of the systems, subsystems, and devices relative to the helicopter type (as may be determined by the examiner).
- 2) Demonstrates the proper use of the helicopter's systems, subsystems, and devices (as may be determined by the examiner) appropriate to the helicopter, such as—
 - (a) power plant.
 - (b) Fuel system.
 - (c) Electrical system.
 - (d) Hydraulic system.
 - (e) Environmental system.
 - (f) Fire detection and extinguishing systems.
 - (g) Navigation and avionics systems.
 - (h) Automatic flight control system, electronic flight instrument system, and related subsystems.
 - (i) Flight control systems.
 - (j) Anti-ice and deice systems.
 - (k) Helicopter and personal emergency equipment.
 - (l) Loss of tail rotor effectiveness.
 - (m) Other systems, subsystems, and devices specific to the type helicopter.

SECTION 10 AREA OF OPERATION: EMERGENCY PROCEDURES

Objective. To determine that the applicant—

- 1) Possesses adequate knowledge of the emergency procedures (as may be determined by the examiner) relating to the particular helicopter type.
- 2) Demonstrates the proper emergency procedures (as must be determined by the examiner) relating to the particular helicopter type, including—
 - (a) Inflight fire and smoke removal.
 - (b) Emergency descent.
 - (c) Autorotation, with a power recovery.
 - (d) Ditching.
 - (e) Emergency evacuation.
- 3) Demonstrates the proper procedure for any other emergency outlined (as must be determined by the examiner) in the appropriate approved helicopter RFM.

SECTION 11 AREA OF OPERATION: POSTFLIGHT PROCEDURES

11.1 TASK: AFTER-LANDING PROCEDURES

Objective. To determine that the applicant—

- 1) Exhibits adequate knowledge of safe after-landing/taxi procedures (as appropriate to the helicopter).
- 2) Demonstrates proficiency by maintaining correct and positive helicopter control. This includes hovering taxi, air taxiing; and in helicopters with wheels, includes ground taxiing.

In helicopters equipped with float devices, this includes water taxiing, approaching a buoy, and docking.
- 3) Maintains proper spacing on other helicopter, obstructions, and persons.
- 4) Accomplishes the applicable checklist items and performs the recommended procedures.
- 5) Maintains the desired track and speed.
- 6) Complies with instructions issued by ATC (or the examiner simulating ATC).
- 7) Observes runway hold lines, localizer and glide slope critical areas, and other surface control markings and lighting.
- 8) Maintains constant vigilance and control of the helicopter during the taxi operation.

11.2 TASK: PARKING & SECURING

Objective. To determine that the applicant—

- 1) Exhibits adequate knowledge of the parking and the securing helicopter procedures.
- 2) Demonstrates adequate knowledge of the helicopter forms/logs to record the flighttime/ discrepancies.

End of Advisory Circular