GHANA
CIVIL AVIATION AUTHORITY

ADVISORY CIRCULAR
AC 02-008

SKILL TEST STANDARDS
COMMERCIAL PILOT – 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 a Commercial Pilot License with a Helicopter rating.

B. This AC also provides the skill test standards for the conduct of an AOC proficiency check for air taxi operations.

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 Commercial 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 CPL testing that parallel the ICAO Standards.

C. This AC provides amplified standards for a CPL 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 CPL privileges.

B. Flight instructors are expected to use these standards when preparing applicants for their CPL skill tests.

C. Applicants should be familiar with these skill test standards and refer to them during their training.

1.5 RELATED DIRECTIVES

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

- 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 considered to "prescribe" a viable method of compliance, but status of that "prescription" is always "guidance" (never directive).

- GCADs Part 2, Personnel Licensing
- GCADs Part 08, Operations of Aircraft
- GCADs Part 09, AOC Personnel Qualification

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 02-001, Personnel Licensing
   - ♦ AC 02-005, Flight Testing

   Copies may be obtained from the GCAA Safety Regulations Department.

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-80-83-25, Pilot Handbook of Aeronautical Knowledge
   - ♦ FAA-H-80-83-23, Rotorcraft Flying Handbook

   - Copies are normally available through flight schools and instructors.
   - Contact the GCAA Safety Regulations Department 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 a 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) **Plan of Action**. In item-by-item checklist for accomplishing each Task specified in the skill test standards in a 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 manuevers, 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) **GCADs** – Ghana Civil Aviation Directives

3) **CPL** – Commercial Pilot License

4) **PEL** – Personnel Licensing

5) **SRD** – GCAA Safety Regulations Department

SECTION 2 INTRODUCTORY INFORMATION

2.1 COMMERCIAL PILOT: HELICOPTER SKILL TEST PREREQUISITES

An applicant for the Commercial Pilot–Helicopter Skill Test is required to—

1) Be at least 18 years of age;

2) Be able to read, speak, write, and understand the English language.

3) For international operations, be able to read, speak and understand the aviation English at at least Level 4 (Operational). If there is a doubt, use AC 07-003, Evaluation of Language Proficiency;
4) Have passed the appropriate commercial pilot knowledge test since the beginning of the 24th month before the month in which he or she takes the skill test;
5) Have satisfactorily accomplished the required training and obtained the aeronautical experience prescribed;
6) Possess at least a current Class 1 medical certificate;
7) 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
8) 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 SKILL STANDARDS SPECIFIED BY REGULATION

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 **1:2.7.1.5 1:2.8.1.5 1:2.9.1.5.12 1:2.12.1.4**
6) Maintain control of the aircraft at all times in a manner such that the successful outcome of a procedure or manoeuvre is assured.

2.3 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;

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

2) Conditions under which the *Task* is to be performed; and

3) Acceptable performance standards.

2.4 SPECIAL EMPHASIS AREAS

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

1) Positive aircraft control;

2) Positive exchange of the flight controls procedure (who is flying the aeroplane);

3) Wire strike avoidance;

4) Collision avoidance;

5) Wake turbulence avoidance;

6) Controlled flight into terrain (CFIT);

7) Aeronautical decision making (ADM) and risk management;

8) Checklist usage; and

9) Other areas deemed appropriate to any phase of this skill test.

- Although these areas may not be specifically addressed under each TASK, they are essential to flight safety.
- Each will be evaluated during the skill test.
- In all instances, the applicant's actions will relate to the complete situation.

SECTION 3 AREA OF OPERATION: PREFLIGHT PREPARATION

3.1 TASK: CERTIFICATES & DOCUMENTS

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

1) Explaining—

   (a) Commercial pilot certificate privileges, limitations, and recent flight experience requirements.

   (b) Medical certificate class and duration.

   (c) Pilot logbook or flight records.

2) Locating and explaining—

   (a) Airworthiness and registration certificates.

   (b) Operating limitations, placards, POH/RFM, and instrument markings.

   (c) Weight and balance data and equipment list.

3.2 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.

3.3 TASK: WEATHER INFORMATION

Objective. To determine that the applicant—

1) Exhibits knowledge of the elements related to weather information by analyzing available weather reports, charts, and forecasts from various sources with emphasis on—
   (a) METAR, TAF, and FA.
   (b) Surface analysis chart.
   (c) Wind shear reports.
   (d) Winds and temperature aloft chart.
   (e) AWOS, ASOS, and ATIS reports.
   (f) Significant weather prognostic charts.
2) Makes a competent "go/no-go" decision based on available weather information.

3.4 TASK: CROSS-COUNTRY FLIGHT PLANNING

Objective. To determine that the applicant—

1) Exhibits knowledge of the elements related to cross-country flight planning by presenting and explaining a pre-planned VFR cross-country flight, as previously assigned by the examiner.

> On the day of the skill test, the flight plan should be to the first fuel stop necessary, based on maximum allowable passenger, baggage, and/or cargo loads using real-time weather.

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

3.5 TASK: NATIONAL AIRSPACE SYSTEM

Objective. To determine that the applicant exhibits knowledge of the elements related to the national airspace system by explaining—

1) Basic VFR Weather Minimums – for all classes of airspace.

2) Airspace classes – their operating rules, pilot certification, and helicopter equipment requirements for the following—
   (a) Class A.
   (b) Class B.
   (c) Class C.
   (d) Class D.
   (e) Class E.
   (f) Class G.
3) Special use airspace and other airspace areas.

3.6 TASK: PERFORMANCE & LIMITATIONS

Objective. To determine that the applicant—

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

3.7 TASK: OPERATION OF SYSTEMS

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

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

3.8 TASK: AEROMEDICAL FACTORS

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

1) The symptoms, causes, effects, and corrective actions of at least three (3) of the following—
   (a) Hypoxia.
   (b) Hyperventilation.
   (c) Middle ear and sinus problems.
   (d) Spatial disorientation.
   (e) Motion sickness.
   (f) Carbon monoxide poisoning.
   (g) Stress and fatigue.
   (h) Dehydration.
2) The effects of alcohol and drugs, including over-the- counter drugs.
3) The effects of nitrogen excesses during scuba dives upon a pilot and/or passenger in flight.

3.9 TASK: PHYSIOLOGICAL ASPECTS OF NIGHT FLYING

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

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

3.10 TASK: LIGHTING & EQUIPMENT FOR NIGHT FLYING

Objective. To determine that the applicant—

1) Exhibits knowledge of the elements related to lighting and equipment for night flying by explaining—
   (a) The types and uses of various personal lighting devices.
   (b) The required equipment, and location of external navigation lighting of the helicopter.
   (c) The meaning of various airport, heliport, and navigation lights, the method of determining their status, and the procedure for airborne activation of runway lights.
2) Locates and identifies switches, spare fuses, and circuit breakers pertinent to night operations.

SECTION 4 AREA OF OPERATION: PREFLIGHT PROCEDURES

4.1 TASK: PREFLIGHT INSPECTION

Objective. To determine that the applicant—

1) Exhibits knowledge of the elements related to a preflight inspection including—
   (a) Which items must be inspected,
   (b) The reasons for checking each item, and
   (c) How to detect possible defects.
2) Inspects the helicopter with reference to an appropriate checklist.
3) Verifies that the helicopter is in condition for safe flight.

4.2 TASK: COCKPIT MANAGEMENT

Objective. To determine that the applicant—

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

4.3 TASK: ENGINE STARTING & ROTOR ENGAGEMENT

Objective. To determine that the applicant—

1) Exhibits knowledge of the elements related to correct engine starting procedures. Including—
   (a) The use of an external power source,
   (b) Starting under various atmospheric conditions,
   (c) Awareness of other persons and property during start, and
   (d) The effects of using incorrect starting procedures.
2) Ensures proper rotor blade clearance, and frictions flight controls, as necessary.
3) Utilizes the appropriate checklist for starting procedures.

4.4 TASK: BEFORE TAKEOFF CHECK

Objective. To determine that the applicant—

1) Exhibits knowledge of the elements related to the before takeoff check. Including, the reasons for checking each item and how to detect malfunctions.
2) Positions the helicopter properly considering other aircraft, wind, and surface conditions.
3) Divides attention inside and outside the cockpit.
4) Ensures that the engine temperature and pressure are suitable for run-up and takeoff.
5) Accomplishes the before takeoff check and ensures that the helicopter is in safe operating condition.

6) Reviews takeoff performance airspeeds, takeoff distances, departure, and emergency procedures.
7) Avoids runway incursions and/or ensures no conflict with traffic prior to takeoff.

SECTION 5 AREA OF OPERATION: AIRPORT & HELIPORT OPERATIONS

5.1 TASK: RADIO COMMUNICATIONS & ATC LIGHT SIGNALS

Objective. To determine that the applicant—

1) Exhibits knowledge of the elements related to radio communications and ATC light signals.
2) Selects appropriate frequencies.
3) Transmits using recommended phraseology.
4) Acknowledges radio communications and complies with instructions.

5.2 TASK: TRAFFIC PATTERNS

Objective. To determine that the applicant—

1) Exhibits knowledge of the elements related to traffic patterns. Including—
   (a) Procedures at airports and heliports with and without operating control towers,
   (b) Prevention of runway incursions,
   (c) Collision avoidance,
   (d) Wake turbulence avoidance, and
   (e) Wind shear.
2) Complies with proper traffic pattern procedures.
3) Maintains proper spacing from other traffic or avoids the flow of fixed wing aircraft.
4) Corrects for wind drift to maintain proper ground track.
5) Maintains orientation with runway/landing area.
6) Maintains traffic pattern altitude ±100 feet, and appropriate airspeed, ±10 knots.

5.3 TASK: AIRPORT/HELIPORT RUNWAY, HELIPAD, & TAXIWAY SIGNS, MARKINGS, & LIGHTING

Objective. To determine that the applicant—

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

SECTION 6 AREA OF OPERATION: HOVERING MANEUVERS

6.1 TASK: VERTICAL TAKEOFF & LANDING

Objective. To determine that the applicant—

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

6.2 TASK: SLOPE OPERATIONS

Objective. To determine that the applicant—

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

6.3 TASK: SURFACE TAXI

Objective. To determine that the applicant—

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

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

8) Maintains specified track within ± 2 feet.

6.4 TASK: HOVER TAXI

Objective. To determine that the applicant—

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

6.5 TASK: AIR TAXI

Objective. To determine that the applicant—

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

SECTION 7 AREA OF OPERATION: TAKEOFFS, LANDINGS & GO-AROUNDS

7.1 TASK: NORMAL & CROSSWIND TAKEOFF & CLIMB

Objective. To determine that the applicant—

1) Exhibits knowledge of the elements related to normal and crosswind takeoff and climb, including factors affecting performance, to include height/velocity information.

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

2) Establishes a stationary position on the surface or a stabilized hover, prior to takeoff in headwind and crosswind conditions.
3) Maintains RPM within normal limits.
4) Accelerates to manufacturer's recommended climb airspeed, ±5 knots.
5) Maintains proper ground track with crosswind correction, as necessary.
6) Remains aware of the possibility of wind shear and/or wake turbulence.

7.2 TASK: NORMAL & CROSSWIND APPROACH

Objective. To determine that the applicant—

1) Exhibits knowledge of the elements related to normal and crosswind approach.
2) Considers performance data, to include height/velocity information.
3) Considers the wind conditions, landing surface, and obstacles.
4) Selects a suitable termination point.
5) Establishes and maintains the normal approach angle, and rate of closure.
6) Remains aware of the possibility of wind shear and/or wake turbulence.
7) Avoids situations that may result in settling-with-power.
8) Maintains proper ground track with crosswind correction, as necessary.
9) Arrives at the termination point, on the surface or at a stabilized hover, ±2 feet.

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

7.3 TASK: MAXIMUM PERFORMANCE TAKEOFF & CLIMB

Objective. To determine that the applicant—

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

7.4 TASK: STEEP APPROACH

Objective. To determine that the applicant—

1) Exhibits knowledge of the elements related to a steep approach.
2) Considers situations where this maneuver is recommended and factors related to a steep approach, to include height/velocity information.
3) Considers the wind conditions, landing surface, and obstacles.
4) Selects a suitable termination point.
5) Establishes and maintains the recommended approach angle, (15° maximum) and proper rate of closure.
6) Avoids situations that can result in settling-with-power.
7) Remains aware of the possibility of wind shear and/or wake turbulence.
8) Maintains proper ground track with crosswind correction, if necessary.

9) Arrives at the termination point, on the surface or at a stabilized hover, ±2 feet.

7.5 TASK: ROLLING TAKEOFF

Objective. To determine that the applicant—

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

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

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

Objective. To determine that the applicant—

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

7.7 TASK: GO-AROUND

Objective. To determine that the applicant—

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

7) Transitions to a normal climb airspeed, ±5 knots.
8) Completes the prescribed checklist, if applicable.

SECTION 8 AREA OF OPERATION: PERFORMANCE MANEUVERS

8.1 TASK: RAPID DECELERATION

- The examiner must select 8.1; and
- At least one other TASK for the Area of Operation.

Objective. To determine that the applicant—

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

8.2 TASK: STRAIGHT IN AUTOROTATION

Objective. To determine that the applicant—

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

8.3 TASK: 180° AUTOROTATION

Objective. To determine that the applicant—

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

8) Comes to a hover within 100 feet of a designated point.

8.4 TASK: APPROACH & LANDING WITH SIMULATED POWERPLANT FAILURE:- MULTIENGINE HELICOPER

Objective. To determine that the applicant—

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

1) Exhibits adequate knowledge of maneuvering to a landing with a powerplant inoperative, including the controllability factors associated with maneuvering, and the applicable emergency procedures.
2) Selects a suitable touchdown point.
3) Maintains, prior to beginning the final approach segment, the desired altitude ± 100 feet, the desired airspeed ± 10 knots, the desired heading ± 5° , and maintains desired track.
4) Establishes the approach and landing configuration appropriate for the runway or landing area, and adjusts the powerplant controls as required.
5) Maintains a normal approach angle and recommended airspeed to the point of transition to touchdown.
6) Terminates the approach in a smooth transition to touchdown.
7) Completes the after-landing checklist items in a timely manner, after clearing the landing area, and as recommended by the manufacturer.

SECTION 9 AREA OF OPERATION: NAVIGATION

9.1 TASK: PILOTAGE & DEAD RECKONING

Objective. To determine that the applicant—

1) Exhibits knowledge of the elements related to pilotage and dead reckoning.
2) Follows the preplanned course by reference to landmarks.
3) Identifies landmarks by relating the surface features to chart symbols.
4) Navigates by means of precomputed headings, groundspeeds, and elapsed time.
5) Corrects for, and records, the differences between preflight fuel, groundspeed, and heading calculations and those determined en route.
6) Verifies the helicopter’s position within three (3) nautical miles of the flight planned route.
7) Corrects for, and records, the differences between preflight fuel, groundspeed, and heading calculations and those determined en route.
8) Maintains the appropriate altitude, ±100 feet and established heading, ±10°.

9.2 TASK: RADIO NAVIGATION & RADAR SERVICES

Objective. To determine that the applicant—

1) Exhibits knowledge of the elements related to radio navigation and ATC radar services.
2) Selects and identifies the appropriate facilities or coordinates, as appropriate.
3) Locates the helicopter's position relative to the navigation facilities or coordinates, as appropriate.

4) Intercepts and tracks a given radial or bearing.
5) Locates position using cross radials, coordinates, or bearings.
6) Recognizes and describes the indication of station or way point passage.
7) Recognizes signal loss and takes appropriate action.
8) Uses proper communication procedures when utilizing ATC radar services.
9) Maintains the appropriate altitude, ±100 feet.

9.3 TASK: DIVERSION

Objective. To determine that the applicant—

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

9.4 TASK: LOST PROCEDURES

Objective. To determine that the applicant—

1) Exhibits knowledge of the elements related to lost procedures.
2) Selects an appropriate course of action.
3) Maintains an appropriate heading, and climbs, if necessary.
4) Attempts to identify prominent landmark(s).
5) Uses navigation systems/facilities and/or contacts an ATC facility for assistance as appropriate.
6) Plans a precautionary landing if deteriorating weather and/or fuel exhaustion is impending.

SECTION 10 AREA OF OPERATION: EMERGENCY OPERATIONS

10.1 TASK: POWER FAILURE AT A HOVER

Objective. To determine that the applicant—

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

10.2

TASK: POWER FAILURE AT ALTITUDE

Simulated power failure at altitude must be given over areas where actual touchdowns can safely be com-pleted in the event of an actual pow-erplant failure.

Objective. To determine that the applicant—

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

10.3 TASK: SYSTEMS & EQUIPMENT MALFUNCTIONS

Objective. To determine that the applicant—

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

At least 4 of the following situations will be sampled during the skill test.

   (a) Engine/oil and fuel.
   (b) Hydraulic, if applicable.
   (c) Electrical.
   (d) Carburetor or induction icing.
   (e) Smoke and/or fire.
   (f) Flight control/trim.
   (g) Pitot static/vacuum and associated flight instruments, if applicable.
   (h) Rotor and/or antitorque.
   (i) Various frequency vibrations and the possible components that may be affected.
   (j) Any other emergency unique to the helicopter flown.

10.4 TASK: SETTLING-WITH-POWER

Objective. To determine that the applicant—

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

10.5 TASK: LOW ROTOR RPM RECOVERY

Objective. To determine that the applicant—

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

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

10.6 TASK: DYNAMIC ROLLOVER

Objective. To determine that the applicant—

Skill task 10.6 is s knowledge only TASK.

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

10.7 TASK: GROUND RESONANCE

Objective. To determine that the applicant—

Skill task 10.7 is s knowledge only TASK.

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

10.8 TASK: LOW G CONDITIONS

Objective. To determine that the applicant—

Skill task 10.8 is s knowledge only TASK.

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

10.9 TASK: EMERGENCY EQUIPMENT & SURVIVAL GEAR

Objective. To determine that the applicant—

Skill task 10.9 is s knowledge only TASK.

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

SECTION 11 AREA OF OPERATION: SPECIAL OPERATIONS

11.1 TASK: CONFINED AREA OPERATION

Objective. To determine that the applicant—

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

11.2 TASK: PINNACLE/PLATFORM OPERATIONS

Objective. To determine that the applicant—

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

SECTION 12 AREA OF OPERATION: POST-FLIGHT PROCEDURES

12.1 TASK: AFTER LANDING & SECURING

Objective. To determine that the applicant—

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