



Advisory Circular NCAA-AC-PEL033

SUBJECT: COMMERCIAL PILOT - HELICOPTER SKILL TEST STANDARDS

CIRCULAR NCAA-AC-PEL033

DATE: 2ND JUNE 2010

0.0 FOREWORD

0.1 The Nigerian Civil Aviation Authority (NCAA) has developed skill test standards for airmen licences and ratings and these are published as Advisory Circulars (ACs). This AC establishes the standards for the Commercial Pilot licence skill tests for helicopters. Nigerian inspectors and designated pilot flight test examiners shall conduct skill tests in compliance with these standards. Flight instructors and applicants should find these standards helpful in skill test preparation. Other ACs have been developed for other airmen licences and can be obtained from the NCAA website: <http://www.ncaa.gov.ng>.

0.2 Information considered directive in nature is described in this skill test AC in terms such as “shall” and “must”, indicating the actions are mandatory. Guidance information is described in terms such as “should” and “may” indicating the actions are desirable or permissive, but not mandatory.

0.3 The Nigerian Civil Aviation Regulations (Nlg. CARs) can be obtained from the NCAA at the address listed below. Nlg. CARs Part 2 cover the requirements for personnel licensing.

0.4 This Skill Test Standard may be downloaded from the NCAA website at <http://www.ncaa.gov.ng>. Subsequent changes to the Skill Test Standard will also be available on the NCAA web site.

0.5 Comments regarding this publication should be sent to:

Nigerian Civil Aviation Authority
Aviation House
Murtala Muhammed Airport
Ikeja

Dr. H. O. Demuren
Director General, Civil Aviation Authority

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SKILL TEST STANDARDS
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SECTION ONE

PURPOSE

1.1 The purpose of this AC is to prescribe the standards that shall be used by NCAA inspectors and designated flight test examiners when conducting the Commercial Pilot - Helicopter skill test. Flight instructors are expected to use this document when preparing applicants for skill tests. Applicants should be familiar with this document and refer to these standards during their training.

GENERAL

1.2 The NCAA has developed this skill test AC as the standard that shall be used by NCAA inspectors and designated flight test examiners when conducting instrument rating skill tests. Flight instructors are expected to use this book when preparing applicants for skill tests. Applicants should be familiar with this book and refer to these standards during their training.

SKILL TEST STANDARD CONCEPT

1.3 The Nig. CARs specify the areas in which knowledge and skill must be demonstrated by the applicant before the issuance of a licence or rating. The Nig. CARs provide the flexibility to permit the NCAA to publish Skill Test Standards (STS) containing the AREAS OF OPERATION and specific TASKS in which pilot competency shall be demonstrated. The NCAA will revise this STS whenever it is determined that changes are needed in the interest of safety. Adherence to the provisions of the regulations and the STS is mandatory for evaluation of pilot applicants.

SKILL TEST DESCRIPTION

1.4 (1) This AC contains the Commercial Pilot – Helicopter skill test standards. The Commercial Pilot—Helicopter Skill Test Standards include the AREAS OF OPERATION and TASKS for the issuance of an initial Commercial Pilot Licence and for the addition of category and/or class ratings to that licence.

(2) AREAS OF OPERATION are phases of the skill test arranged in a logical sequence within each standard. They begin with preflight preparation and end with postflight procedures. The examiner may conduct the skill test in any sequence that results in a complete and efficient test; however, the ground portion of the skill test shall be accomplished before the flight portion.

(3) TASKS are titles of knowledge areas, flight procedures, or maneuvers appropriate to an AREA OF OPERATION.

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

(7) REFERENCE identifies the publication(s) that describe(s) the TASK. Descriptions of TASKS are not included in the standards because this information can be found in the current issue of the listed references. Publications other than those listed may be used for references if their content conveys substantially the same meaning as the referenced publications. The STSs are based on the following references:

| | |
|------------------|---|
| NIG. CARS Part 1 | General Policies, Procedures, and Definitions |
| NIG. CARS Part 2 | Personnel Licensing |
| NIG. CARS Part 5 | Airworthiness |
| NIG. CARS Part 7 | Aircraft Instruments and Equipment |
| FAA-H-8083-1 | Aircraft Weight and Balance Handbook |
| NIG. CARS Part 9 | Air Operator Certification and Operation |
| NOTAMS | Notices to Airmen |
| RESERVED | |
| RESERVED | |
| RESERVED | |
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(8) The Objective lists the important elements that must be satisfactorily performed to demonstrate competency in a TASK. The Objective includes:

- (a) Specifically what the applicant should be able to do;
- (b) The conditions under which the TASK is to be performed; and
- (c) The acceptable standards of performance.

(9) The following abbreviations have the meanings shown:

| | |
|---------|--|
| ADF | Automatic Direction Finder |
| ADM | Aeronautical Decision Making |
| AIRMETs | Airmen's Meteorological Advisories |
| APV | Approach with Vertical Guidance |
| ATC | Air Traffic Control |
| ATIS | Automatic Terminal Information Service |
| ATS | Air Traffic Service |
| CAA | Civil Aviation Authority |
| CDI | Course Deviation Indicator |
| CFIT | Controlled Flight into Terrain |
| CRM | Crew Resource Management |
| DA | Decision Altitude |
| DH | Decision Height |
| DME | Distance Measuring Equipment |

| | |
|-----------|--|
| DP | Departure Procedure |
| FDC | Flight Data Center |
| FMS | Flight Management System |
| FSTD | Flight Simulation Training Device |
| GLS | GNSS Landing System |
| GNSS | Global Navigation Satellite System |
| GPS | Global Positioning System |
| GPWS | Ground Proximity Warning System |
| IAP | Instrument Approach Procedure |
| IFR | Instrument Flight Rules |
| ILS | Instrument Landing System |
| IMC | Instrument Meteorological Conditions |
| IPC | Instrument Proficiency Check |
| LAHSO | Land and Hold Short Operations |
| LCD | Liquid Crystal Display |
| LDA | Localizer-type Directional Aid |
| LED | Light Emitting Diode |
| LOC | Localizer |
| LORAN | Long Range Navigation |
| MAP | Missed Approach Point |
| NIG. CARS | Nigerian Civil Aviation Regulations |
| ACA | Minimum Descent Attitude |
| METAR | Aviation Routine Weather Report |
| MLS | Microwave Landing System |
| NAVAID | Navigational Aid |
| NDB | Non-Directional Beacon |
| NOTAM | Notice to Airmen |
| NPA | Nonprecision Approach |
| PA | Precision Approach |
| RAIM | Receiver Autonomous Integrity Monitoring |
| RMI | Radio Magnetic Indicator |
| RNAV | Area navigation |
| SAS | Stability Augmentation System |
| SDF | Simplified Directional Facility |
| SID | Standard Instrument Departure |
| SIGMET | Significant Meteorological Advisory |
| SRM | Single Pilot Resource Management |
| STAR | Standard Terminal Arrival |
| STS | Skill Test Standards |
| TCAS | Traffic Alert and Collision Avoidance System |
| VDP | Visual Descent Point |
| VHF | Very High Frequency |
| VNAV | Vertical Navigation |
| VOR | Very High Frequency Ominidirectional Range |

1.5 USE OF THE SKILL TEST STANDARDS

(1) The Skill Test Standards are designed to evaluate competency in both knowledge and skill. Commercial pilots are professionals engaged in various flight activities for compensation or hire. Because of their professional status, they should exhibit a significantly higher level of knowledge and skill than the private pilot. Although some TASKs listed are

similar to those in the Private Pilot Helicopter Skill Test Standards, the wording used in the Commercial Pilot Helicopter Skill Test Standards reflects a higher level of competency expected of a commercial pilot applicant in performing these similar TASKs.

(2) The NCAA requires that all skill tests be conducted in accordance with the appropriate STS and the policies set forth in Section 1. Applicants shall be evaluated in ALL TASKs included in the AREAS OF OPERATION of the appropriate STS (unless noted otherwise).

(3) An applicant, who holds at least a commercial pilot licence seeking an additional helicopter category rating and/or class rating at the commercial pilot level will be evaluated in the AREAS OF OPERATION and TASKs listed in the Additional Rating Task Table. At the discretion of the examiner, an evaluation of the applicant's competence in the remaining AREAS OF OPERATION and TASKs may be conducted.

(4) If the applicant holds two or more category or class ratings at least at the private level, and the rating table indicates differing required TASKs, the "least restrictive" entry applies. For example, if "ALL" and "NONE" are indicated for one AREA OF OPERATION, the "NONE" entry applies. If "B" and "B, C" are indicated, the "B" entry applies.

(5) In preparation for each skill test, the examiner shall develop a written "plan of action" for each skill test. The "plan of action" is a tool, for the sole use of the examiner, to be used in evaluating the applicant. The plan of action need not be grammatically correct or in any formal format. The plan of action must contain all of the required AREAS OF OPERATION and TASKs and any optional TASKs selected by the examiner. The "plan of action" shall incorporate one or more scenarios that will be used during the skill test. The examiner should try to include as many of the TASKs into the scenario portion of the test as possible, but maintain the flexibility to change due to unexpected situations as they arise and still result in an efficient and valid test. **Any TASK selected for evaluation during a skill test shall be evaluated in its entirety.**

(6) The examiner is not required to follow the precise order in which the AREAS OF OPERATION and TASKs appear in this book. The examiner may change the sequence or combine TASKs with similar Objectives to have an orderly and efficient flow of the skill test. For example, lost procedures may be combined with radio navigation. The examiner's "plan of action" should include the order and combination of TASKs to be demonstrated by the applicant in a manner that will result in an efficient and valid test.

(7) The examiner is expected to use good judgment in the performance of simulated emergency procedures. The use of the safest means for simulation is expected. Consideration must be given to local conditions (both meteorological and topographical), at the time of the test, as well as the applicant's, workload, and the condition of the aircraft used. If the procedure being evaluated would jeopardize safety, it is expected that the applicant will simulate that portion of the maneuver.

1.6 SPECIAL EMPHASIS AREAS

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

- (a) positive aircraft control;
- (b) positive exchange of the flight controls procedure (who is flying the aircraft);
- (c) collision avoidance;
- (d) wake turbulence avoidance;
- (e) runway incursion avoidance;
- (f) CFIT;
- (g) Wire strike avoidance;
- (h) ADM and risk management;
- (i) checklist usage; and
- (j) other areas deemed appropriate to any phase of the skill test.

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

1.7. SKILL TEST PREREQUISITES

An applicant for a Commercial Pilot - Helicopter skill test is required to:

- (a) Meet the applicable requirements in MCAR 2 for a Commercial Pilot – Helicopter rating;
- (b) Hold the appropriate medical certificate;
- (c) Pass the required knowledge test; and
- (d) Instructor Authorisation: Obtain a written endorsement from an authorised instructor certifying that the applicant has met the flight training requirements for the skill test. The endorsement shall also state that the instructor finds the applicant competent to pass the skill test and that the applicant has satisfactory knowledge of the subject area(s) in which a deficiency was indicated by the Airman Knowledge Test Report.

1.8 AIRCRAFT AND EQUIPMENT REQUIRED FOR THE SKILL TEST

The commercial pilot applicant is required by Nig. CARs Part 2 to provide an airworthy, certificated aircraft for use during the practical test. This section further requires that the aircraft must:

1. be of Nigerian, foreign or military registry of the same category, class, and type, if applicable, for the certificate and/or rating for which the applicant is applying;
2. have fully functioning dual controls, except as provided in Nig. CARs Part 2; and
3. be capable of performing ALL AREAS OF OPERATION appropriate to the rating sought and have no operating limitations, which prohibit its use in any of the AREAS OF OPERATION, required for the practical test.

1.9 USE OF NCAA-APPROVED FLIGHT SIMULATION TRAINING DEVICE (RESERVED)

1.10 FLIGHT INSTRUCTOR RESPONSIBILITY

(1) An appropriately rated flight instructor is responsible for training the pilot applicant to acceptable standards in all subject matter areas, procedures, and maneuvers included in the TASKS within the appropriate skill test standard.

(2) Because of the impact of their teaching activities in developing safe, proficient pilots, flight instructors should exhibit a high level of knowledge, skill, and the ability to impart that knowledge and skill to students. Additionally, the flight instructor must certify that the applicant is able to perform safely as a pilot and is competent to pass the required skill test.

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

1.11 EXAMINER RESPONSIBILITY

(1) The examiner conducting the skill test is responsible for determining that the applicant meets the acceptable standards of knowledge and skill of each TASK within the appropriate skill test standard. Since there is no formal division between the "oral" and "skill" portions of the skill test, this becomes an ongoing process throughout the test. To avoid unnecessary distractions, oral questioning should be used judiciously at all times, especially during the flight portion of the skill test.

(2) Examiners shall test to the greatest extent practicable the applicant's correlative abilities rather than mere rote enumeration of facts throughout the skill test.

(3) If the examiner determines that a TASK is incomplete, or the outcome uncertain, the examiner may require the applicant to repeat that TASK, or portions of that TASK. This provision has been made in the interest of fairness and does not mean that instruction, practice, or the repeating of an unsatisfactory TASK is permitted during the licencing process.

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

(5) The word "examiner" is used throughout the standard to denote either the NCAA inspector or NCAA-designated pilot examiner who conducts an official skill test.

1.12 SATISFACTORY PERFORMANCE

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

- (a) perform the TASKS specified in the AREAS OF OPERATION for the licence or rating sought within the approved standards;
- (b) demonstrate mastery of the aircraft with the successful outcome of each TASK performed never seriously in doubt;
- (c) demonstrate satisfactory proficiency and competency within the approved standard;
- (d) demonstrate sound judgment and ADM; and
- (e) demonstrate single-pilot competence if the aircraft is type certificated for single-pilot operations.

1.13 UNSATISFACTORY PERFORMANCE

(1) The tolerances represent the performance expected in good flying conditions. If, in the judgment of the examiner, the applicant does not meet the standards of performance of any TASK performed, the associated AREA OF OPERATION is failed and therefore, the skill test is failed.

(2) The examiner or applicant may discontinue the test at any time when the failure of an AREA OF OPERATION makes the applicant ineligible for the licence or rating sought. **The test may be continued ONLY with the consent of the applicant.** If the test is discontinued, the applicant is entitled credit for only those AREAS OF OPERATION and their associated TASKS that were satisfactorily performed. However, during the retest, and at the discretion of the examiner, any TASK may be re- evaluated, including those previously passed.

(4) Typical areas of unsatisfactory performance and grounds for disqualification are:

- (a) Any action or lack of action by the applicant that requires corrective intervention by the examiner to maintain safe flight.
- (b) Failure to use proper and effective visual scanning techniques when applicable, to clear the area before and while performing maneuvers.
- (c) Consistently exceeding tolerances stated in the Objectives.
- (d) Failure to take prompt corrective action when tolerances are exceeded.

(5) When a notice of disapproval is issued, the examiner shall record the applicant's unsatisfactory performance in terms of the AREA OF OPERATION and specific TASK(s) not meeting the standard appropriate to the skill test conducted. The AREA(s) OF OPERATION/TASK(s) not tested and the number of skill test failures shall also be recorded. If the applicant fails the skill test because of a special emphasis area, the Notice of Disapproval shall indicate the associated TASK. For example, AREA OF OPERATION VIII, Settling-With-Power, failure to use proper collision avoidance procedures.

1.14 DISCONTINUANCE OF A SKILL TEST

When a skill test is discontinued for reasons other than unsatisfactory performance (i.e., equipment failure, weather, or illness) NCAA Airman Licence and/or Rating Application, and, if applicable, the Airman Knowledge Test Report, shall be returned to the applicant. The examiner at that time shall prepare, sign, and issue a Letter of Discontinuance to the applicant. The Letter of Discontinuance should identify the AREAS OF OPERATION and their associated TASKS of the skill test that were successfully completed. The applicant shall be advised that the Letter of Discontinuance shall be presented to the examiner when the skill test is resumed, and made part of the licencing file.

1.15 AERONAUTICAL DECISION MAKING AND RISK MANAGEMENT

(1) The examiner shall evaluate the applicant's ability throughout the skill test to use good aeronautical decision making procedures in order to evaluate risks. The examiner shall accomplish this requirement by developing scenarios that incorporate as many TASKS as possible to evaluate the applicants risk management in making safe aeronautical decisions. For example, the examiner may develop a scenario that incorporates weather decisions and performance planning.

(2) The applicant's ability to utilize all the assets available in making a risk analysis to determine the safest course of action is essential for satisfactory performance. The scenarios

should be realistic and within the capabilities of the aircraft used for the skill test.

1.16 CREW RESOURCE MANAGEMENT

(1) CRM refers to the effective use of all available resources; human resources, hardware, and information. Human resources includes all other groups routinely working with the cockpit crew (or if a single pilot operation, the pilot) who are involved in decisions that are required to operate a flight safely. These groups include, but are not limited to: flight operations officers, cabin crewmembers, maintenance personnel, and air traffic controllers. CRM is not a single TASK. CRM is a set of skill competencies which must be evident in all TASKS in this skill test standard as applied to the single pilot or the multicrew operation. CRM competencies, grouped into three clusters of observable behavior, are:

(a) COMMUNICATIONS PROCESSES AND DECISIONS

1. Briefing/Debriefing
2. Inquiry/Advocacy/Assertiveness
3. Self-Critique
4. Communication with Available Personnel Resources
5. Decision Making

(b) BUILDING AND MAINTENANCE OF A FLIGHT TEAM

1. Leadership/Followership
2. Interpersonal Relationships

(c) WORKLOAD MANAGEMENT AND SITUATIONAL AWARENESS

1. Preparation/Planning
2. Vigilance
3. Workload Distribution
4. Distraction Avoidance
5. Wake Turbulence Avoidance

(2) CRM deficiencies almost always contribute to the unsatisfactory performance of a TASK. Therefore, the competencies provide an extremely valuable vocabulary for debriefing.

(3) The standards for each CRM competency as generally stated and applied are subjective. Conversely, some of the competencies may be found objectively stated as required operational procedures for one or more TASKS. Examples of the latter include briefings, radio calls, and instrument approach callouts. Whether subjective or objective, application of CRM competencies is dependent upon the composition of the crew.

1.17 SINGLE-PILOT RESOURCE MANAGEMENT

Single-Pilot Resource Management refers to the effective use of ALL available resources: human resources, hardware, and information. It is similar to Crew Resource Management (CRM) procedures that are being emphasized in multi-crewmember operations except that only one crewmember (the pilot) is involved. Human resources "...include all other groups routinely working with the pilot who are involved in decisions that are required to operate a flight safely. These groups include, but are not limited to: dispatchers, weather briefers, maintenance personnel, and air traffic controllers." Pilot Resource Management is not

a single TASK; it is a set of skill competencies that must be evident in all TASKS in this skill test standard as applied to single-pilot operation.

1.18 HOW THE EXAMINER APPLIES CREW RESOURCE MANAGEMENT

(1) Examiners are required to exercise proper CRM competencies in conducting tests as well as expecting the same from applicants.

(2) Pass/Fail judgments based solely on CRM issues must be carefully chosen since they may be entirely subjective. Those Pass/Fail judgments which are not subjective apply to CRM-related procedures in NCAA-approved operations manuals that must be accomplished, such as briefings to other crewmembers. In such cases, the operator (or the aircraft manufacturer) specifies what should be briefed and when the briefings should occur. The examiner may judge objectively whether the briefing requirement was or was not met. In those cases where the operator (or aircraft manufacturer) has not specified a briefing, the examiner shall require the applicant to brief the appropriate items from the following note. The examiner may then judge objectively whether the briefing requirement was or was not met.

(3) The majority of aviation accidents and incidents are due to resource management failures by the pilot/crew; fewer are due to technical failures. Each applicant shall give a crew briefing before each takeoff/departure and approach/landing. If the operator or aircraft manufacturer has not specified a briefing, the briefing shall cover the appropriate items, such as runway, SID/STAR/IAP, power settings, speeds, abnormals or emergency prior to or after takeoff, emergency return intentions, missed approach procedures, FAF, altitude at FAF, initial rate of descent, DH/ACA, time to missed approach, and what is expected of the other crewmembers during the takeoff/SID and approach/landing. If the first takeoff/departure and approach/landing briefings are satisfactory, the examiner may allow the applicant to brief only the changes, during the remainder of the flight.

1.19 APPLICANT'S USE OF CHECKLISTS

Throughout the skill test, the applicant is evaluated on the use of an appropriate checklist. Proper use is dependent on the specific TASK being evaluated. The situation may be such that the use of the checklist, while accomplishing elements of an Objective, would be either unsafe or impracticable, especially in a single-pilot operation. In this case, a review of the checklist after the elements have been accomplished would be appropriate. Division of attention and proper visual scanning should be considered when using a checklist.

1.20 USE OF DISTRACTIONS DURING SKILL TESTS

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

1.21 POSITIVE EXCHANGE OF FLIGHT CONTROLS

(1) During flight, there must always be a clear understanding between pilots of who has control of the aircraft. Prior to flight, a briefing should be conducted that includes the procedure for the exchange of flight controls. A positive three-step process in the exchange of flight controls between pilots is a proven procedure and one that is strongly recommended.

(2) When one pilot wishes to give the other pilot control of the aircraft, he or she will say, "You have the flight controls." The other pilot acknowledges immediately by saying, "I have the flight controls." The first pilot again says "You have the flight controls." When control is returned to the first pilot, follow the same procedure. A visual check is recommended to verify that the exchange has occurred. There should never be any doubt as to who is flying the aircraft.

1.22 RATING TASK TABLE

(1) The following table indicates the areas of operations required during a skill test for an additional instrument rating in another aircraft category.

| Addition of an Helicopter rating to an existing Commercial Pilot Licence | | | | | | | |
|---|-------|------|------|------|---------|---------|---------|
| Required TASKs are indicated by either the TASK letter(s) that apply(s) or an indication that all or none of the TASKs must be tested based on the notes in each AREA OF OPERATION. | | | | | | | |
| COMMERCIAL PILOT RATING(S) HELD | | | | | | | |
| AREAS OF OPERATION | ASEL | ASES | AMEL | AMES | Glider | Balloon | Airship |
| I | F,G | F,G | F,G, | F,G, | F,G,I,J | F,G,I,J | F,G |
| II | ALL | ALL | ALL | ALL | ALL | ALL | ALL |
| III | B,C | B,C | B,C | B,C | ALL | ALL | B,C |
| IV | ALL | ALL | ALL | ALL | ALL | ALL | ALL |
| V | ALL | ALL | ALL | ALL | ALL | ALL | ALL |
| VI | ALL | ALL | ALL | ALL | ALL | ALL | ALL |
| VII | NONE | NONE | NONE | NONE | B,C,D | B,C,D | NONE |
| VIII | B,D,E | ALL | ALL | ALL | ALL | ALL | ALL |
| IX | ALL | ALL | ALL | ALL | ALL | ALL | ALL |
| X | ALL | ALL | ALL | ALL | ALL | ALL | ALL |
| XI | ALL | ALL | ALL | ALL | ALL | ALL | ALL |

Legend:

ASEL – Aeroplane single engine land

ASES – Aeroplane single engine sea

AMEL – Aeroplane multi-engine land

AMES – Aeroplane multi-engine sea

SECTION TWO

**APPLICANT'S SKILL TEST CHECKLIST
(HELICOPTER)
APPOINTMENT WITH EXAMINER:**

EXAMINER'S NAME _____

LOCATION _____

DATE/TIME _____

ACCEPTABLE AIRCRAFT

- ? Aircraft Documents:
 - Airworthiness Certificate
 - Registration Certificate
 - Operating Limitations
- ? Aircraft Maintenance Records:
 - Logbook Record of Airworthiness Inspections and AD Compliance
- € Pilot's Operating Handbook, NCAA-Approved Helicopter Flight Manual
- ? FCC Station License

PERSONAL EQUIPMENT

- ? View-Limiting Device
- ? Current Aeronautical Charts
- ? Computer and Plotter
- ? Flight Plan Form
- ? Flight Logs
- ? Current AIM, Airport Facility Directory, and Appropriate Publications

PERSONAL RECORDS

- € Identification - Photo/Signature ID
- ? Pilot Certificate
- ? Current and Appropriate Medical Certificate
- ? Completed Airman Licence and/or Rating Application with Instructor's Signature (if applicable)
- ? Airman Written Test Report, or Computer Test Report
- ? Pilot Logbook with Appropriate Instructor Endorsements
- ? Notice of Disapproval (if applicable)
- ? Approved School Graduation Certificate (if applicable)
- ? Examiner's Fee (if applicable)

EXAMINER'S SKILL TEST CHECKLIST

(HELICOPTER)

APPLICANT'S NAME _____

LOCATION _____

DATE/TIME _____

I. PREFLIGHT PREPARATION

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

II. PREFLIGHT PROCEDURES

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

III. AIRPORT AND HELIPORT OPERATIONS

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

IV. HOVERING MANEUVERS

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

- V. TAKEOFFS, LANDINGS, AND GO-AROUNDS**
- ? A. NORMAL AND CROSSWIND TAKEOFF AND CLIMB
- ? B. NORMAL AND CROSSWIND APPROACH
- ? C. MAXIMUM PERFORMANCE TAKEOFF AND CLIMB
- ? D. STEEP APPROACH
- ? E. ROLLING TAKEOFF
- ? F. SHALLOW APPROACH AND RUNNING/ROLL-ON LANDING
- ? G. GO-AROUND
- VI. PERFORMANCE MANEUVERS**
- ? A. RAPID DECELERATION
- ? B. 180° AUTOROTATION
- VII. NAVIGATION**
- ? A. PILOTAGE AND DEAD RECKONING
- ? B. RADIO NAVIGATION AND RADAR SERVICES
- ? C. DIVERSION
- ? D. LOST PROCEDURES
- VIII. EMERGENCY OPERATIONS**
- ? A. POWER FAILURE AT A HOVER
- ? B. POWER FAILURE AT ALTITUDE
- ? C. SYSTEMS AND EQUIPMENT MALFUNCTIONS
- ? D. SETTling-WITH-POWER
- ? E. LOW ROTOR RPM RECOVERY
- ? F. DYNAMIC ROLLOVER
- ? G. GROUND RESONANCE
- ? H. LOW G CONDITIONS
- ? I. EMERGENCY EQUIPMENT AND SURVIVAL GEAR
- IX. SPECIAL OPERATIONS**
- ? A. CONFINED AREA OPERATION
- ? B. PINNACLE/PLATFORM OPERATIONS
- X. POST-FLIGHT PROCEDURES**
- ? AFTER LANDING AND SECURING

I. AREA OF OPERATION: PREFLIGHT PREPARATION

A. TASK: CERTIFICATES AND DOCUMENTS

REFERENCE(S): Nig. CARs Parts 2, 5 and 8; POH/RFM.

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

1. Explaining—
 - a. Commercial Pilot Certificate privileges, limitations, and recent flight experience requirements.
 - b. medical certificate class and duration.
 - c. pilot logbook or flight records.
2. Locating and explaining—
 - a. airworthiness and registration certificates.
 - b. operating limitations, placards, POH/RFM, and instrument markings.
 - c. weight and balance data and equipment list.
 - d. airworthiness directives, compliance records, maintenance requirements, and appropriate records.

B. TASK: AIRWORTHINESS REQUIREMENTS

REFERENCE(S): Nig. CARs part 8;

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

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

C. TASK: WEATHER INFORMATION

Objective. To determine that the applicant:

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

- b. surface analysis chart.
 - c. wind shear reports.
 - d. winds and temperature aloft chart.
 - e. AWOS, ASOS, and ATIS reports.
 - f. significant weather prognostic charts.
2. Makes a competent “ go/no-go” decision based on available weather information.

D. TASK: CROSS-COUNTRY FLIGHT PLANNING

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

REFERENCE(S): NOTAMs; AIC.

Objective. To determine that the applicant:

- 1. Exhibits knowledge of the elements related to cross-country flight planning by presenting and explaining a pre-planned VFR cross-country flight, as previously assigned by the examiner. On the day of the practical test, the flight plan should be to the first fuel stop necessary, based on maximum allowable passenger, baggage, and/or cargo loads using real-time weather.
- 2. Uses appropriate and current aeronautical charts.
- 3. Properly identifies airspace, obstructions, and terrain features, including discussion of wire strike avoidance techniques.
- 4. Selects easily identifiable en route checkpoints.
- 5. Selects most 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.

E. TASK: NATIONAL AIRSPACE SYSTEM

REFERENCE(S): Nig. CARs Part 8; AIC.

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

- 1. Basic VFR Weather Minimums – for all classes of airspace.
- 2. Airspace classes – their operating rules, pilot certification, and helicopter equipment requirements for the following—
 - a. Class A.
 - b. Class B.
 - c. Class C.
 - d. Class D.
 - e. Class E.
 - f. Class G.
- 3. Special use airspace and other airspace areas.

F. TASK: PERFORMANCE AND LIMITATIONS

REFERENCE(S): POH/RFM.

Objective. To determine that the applicant:

1. Exhibits knowledge of the elements related to performance and limitations by explaining the use of charts, tables, and data to determine performance and the adverse effects of exceeding limitations.
2. Computes weight and balance. Determines the computed weight and 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).

G. TASK: OPERATION OF SYSTEMS

REFERENCE(S): POH/AFM.

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

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

H. 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.
 - i. The effects of alcohol and drugs, including over-the-counter drugs.

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

I. TASK: PHYSIOLOGICAL ASPECTS OF NIGHT FLYING

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

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

J. TASK: LIGHTING AND EQUIPMENT FOR NIGHT FLYING

REFERENCE(S): POH/RFM.

Objective. To determine that the applicant:

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

II. AREA OF OPERATION: PREFLIGHT PROCEDURES

A. TASK: PREFLIGHT INSPECTION

REFERENCE(S): POH/RFM.

Objective. To determine that the applicant:

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

B. TASK: COCKPIT MANAGEMENT

REFERENCE(S): Nig. CARs Part 8; POH/RFM.

Objective. To determine that the applicant:

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

C. TASK: ENGINE STARTING AND ROTOR ENGAGEMENT

REFERENCE(S): POH/RFM

Objective. To determine that the applicant:

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

D. TASK: BEFORE TAKEOFF CHECK

REFERENCE(S): POH/RFM.

Objective. To determine that the applicant:

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

III. AREA OF OPERATION: AIRPORT AND HELIPORT OPERATIONS

A. TASK: RADIO COMMUNICATIONS AND ATC LIGHT SIGNALS

REFERENCE(S): Nig. CARs Part 8;

Objective. To determine that the applicant:

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

B. TASK: TRAFFIC PATTERNS

REFERENCE(S): Nig. CARs Part 8; POH/RFM.

Objective. To determine that the applicant:

1. Exhibits knowledge of the elements related to traffic patterns. Including, procedures at airports and heliports with and without operating control towers, prevention of runway incursions collision avoidance, wake turbulence avoidance, and wind shear.
2. Complies with proper traffic pattern procedures.
3. Maintains proper spacing from other traffic or avoids the flow of fixed wing aircraft.
4. Corrects for wind drift to maintain proper ground track.

5. Maintains orientation with runway/landing area.
6. Maintains traffic pattern altitude ± 100 feet, and appropriate airspeed, ± 10 knots.

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

REFERENCE(S): Nig. CARs Part 8; AIC

Objective. To determine that the applicant:

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

IV. AREA OF OPERATION: HOVERING MANEUVERS

A. TASK: VERTICAL TAKEOFF AND LANDING

REFERENCE(S): POH/RFM.

Objective. To determine that the applicant:

1. Exhibits knowledge of the elements related to a vertical takeoff to a hover and landing from a hover.
2. Ascends to and maintains recommended hovering altitude, and descends from recommended hovering altitude in headwind, crosswind, and tailwind conditions.
3. Maintains RPM within normal limits.
4. Establishes recommended hovering altitude, $\pm 1/2$ 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, $\pm 10^\circ$.

B. TASK: SLOPE OPERATIONS

REFERENCE(S): POH/RFM.

Objective. To determine that the applicant:

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

C. TASK: SURFACE TAXI

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

REFERENCE(S): POH/AFM.

Objective. To determine that the applicant:

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

D. TASK: HOVER TAXI

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

Objective. To determine that the applicant:

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

E. TASK: AIR TAXI

REFERENCE(S): POH/RFM.

Objective. To determine that the applicant:

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

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

A. TASK: NORMAL AND CROSSWIND TAKEOFF AND CLIMB

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

REFERENCE(S): POH/RFM.

Objective. To determine that the applicant:

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

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

B. TASK: NORMAL AND CROSSWIND APPROACH

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

REFERENCE(S): POH/RFM.

Objective. To determine that the applicant:

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

C. TASK: MAXIMUM PERFORMANCE TAKEOFF AND CLIMB

REFERENCE(S): POH/RFM.

Objective. To determine that the applicant:

1. Exhibits knowledge of the elements related to maximum performance takeoff and climb.
2. Considers situations where this 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.

D. TASK: STEEP APPROACH

REFERENCE(S): POH/RFM.

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.

E. TASK: ROLLING TAKEOFF

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

REFERENCE(S): POH/RFM.

Objective. To determine that the applicant:

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.

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

REFERENCE(S): POH/RFM.

Objective. To determine that the applicant:

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

G. TASK: GO-AROUND

REFERENCE(S): POH/AFM.

Objective. To determine that the applicant:

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

VI. AREA OF OPERATION: PERFORMANCE MANEUVERS

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

A. TASK: RAPID DECELERATION

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, $\pm 5^\circ$.

B. TASK: STRAIGHT IN AUTOROTATION

REFERENCE(S): POH/RFM.

Objective. To determine that the applicant:

1. Exhibits knowledge of the elements related to a straight in autorotation terminating with a power recovery to a hover.
2. Selects a suitable touchdown area.
3. Initiates the 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.

C. TASK: 180° AUTOROTATION

REFERENCE(S): POH/RFM.

Objective. To determine that the applicant:

1. Exhibits knowledge of the elements related to a 180° autorotation terminating with a power recovery to a hover.
2. Selects a suitable touchdown area.
3. Initiates the 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.

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

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

REFERENCE(S): POH/RFM.

Objective. To determine that the applicant:

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 $\pm 5^\circ$, 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.

VII. AREA OF OPERATION: NAVIGATION

A. TASK: PILOTAGE AND DEAD RECKONING

Objective. To determine that the applicant:

1. Exhibits knowledge of the elements related to pilotage and dead reckoning.
2. Follows the preplanned course by reference to landmarks.
3. Identifies landmarks by relating 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, $\pm 10^\circ$.

B. TASK: RADIO NAVIGATION AND 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 (30 meters).

C. 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, $\pm 10^\circ$.

D. TASK: LOST PROCEDURES

Objective. To determine that the applicant:

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

VIII. AREA OF OPERATION: EMERGENCY OPERATIONS

NOTE: Tasks F through I are knowledge only TASKS.

A. TASK: POWER FAILURE AT A HOVER

REFERENCE: POH/RFM.

Objective. To determine that the applicant:

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

B. TASK: POWER FAILURE AT ALTITUDE

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

REFERENCE(S): POH/RFM.

Objective. To determine that the applicant:

1. Exhibits knowledge of the elements related to power failure at altitude.
2. Establishes an autorotation and selects a suitable landing area.
3. Establishes proper aircraft trim and autorotation airspeed, ± 5 knots.
4. Maintains rotor RPM within normal limits.
5. Compensates for 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.

C. TASK: SYSTEMS AND EQUIPMENT MALFUNCTIONS

REFERENCE(S): POH/RFM.

Objective. To determine that the applicant:

1. Exhibits knowledge of the elements related to causes, indications, and pilot actions for various systems and equipment malfunctions.
2. Analyzes the situation and takes action, appropriate to the helicopter used for the practical test, in at least four of the following areas—
 - a. engine/oil and fuel.
 - b. hydraulic, if applicable.
 - c. electrical.
 - d. 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.

D. TASK: SETTLING-WITH-POWER

REFERENCE(S): POH/RFM.

Objective. To determine that the applicant:

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

E. TASK: LOW ROTOR RPM RECOVERY

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

REFERENCE(S): Appropriate Manufacturer's Safety Notices; POH/RFM.

Objective. To determine that the applicant:

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

F. TASK: DYNAMIC ROLLOVER

REFERENCE(S): POH/RFM.

Objective. To determine that the applicant:

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

G. TASK: GROUND RESONANCE

REFERENCE(S): POH/RFM.

Objective. To determine that the applicant:

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

H. TASK: LOW G CONDITIONS

REFERENCE(S): Helicopter Flight Manual.

Objective. To determine that the applicant:

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

I. TASK: EMERGENCY EQUIPMENT AND SURVIVAL GEAR

REFERENCE(S): POH/RFM.

Objective. To determine that the applicant:

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

IX. AREA OF OPERATION: SPECIAL OPERATIONS

A. TASK: CONFINED AREA OPERATION

REFERENCE(S): POH/RFM.

Objective. To determine that the applicant:

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

B. TASK: PINNACLE/PLATFORM OPERATIONS

REFERENCE(S): POH/RFM.

Objective. To determine that the applicant:

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

X. AREA OF OPERATION: POST-FLIGHT PROCEDURES

A. TASK: AFTER LANDING AND SECURING

REFERENCE(S): POH/RFM.

Objective. To determine that the applicant:

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

APPENDIX 1
TASK VS. SIMULATION DEVICE CREDIT

A.1 TASK VS. SIMULATION DEVICE CREDIT

Examiners conducting the instrument rating skill tests with flight simulation devices should consult appropriate documentation to ensure that the device has been approved for training, testing, or checking. The documentation for each device should reflect that the following activities have occurred:

1. The device must be evaluated, determined to meet the appropriate standards, and assigned the appropriate Qualification level by the National Simulator Program Manager. The device must continue to meet qualification standards through continuing evaluations as outlined in the appropriate advisory circular . For aeroplane flight training devices (FTDs) Aeroplane Flight Training Device Qualifications, will be used. For simulators, Aeroplane Simulator Qualification, will be used.
2. The NCAA must approve the device for training, testing, and checking the specific flight TASKS listed in this appendix.
3. The device must continue to support the level of student or applicant performance required by this skill test standard.

NOTE: Users of the following chart are cautioned that use of the chart alone is incomplete. The description and Objective of each TASK as listed in the body of the skill test standard, including all NOTES, must also be incorporated for accurate simulation device use.

A.2 USE OF CHART

- | | |
|---|--|
| X | Creditable. |
| A | Creditable if appropriate systems are installed and operating. |

NOTE: 1. Level 1 FTDs that have been issued a letter authorizing their use by NCAA, may continue to be used only for those TASKS originally found acceptable. Use of Level 1, 2, or 3 FTDs may not be used for aircraft requiring a type rating.

2. If a FTD or a simulator is used for the skill test, the instrument approach procedures conducted in that FTD or simulator are limited to one precision and one nonprecision approach procedure.

3. Postflight procedures means, closing flight plans, checking for discrepancies and malfunctions, and noting them on a log or maintenance form.

A.3 FLIGHT SIMULATION TRAINING DEVICE LEVEL

| FLIGHT TASK | FLIGHT SIMULATION DEVICE LEVEL | | | | | | | | | | | |
|--|--------------------------------|----|----|----|----|----|----|----|----|----|----|--|
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | A | B | C | D | |
| Areas of Operation | | | | | | | | | | | | |
| VI. Navigation | | | | | | | | | | | | |
| A. Pilotage and Dead Reckoning | -- | -- | -- | -- | -- | -- | -- | -- | -- | X | X | |
| B. Radio Navigation and Radar Services | -- | -- | -- | -- | -- | -- | -- | -- | -- | X | X | |
| C. Diversion | -- | -- | -- | -- | -- | -- | -- | -- | X | X | -- | |
| D. Lost Procedures | -- | -- | -- | -- | -- | -- | -- | -- | -- | X | X | |
| VII. Emergency Operations** | | | | | | | | | | | | |
| A. Power Failure at a Hover | -- | -- | -- | -- | -- | -- | -- | -- | -- | X | X | |
| B. Power Failure at Altitude | -- | -- | -- | -- | -- | -- | -- | -- | -- | X | X | |
| C. Systems and Equipment Malfunctions | -- | -- | -- | -- | -- | -- | -- | -- | -- | X | X | |
| D. Settling-with-power | -- | -- | -- | -- | -- | -- | -- | -- | -- | X | X | |
| E. Low Rotor RPM Recovery | -- | -- | -- | -- | -- | -- | -- | -- | -- | X | X | |
| F. Dynamic Rollover | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | |
| G. Ground Resonance | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | |
| H. Low G Conditions | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | |
| I. Emergency Equipment and Survival Gear | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | |
| | | | | | | | | | | | | |