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FLIGHT TEST GUIDE

**Private and Commercial Pilot Licence**

Helicopter

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# FLIGHT TEST GUIDE

## PRIVATE AND COMMERCIAL PILOT LICENCE

### HELICOPTER

This reference sets out the skill requirements for flight tests for the Private and Commercial Pilot Licences - Helicopter. It is intended for the use of flight test candidates, flight training units, flight instructors, and flight test examiners.

Transport Canada Civil Aviation Inspectors and Pilot Examiners conduct flight tests for the skill requirements of Canadian pilot licences.

### Definitions

‘flight test item’ means a task, manoeuvre or item listed on the flight test report.

‘examiner’ means a Pilot Examiner accredited under section 4.3 of Part 1 of the *Aeronautics Act* or a Civil Aviation Inspector authorized to conduct this flight test.

For more information, visit our web site at:

<http://www.tc.gc.ca/civilaviation/general/flttrain/Planes/menu.htm>

Également disponible en français

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## GENERAL

### Admission to a Flight Test

In order to be admitted to a flight test required for the issue of a Private or Commercial Pilot Licence - Helicopter, the candidate will present:

- (a) photo identification;
- (b) a valid flight crew permit, licence, or foreign licence validation certificate;
- (c) proof of meeting the medical standards for the licence sought;
- (d) a letter from a qualified flight instructor certifying that:
  - (i) the instructor has personally completed a pre-test evaluation with the candidate using form 26-0235 (Flight Test Report);
  - (ii) the candidate is considered to have reached a sufficient level of competency to complete the flight test for the pilot licence sought;
  - (iii) the instructor recommends the candidate for the flight test.
- (e) evidence of having completed:
  - (i) in the case of a candidate for a private pilot flight test, no less than 35 hours flight time; or
  - (ii) in the case of a candidate for a commercial pilot flight test, no less than 75% of the total flight time required for the licence.

**Note:** It is recommended that the candidate have successfully completed the required written examination and have satisfactory knowledge of the subject area(s) in which a weakness was indicated by the *Written Examination Results and Feedback Report*.

### Admission to a Partial Flight Test

Prior to admission to a partial flight test following failure of a flight test, the candidate will provide:

- (a) photo identification;
- (b) a valid flight crew permit, licence, or foreign licence validation certificate;
- (c) a copy of the flight test report for the previously failed flight test; and
- (d) a letter signed by the holder of a valid Flight Instructor Rating - Helicopter, dated within 30 days prior to the flight test, certifying that the candidate:
  - (i) has received further training on the failed flight test item(s), and is considered to have reached a sufficient level of competency to successfully complete the flight test; and
  - (ii) the instructor recommends the candidate for the flight test.

**Note:** Letters of recommendation must be dated within 30 days prior to the flight test and, in the case of a candidate recommended by a Class 4 flight instructor, the letter must be co-signed by the supervising instructor. In the case of a re-test, the person who conducted the additional training will sign the letter of recommendation.

## Helicopter Requirements

The candidate will provide:

- (a) a helicopter for the flight test that:
  - (i) has a flight authority pursuant to CAR 507 and that authority has no operating limitations that prohibit the performance of the required manoeuvres, including full-on autorotations;
  - (ii) meets the requirements of CAR Standard 425.23 - Training Aircraft Requirements - subsections (1), (2) and (3) of the *Personnel Licensing Standards*; and
  - (iii) is equipped with suitable radio and two-way intercom voice communication.
- (b) appropriate current aeronautical charts and *Canada Flight Supplement*; and
- (c) an effective means of excluding outside visual reference to simulate instrument flight conditions while maintaining a safe level of visibility for the examiner.

## Flight Test

All of the flight test items required by the flight test report and described in this guide must be successfully completed and the minimum pass mark for the Private Pilot Licence of **72** (50%) or for the Commercial Pilot Licence of **104** (70%) must be achieved.

All flight tests will be conducted in weather conditions that do not present a hazard to the operation of the helicopter, the helicopter is airworthy and the candidate and helicopter's documents, as required by the *Canadian Aviation Regulations*, are valid. It is the sole responsibility of the examiner to make the final decision as to whether or not any portion or all of the flight test may be conducted.

**Ground flight test items** are those exercises or tasks performed prior to the pre-flight inspection of the aircraft.

**Air flight test items** are those exercises, tasks or manoeuvres performed with the aircraft, including the pre-flight inspection, start-up, run-up and emergency procedures.

Ground flight test items **2A to 2D** and **20A** will be assessed before the flight portion of the flight test.

## Repeated Flight Test Item

An item or manoeuvre will not be repeated unless one of the following conditions applies:

- (a) **Discontinuance:** Discontinuance of a manoeuvre for valid safety reasons; i.e., a go-around or other procedure necessary to modify the originally planned manoeuvre.
- (b) **Collision Avoidance:** Examiner intervention on the flight controls to avoid another aircraft, which the candidate could not have seen due to position or other factors.
- (c) **Misunderstood Requests:** Legitimate instances when candidates did not understand an examiner's request to perform a specific manoeuvre. A candidate's failure to understand the nature of a specified manoeuvre being requested does not justify repeating an item or manoeuvre.
- (d) **Other Factors:** Any condition under which the examiner was distracted to the point that he or she could not adequately observe the candidate's performance of the manoeuvre (radio calls, traffic, etc.).

**Note:** These provisions have been made in the interest of fairness and safety and do not mean that instruction, practice, or the repeating of an item or manoeuvre, unacceptably demonstrated, is permitted during the flight test evaluation process.



## Incomplete Flight Test

If the test is not completed due to circumstances beyond the candidate's control, the subsequent flight test will include the flight test items not completed on the original flight test and will be completed within the 30 days of the original letter of recommendation.

The following process will apply:

- (a) a copy of the Flight Test Report must be given to the candidate;
- (b) the flight test may be completed at a later date;
- (c) the test may be completed by the same or another examiner;
- (d) the original letter of recommendation remains valid;
- (e) flight test items already assessed will not be re-tested, but items already demonstrated during the initial flight, and repeated for the purpose of the second flight, may be re-assessed as "Below Standard" (1) if the candidate displays unsafe or dangerous flying;
- (f) the original flight test report may be used to complete the test, or two separate reports may be submitted;
- (g) the candidate is permitted to complete additional training while awaiting completion of the test.

If the initial flight test included one or two failed air items, the partial flight test for these items may be conducted during the subsequent flight test flight, after the candidate has completed all of the required items, provided:

- (a) the minimum pass mark has been achieved;
- (b) no additional items were failed during the subsequent flight test; and
- (c) a letter of recommendation for the partial flight test was received prior to the flight.

## Failure of a Flight Test

Failure to obtain the minimum pass mark or the failure of any flight test item constitutes failure of the flight test. The failure of any ground item requires a complete re-test and precludes the air portion of the flight test. Ground items are not eligible for a partial flight test.

The failure of one or two air item(s) will require a partial flight test on those items, and the failure of a third air item will require a complete re-test. The examiner will stop a test, assess it "Below Standard", and a complete re-test will be required if the candidate jeopardizes safety by:

- (a) displaying unsafe or dangerous flying; or
- (b) demonstrating a pattern of failing to use proper visual scanning techniques to check for traffic before and while performing visual manoeuvres.

Following a failed flight test, the candidate will obtain a copy of the flight test report to meet the requirements for admission to a partial flight test.

If not satisfied with the outcome of the flight test, a candidate may wish to file a written complaint regarding the conduct of a flight test or the performance of an examiner with the Transport Canada Regional Office responsible for that pilot examiner. In order to succeed with a complaint, the applicant will have to satisfy Transport Canada that the test was not properly conducted. Mere dissatisfaction with the flight test result is not enough. After due consideration of the individual case, the Regional Superintendent – Flight Training, may authorize a re-test to be conducted, without prejudice (with a clean record in regard to the disputed flight test), by a Civil Aviation Inspector or alternate pilot examiner. Should the complaint not be addressed to the candidate's satisfaction, the procedure to be followed is outlined in 'Civil Aviation Complaint Filing Procedures'. The document can be found at: <http://www.tc.gc.ca/CivilAviation/QualityAssurance/QA/complaints/filing.htm>.

## Partial Flight Test

Provided that the applicable pass mark has been achieved and there are no more than two failed air items, the skill requirement for licence issuance may be met by completing a partial flight test of the item or items assessed “Below Standard”.

The candidate will be required to successfully perform the air item(s) assessed as “Below Standard” on the complete flight test. Flight test items not associated with the items(s) to be retested, but repeated for the purpose of the second flight, may be re-assessed as “Below Standard” if their aim is not achieved or safety is compromised.

The partial flight test must be completed within 30 days of the original complete flight test. No more than one partial flight test will be allowed for each complete flight test.

## Complete Re-test

A complete re-test will be required in the following situations:

- (a) the required pass mark is not obtained during a complete flight test;
- (b) failure of any ground item;
- (c) failure of more than two air items during a complete flight test;
- (d) failure of a flight test item during a partial flight test;
- (e) dangerous flying;
- (f) a demonstrated pattern of failing to use proper visual scanning techniques is displayed during a flight test resulting in the flight test being assessed “Below Standard”; or
- (g) a partial flight test is not completed within 30 days of the original flight test.

**Note:** The candidate should not show or submit a copy of the previously failed flight test report to the examiner.

## Pre-Test Briefing

Flight test examiners are required to brief test candidates on the following details:

- (a) **The sequence of test items.** There is no need for the candidate to memorize this sequence, as the examiner will give instructions for each item.
- (b) **If in doubt - ask!** Candidates who do not clearly understand what they are being asked to do should feel free to ask. It may be that the examiner was not clear in giving instructions.
- (c) **Who is pilot-in-command?** This will usually be the flight test candidate and, if the examiner is a Transport Canada inspector, it will always be the flight test candidate.
- (d) **Who will do what in the event of an actual emergency?** A briefing by the candidate should detail the actions to be taken by the candidate and examiner in the event of an actual emergency.
- (e) **How to transfer control.** There should never be any doubt who is flying the aircraft, so proper transfer of control using phrases such as, “You have control”, and “I have control”, is expected during a flight test. A visual check is recommended to verify that the exchange has occurred.
- (f) **Method of simulating emergencies.** What method will be used? Verbal? Engine failures will only be simulated in accordance with the manufacturers recommendations or, in their absence, by closing the throttle or by reducing the power to idle.

**Note:** The practice of closing fuel valves, shutting off magneto switches or pulling circuit breakers will not be used during a flight test.

## **Flight Management**

Flight management refers to the effective use of all available resources, including working with such groups as dispatchers, other crewmembers, maintenance personnel, and air traffic controllers. A below standard performance of a manoeuvre or task can often be explained by weaknesses in flight management competencies.

### **Problem Solving and Decision Making**

- (a) anticipates problems far enough in advance to avoid crisis reaction
- (b) uses effective decision-making process
- (c) makes appropriate inquiries
- (d) prioritizes tasks to gain maximum information input for decisions
- (e) makes effective use of all available resources to make decisions
- (f) considers “downstream” consequences of the decision being considered

### **Situational Awareness**

- (a) actively monitors weather, aircraft systems, instruments, ATC communications
- (b) avoids “tunnel vision” - awareness that factors such as stress can reduce vigilance
- (c) stays “ahead of the aircraft” in preparing for expected or contingency situations
- (d) remains alert to detect subtle changes in the environment

### **Communication**

- (a) provides thorough briefings
- (b) asks for information and advice
- (c) communicates decisions clearly
- (d) asserts one’s position appropriately

### **Workload Management**

- (a) maintains ability to adapt during high workload situations
- (b) organizes cockpit resources well
- (c) recognizes overload in self
- (d) eliminates distractions during high workload situations

## **Airmanship**

The candidate’s airmanship will be assessed along with other factors in determining the mark awarded for each item. Items such as lookout, consideration for other aircraft on the ground and in the air and use of checklists will be assessed. The candidate will be expected to demonstrate good airmanship and complete accurate checks on a continuing basis.

## Flight Test Results

The *Privacy Act* protects the privacy of individuals with respect to personal information about themselves held by a government institution. A flight test measures the performance of the candidate for the flight test, the examiner conducting the flight test, the instructor who recommended the candidate, and, through identification of the Flight Training Unit responsible for the training, the performance of the Chief Flight Instructor of that unit. All of these are identified on the flight test report.

Personal information may be disclosed in accordance with Section 8(2)(a) of the *Act*, which allows disclosure... "for the purpose for which the information was obtained or compiled by the institution or for a use consistent with that purpose". The purpose for which flight test information is obtained is to ensure the safety of aviation in Canada. The specific purposes are to measure whether the candidate meets the minimum skill standard for the licence or rating, whether the recommending instructor is performing competently as an instructor, whether the examiner is conducting the test in accordance with the standards and whether the Flight Training Unit is performing in accordance with the general conditions of the operator certificate.

In accordance with 8(2)(a) of the *Privacy Act*, a copy of the flight test report will be given to the candidate for a flight test and a copy will be retained by the examiner who conducted the flight test. A copy may also be given to the instructor who recommended the candidate for the flight test and to the chief flight instructor responsible for the quality of flight training at the Flight Training Unit where the training was conducted. Specific information about the results of a flight test will not be given by Transport Canada to anyone but the individuals named on the flight test report, except in accordance with the *Privacy Act*

## Assessment of Flight Test Performance

The "*Performance Criteria*" section of each flight test item prescribes the marking criteria. These criteria assume no unusual circumstances as well as operation of the helicopter in accordance with the manufacturer's specifications, recommended speeds and configurations in the Pilot's Operating Handbook/Aircraft Flight Manual (POH/AFM) or other approved data.

Throughout the flight test, the candidate 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 a written checklist in flight, while accomplishing the elements of an "*Aim*", would be either unsafe or impractical. Division of attention and proper visual scanning should be considered when completing checks.

Consideration will be given to unavoidable deviations from the published criteria due to weather, traffic or other situations beyond the reasonable control of the candidate. To avoid the need to compensate for such situations, tests should be conducted under normal conditions whenever possible.

## 4-Point Marking Scale

When applying the 4-point scale, award the mark that best describes the weakest element(s) applicable to the candidate's performance. Remarks to support mark awards of 1 or 2 must link to a safety issue, a qualification standard, or an approved technique or procedure.

|                                 |   |   |
|---------------------------------|---|---|
| <b>4<br/>Above<br/>Standard</b> | Performance remains well within the qualification standards and flight management skills are excellent.   | <p>Performance is ideal under existing conditions.</p> <p>Aircraft handling is smooth and precise.</p> <p>Technical skills and knowledge exceed the required level of competency.</p> <p>Behaviour indicates continuous and highly accurate situational awareness.</p> <p>Flight management skills are excellent.</p> <p>Safety of flight is assured. Risk is well mitigated.</p>   |
| <b>3<br/>Standard</b>           | Minor deviations occur from the qualification standards and performance remains within prescribed limits.   | <p>Performance meets the recognised standard yet may include deviations that do not detract from the overall performance.</p> <p>Aircraft handling is positive and within specified limits.</p> <p>Technical skills and knowledge meet the required level of competency.</p> <p>Behaviour indicates that situational awareness is maintained.</p> <p>Flight management skills are effective.</p> <p>Safety of flight is maintained. Risk is acceptably mitigated.</p>   |
| <b>2<br/>Basic<br/>Standard</b> | Major deviations from the qualification standards occur, which may include momentary excursions beyond prescribed limits but these are recognized and corrected in a timely manner. | <p>Performance includes deviations that detract from the overall performance, but are recognized and corrected within an acceptable time frame.</p> <p>Aircraft handling is performed with limited proficiency and/or includes momentary deviations from specified limits.</p> <p>Technical skills and knowledge reveal limited technical proficiency and/or depth of knowledge.</p> <p>Behaviour indicates lapses in situational awareness that are identified and corrected.</p> <p>Flight management skills are effective but slightly below standard.</p> <p>Safety of flight is not compromised. Risk is poorly mitigated.</p>   |
| <b>1<br/>Below<br/>Standard</b> | Unacceptable deviations from the qualification standards occur, which may include excursions beyond prescribed limits that are not recognized or corrected in a timely manner.      | <p>Performance includes deviations that adversely affect the overall performance, are repeated, have excessive amplitude, or for which recognition and correction are excessively slow or nonexistent, or the aim of the task was not achieved.</p> <p>Aircraft handling is rough or includes uncorrected or excessive deviations from specified limits.</p> <p>Technical skills and knowledge reveal <u>unacceptable</u> levels of technical proficiency and/or depth of knowledge.</p> <p>Behaviour indicates lapses in situational awareness that are <u>not</u> identified or corrected.</p> <p>Flight management skills are ineffective.</p> <p>Safety of flight is compromised. Risk is unacceptably mitigated.</p> |

## How To Pass The Flight Test

Instructors prepare their students for the flight test with every training trip. They do this by helping the student master all the flight test items, but they also let the student take more and more responsibility for decision-making with each lesson so the student will be fully ready to make all the decisions during the flight test.

Here are some tips on how to pass the flight test:

- (a) Review the flight test standards with your instructor before the flight test.
- (b) Your instructor will do a pre-flight test evaluation, a simulated flight test, before recommending you for the real test.
- (c) Be rested.
- (d) Arrive early.
- (e) The test measures your skill, item by item. If you think you did poorly on one item, try very hard to focus on the immediate task and don't let yourself be preoccupied with an item you already completed. Besides, you may have done better than you thought.
- (f) Don't be afraid to ask the examiner if you are unsure what is expected of you. The examiner will either tell you what you need to know or tell you that you have to work with the information you have. You can't lose by asking.
- (g) Tell the examiner what you are planning to do before you do it.
- (h) The flight test is not a race. Don't put additional pressure on yourself by rushing.
- (i) "Visualize" the flight test in advance by thinking through all the manoeuvres you will perform and developing mental pictures of what you are going to be doing.

Difficult as this may be, try to think of the examiner as your very first passenger with your new licence. Keep the examiner informed, as you would keep a passenger informed.

# FLIGHT TEST EXERCISES

## EX. 2 PREPARATION FOR FLIGHT

### A. Documents and Airworthiness

#### *Aim*

To determine that the candidate can correctly assess the validity of documents required on board and, from these documents, determine that the aircraft is airworthy.

#### *Description*

The candidate will determine the validity of all documents required to be carried on board the helicopter and, determine that required maintenance certifications have been completed.

#### *Performance Criteria*

Assessment will be based on the candidate's ability to:

- (a) ensure that flight authorization is confirmed and, encompasses the requirements of the proposed flight in accordance with the applicable operational control system;
- (b) determine if the documents required on board are valid;
- (c) determine if the maintenance release ensures helicopter serviceability and currency of inspection for the proposed period of flight;
- (d) determine the number of flying hours before the next service, or maintenance task, is due;
- (e) determine the impact on helicopter operations of unserviceabilities, or equipment configuration changes, for the proposed flight; and
- (f) explain the process for dealing with helicopter unserviceabilities discovered during a flight.

### B. Helicopter Performance

#### *Aim*

To determine that the candidate understands the approved operating procedures, performance capabilities and limitations of the helicopter being used for the flight test.

#### *Description*

The candidate will be required to explain and state approved operating procedures, performance capabilities and limitations for the helicopter to be used on the flight test. Certain essential performance speeds will be quoted from memory. Other helicopter performance data may be determined from the Helicopter Flight Manual.

#### *Performance Criteria*

Assessment will be based on the candidate's ability to:

- (a) quote from memory
  - (i) the best rate of climb speed;
  - (ii) the airspeed and Rotor RPM during autorotation for minimum rate of descent;
- (b) readily determine other operational data from the Helicopter Flight Manual.

## **C. Weight and Balance, Loading**

### *Aim*

To determine that the candidate can correctly complete weight and balance calculations for the helicopter used for the flight test.

### *Description*

The candidate will be required, using actual weights, to apply the approved weight and balance data for the helicopter used in the test, and complete accurate practical computations for the actual flight test, including takeoff and landing weights and, if applicable, the zero fuel weight.

Knowledge of weight and balance graphs and envelopes, and the effect of various centre of gravity locations on the helicopter flight characteristics will be demonstrated. Practical knowledge of how to correct a situation in which the centre of gravity is out of limits or in which the gross weight has been exceeded will be demonstrated.

### *Performance Criteria*

Assessment will be based on the candidate's ability to:

- (a) determine if the take-off and landing weights, centre of gravity and, if applicable, zero-fuel weight, are within permissible limits for the intended flight, and
- (b) demonstrate practical knowledge of how to correct a situation in which the centre of gravity is out of limits, and/or in which the gross weight has been exceeded; and
- (c) explain the effect of various centre of gravity locations on helicopter flight characteristics.

## **D. Pre-Flight Inspection**

### *Aim*

To determine that the candidate can complete internal and external checks in accordance with the approved checklist and demonstrate knowledge of how to deal with irregularities, if found.

### *Description*

The candidate will determine that the helicopter is ready for the intended flight.

All required equipment and documents will be located and, so far as can be determined by pre-flight inspection, the helicopter will be confirmed to be airworthy. Visual checks for fuel quantity, proper grade of fuel, fuel contamination and oil level will be carried out in accordance with the Helicopter Flight Manual. If the aircraft design precludes a visual check, fuel chits, fuel logs, or other credible procedures may be used to confirm the amount of fuel actually on board.

After the candidate has completed the pre-flight inspection, a few questions relating to the flight test aircraft will be asked. The candidate should be able to explain what appropriate action would be taken if an unsatisfactory item were detected during the pre-flight inspection. The candidate should demonstrate knowledge of the consequences if such items were undetected.

The candidate will conduct an oral passenger safety briefing. Should the candidate omit the passenger safety briefing the examiner will ask the candidate to provide one.



### *Performance Criteria*

Assessment will be based on the candidate's ability to:

- (a) use an orderly procedure to inspect the helicopter, including at least those items listed by the manufacturer or helicopter owner;
- (b) confirm that there is sufficient fuel and oil for the intended flight;
- (c) verify that the helicopter is in condition for safe flight;
- (d) demonstrate knowledge of how to deal with irregularities, if found.
- (e) identify and verify the location and security of baggage and required equipment;
- (f) organize and arrange material and equipment in a manner that makes the items readily available; and
- (g) perform an effective passenger safety briefing which will include:
  - (i) the location and use of emergency exits, emergency locator transmitter, fire extinguisher;
  - (ii) smoking limitations;
  - (iii) use of seat belts;
  - (iv) items specific to the helicopter type being used;
  - (v) action to take in the event of an emergency landing; and
  - (vi) other items for use in an emergency.

## **E. Engine Starting and Run-up, Use of Checklists**

### *Aim*

To determine that the candidate can complete engine start, warm-up, run-up, correctness of control movements and systems checks in accordance with the Helicopter Flight Manual.

### *Description*

The candidate will use the checklists provided by the aircraft manufacturer, or owner/operator, and use recommended procedures for engine starting, warm-up, run-up and checking helicopter systems and equipment, to determine that the helicopter is airworthy and ready for flight. The candidate will take appropriate action with respect to unsatisfactory conditions encountered, or specified by the examiner.

### *Performance Criteria*

Assessment will be based on the candidate's ability to:

- (a) demonstrate an awareness of other persons and property before and during engine start;
- (b) accurately complete the engine and helicopter systems checks;
- (c) take appropriate action with respect to actual or simulated unsatisfactory conditions;
- (d) use the appropriate checklist provided by the manufacturer or helicopter owner; and
- (e) check flight controls for freedom of operation and correct movement.

## Ex. 3 Ancillary Controls and Aircraft Systems

### *Aim*

To determine the candidate's knowledge in the use of ancillary controls installed in the helicopter and the ability to operate aircraft systems in accordance with the POH/HFM.

### *Description*

The candidate will be expected to demonstrate practical knowledge of the operation of systems installed on the helicopter being used for the flight test, and will be expected to use all ancillary controls in the proper manner. Use of these controls will be evaluated both on the ground and in the air.

### *Performance Criteria*

Assessment will be based on the candidate's ability to operate the installed helicopter systems in accordance with the POH/HFM and explain the operation of at least two (PPL) or three (CPL) of the following systems, as specified by the examiner:

- (a) primary flight controls and trim
- (b) carburetor heat
- (c) mixture
- (d) rotor system
- (e) fuel, oil, and hydraulic
- (f) electrical
- (g) skid gear and cargo hook
- (h) avionics
- (i) pitot-static system and associated flight instruments
- (j) heater and environmental
- (k) de-icing and anti-icing
- (l) any other ancillary control or system particular to the helicopter.

## Ex. 9 Take-Off To and Landing From the Hover

### *Aim*

To determine that the candidate can accurately take-off and land from the hover and perform a hover check.

### *Description*

The candidate will be required to demonstrate normal take-offs and landings on firm level ground, facing into or out of wind. The hover check will be carried out to establish that control response is normal, the helicopter is within centre of gravity limits, and there is sufficient power available for the intended departure.

### *Performance Criteria*

Assessment will be based on the candidate's ability to take-off and land smoothly, maintaining constant RPM with no drift or yaw, and complete a meaningful hover check appropriate to the type of helicopter.

**Failure to complete a hover check will result in a fail assessment of this item.**

## **Ex. 10A Hover and Hover Taxi**

### *Aim*

To determine the candidate's ability to hover and hover taxi the helicopter.

### *Description*

Hovering and hover-taxiing will be performed accurately at a safe height and speed for the helicopter type. They will normally be assessed throughout the flight test whenever the candidate has to manoeuvre the helicopter close to the ground.

### *Performance Criteria*

Assessment will be based on the candidate's ability to select and maintain:

- (a) a safe hovering height, RPM, and an accurate hover; and
- (b) safe and accurate hover, taxi heights, speeds, RPM and directional control.

## **Ex. 10B Hovering Turns**

### *Aim*

To determine the candidate's ability to turn the helicopter through 360 degrees while maintaining a constant height over a given position.

### *Description*

The hovering turn will commence from facing into wind at a safe hovering height, and will consist of 4 segments with a brief pause in the hover at each 90 degree point, then returning to a hover facing into the wind. Turns will be at a moderate rate and at a constant height and RPM.

### *Performance Criteria*

Assessment will be based on the candidate's ability to maintain a:

- (a) controlled and moderate rate of turn;
- (b) steady hover facing out of wind; and
- (c) constant height and RPM throughout the item.

## **Ex. 11 Engine Failure at the Hover or Hover-Taxi**

### *Aim*

To determine the candidate's ability to execute a safe landing following an engine failure at the hover or hover-taxi.

### *Description*

The candidate will position the helicopter in a hover or hover-taxi over a suitable landing site and land safely after the examiner has simulated an engine failure.

### *Performance Criteria*

Assessment will be based on the candidate's ability to land the helicopter safely. The landing should be smooth with no yaw, and no sideways or rearward drift present on touchdown.

## Ex. 12 Transitions

### *Aim*

To determine that the candidate can achieve smooth and accurate transitions from and to the hover.

### *Description*

The helicopter will be accelerated to a climb, or decelerated from a descent, smoothly and safely, using minimum power and attitude changes while demonstrating awareness of the Height/Velocity Chart profiles. Transitions will be normally assessed during other items in the flight test such as the circuit.

### *Performance Criteria*

Assessment will be based on the candidate's ability to carry out:

- (a) transitions to the climb from the hover facing into wind:
  - (i) controlling drift, yaw, and sink;
  - (ii) avoiding abrupt or major attitude and/or power changes;
  - (iii) operating within the manufacturer's limitations;
- (b) transitions from forward flight to the hover facing into wind, maintaining a constant approach angle, and avoiding:
  - (i) drift or yaw;
  - (ii) abrupt or major attitude and/or power changes; and
  - (iii) exceeding manufacturer's limitations.

## Ex. 13 Autorotation 2 (Upper Air) - Tested in conjunction with Ex. 18.

## Ex. 14 Emergency Procedures

### *Aim*

To determine that the candidate can react promptly and correctly to emergencies or abnormal flight situations and complete a precautionary approach or landing following the emergency.

### *Description*

The examiner will assess the candidate's knowledge of emergency procedures or abnormal conditions contained in the Helicopter Flight Manual. Assessment may be carried out during any portion of the flight test.

### *Performance Criteria*

Assessment will be based on the candidate's ability to analyze a situation, take appropriate action and follow appropriate memory items, emergency checks or procedures for two (PPL) or three (CPL) simulated emergencies or malfunctions, specified by the examiner.

**Note 1:** It is the sole responsibility of the examiner to determine if helicopter performance, weather conditions and other factors permit the safe conduct of this item in flight or on the ground with the engine running. One emergency procedure should be demonstrated while airborne. Some of the other items may be tested on the ground with the engine shut down.

It is the responsibility of the candidate to use good judgement while carrying out simulated emergencies and to apply good decision-making to ensure the safety of the flight.

**Note 2:** A landing following a simulated in-flight emergency will only be carried out on known suitable landing surfaces.

## **Ex. 15 The Circuit**

### *Aim*

To determine that the candidate can operate the helicopter in a safe manner in the vicinity of a controlled and/or uncontrolled heliport or aerodrome.

### *Description*

Correct circuit procedures, including departure and joining procedures for controlled and uncontrolled heliports or aerodromes will be demonstrated. When the location of the flight test does not allow a demonstration of both controlled and uncontrolled circuit procedures, the examiner will question the candidate about the procedures that are not demonstrated.

The ability to comply with ATC clearances or instructions while maintaining separation from other aircraft will be demonstrated.

### *Performance Criteria*

Assessment will be based on the candidate's ability to:

- (a) fly an accurate circuit maintaining correct position and separation from other aircraft; and
- (b) comply with actual, or simulated ATC clearances, or instructions; and
- (c) adhere to known, or published traffic patterns including departure, arrival, or other special procedures in effect at the time.

## **Ex. 16 Sideways and Rearwards Flight**

### *Aim*

To determine the candidate's ability to fly sideways and rearwards, facing into and out of wind.

### *Description*

The candidate will be expected to fly the helicopter sideways and rearwards facing into or out of wind. Where possible these manoeuvres will be assessed in conjunction with other items such as confined areas.

### *Performance Criteria*

Assessment will be based on the candidate's ability to:

- (a) maintain a constant height, heading, RPM; and
- (b) keep a proper look-out for the avoidance of obstacles and traffic.

## Ex. 17 Steep Turn

### *Aim*

To determine the candidate's ability to perform a level coordinated steep turn.

### *Description*

The candidate will be asked to execute a steep turn through 360°, with an angle of bank of 30°, and roll out on the original heading. The candidate will specify the selected altitude, airspeed and initial heading prior to entering the turn.

### *Performance Criteria*

Assessment will be based on the candidate's ability to:

- a) maintain an effective lookout;
- b) enter a smooth, coordinated steep turn;
- c) divide attention appropriately between outside visual references and instrument indications;
- d) maintain specified altitude ( $\pm 100$  feet) and specified airspeed ( $\pm 10$  knots);
- e) maintain required angle of bank ( $\pm 10$  degrees);
- f) initiate timely roll out for the return to the original heading ( $\pm 10$  degrees).

## Ex. 18 Autorotations

### *Aim*

To determine that, in the event of an engine failure, the candidate has the ability to make a safe autorotational approach and landing to a suitable landing area.

### **A. - Engine Failure at Altitude**

#### *Description*

Engine failure will be simulated, without advance warning, by the examiner in accordance with the method recommended by the manufacturer. While accomplishing the required emergency procedures, the candidate will be expected to use good decision-making and fly a safe approach to a suitable landing area, so that a safe landing could be made if the approach was continued to the ground.

The candidate will be expected to carry out an overshoot when advised to do so by the examiner.

Assessment of the overshoot will be based on the correct application of power, establishing a positive rate of climb, and control of airspeed and direction

#### *Performance Criteria*

Assessment will be based on the candidate's ability to react to a simulated engine failure by:

- (a) entering autorotation safely without undue loss of rotor RPM;
- (b) once established in autorotation, maintaining the rotor RPM and airspeed within the limitations stated in the Helicopter Flight Manual;
- (c) selecting a suitable area for landing;
- (d) vary airspeed, RPM, and flight profile as necessary to reach the selected landing area;
- (e) simulating a "Mayday" call;
- (f) controlling the helicopter in autorotation so that a safe landing could be made if the approach was continued to the ground; and
- (g) using safe and accurate overshoot procedures, if the approach is not continued to a landing.

## **B. - Landing or Power Recovery to the Hover/Hover-Taxi**

### *Description*

The candidate will be required to carry out two autorotations, one of which will include a 180-degree turn, to a pre-selected touchdown zone. The item will be initiated from a height above ground that has previously been assessed as suitable for practice autorotation landings. The autorotation will be commenced from cruise at a safe height, but in no instance lower than 500 feet above ground. The autorotations will terminate, at the discretion of the examiner, in either a landing, or a power recovery to the hover/hover-taxi.

### *Performance Criteria*

Following an autorotational approach to a selected landing area, assessment will be based on the candidate's ability to:

- (a) maintain the rotor RPM and airspeed stated in the Helicopter Flight Manual;
- (b) vary the flight profile as necessary to reach the selected landing area;
- (c) flare in a manner and at a height that is safe and effective for the type of helicopter under the prevailing ground and weather conditions; and
- (d) land safely, or recover to the hover/hover-taxi, as directed by the examiner, facing into wind within the pre-selected touchdown zone.

**Note:** A full-on autorotation will only be carried out on known suitable landing surfaces.

## **Ex. 19 Practice Forced Approaches - Tested in Conjunction with Ex. 14 and/or 18**

### **Ex. 20 Pilot Navigation**

#### *Aim*

To determine that the candidate can effectively prepare for a cross-country flight in a reasonable period of time and can conduct safe, organized, and accurate, cross-country flights using systematic visual navigation techniques.

#### **A. Pre-Flight Planning**

##### *Aim*

To determine that the candidate can, in a timely manner, effectively plan and prepare for a VFR cross-country flight.

##### *Description*

Before take-off, the candidate will be requested to plan a VFR cross-country flight, with one intermediate stop, to a destination at least 2 hours cruising range distance in the helicopter being used for the flight test. The flight planning will be based on the actual weather. Computations will be based on passenger and baggage loads provided by the examiner.

**Note:** Where the cross-country flight is assigned in advance, the candidate may make preliminary preparations such as initial route selection, map preparation, determination of tracks, selection of possible alternates, and initial flight log entries before the flight test.

### *Performance Criteria*

Assessment will be based on the candidate's ability to:

- (a) use appropriate and current aeronautical charts, and other flight publications, to extract and record pertinent information;
- (b) select a safe and efficient route;
- (c) retrieve and interpret weather information, and NOTAM, appropriate for the intended flight;
- (d) prepare a navigation chart and log;
- (e) accurately prepare weight and balance computations for the departure and the intermediate stop;
- (f) determine the appropriate departure procedure;
- (g) obtain pertinent operational information about the en route and destination airports;
- (h) accurately calculate headings, estimated ground speed, fuel requirements, and time en route;
- (i) make a competent "go/no go" decision based on available information;
- (j) accurately complete a VFR flight plan;
- (k) make all final preparations and calculations, **excluding** weight and balance computations, within 45 minutes; and
- (l) where initial planning and preparation is completed in advance, complete all final preparations, **including** weight and balance computations, within 45 minutes.

## **B. Departure Procedure**

### *Aim*

To determine that the candidate can perform an organized and efficient departure.

### *Description*

When requested by the examiner, the candidate will be expected to depart on the cross-country flight as planned.

### *Performance Criteria*

Assessment will be based on the candidate's ability to:

- (a) use an organized procedure (overhead, geographic point, or enroute climb) to set heading point;
- (b) activate the flight plan with ATS or simulate activation with the examiner;
- (c) set the heading indicator by reference to the magnetic compass, or other acceptable means; and
- (d) estimate the time of arrival for the first turning point or destination.



## **C. En Route Procedure**

### *Aim*

To determine that the candidate can apply systematic navigation techniques.

### *Description*

After setting heading, the flight will continue until the candidate, using visual navigation techniques, establishes the heading and timing required to fly to the first turning point or destination.

### *Performance Criteria*

Assessment will be based on the candidate's ability to:

- (a) maintain the planned cruising altitude within  $\pm 200$  feet, and headings with sufficient accuracy to ensure predictable flight progress can be made;
- (b) identify landmarks by relating the chart symbols to surface features;
- (c) provide within 15 minutes from the time of setting heading, the position of the aircraft; and
- (d) demonstrate an organized method which would correct any existing track error, and after verifying ground speed, confirm or revise, as appropriate, the estimated time of arrival for the first turning point or destination.

## **D. Diversion to an Alternate**

### *Aim*

To determine that the candidate can perform the required in-flight planning and carry out a diversion to a point selected by the examiner.

### *Description*

When requested by the examiner, the candidate will demonstrate the ability to carry out a diversion to an alternate destination that is within the fuel range of the helicopter. When practicable, a part or all of the diversion will be conducted at approximately 500 feet above ground or a minimum safe altitude, whichever is higher.

The candidate's ability to proceed to an alternate using mental dead reckoning and geographic features such as roads, railway, and rivers, if they are available, will be assessed. Rulers, protractors, computers, or radio navigation aids will not be used for this procedure.

The diversion will be continued to the point or, until at least the stage where the helicopter is established on the proposed track to the alternate, or is following a suitable geographic feature, which will ensure arrival at the destination is predictable.

### *Performance Criteria*

Assessment will be based on the candidate's ability to:

- (a) establish the helicopter on a track or follow a geographic feature that will lead to the alternate destination;
- (b) provide an estimated time of arrival that is sufficiently accurate to ensure that the diversion can be conducted as planned; and
- (c) establish or simulate communications with ATS to inform of the intention to divert.

## **Ex. 22 Minimum Safe Altitude Operations-Tested in Conjunction with Ex. 20**

### *Aim*

To assess the candidate's ability to fly safely at low level.

### *Description*

The candidate will be required to fly the diversion section of Ex. 20 at low level employing safe low altitude techniques. Particular regard will be taken with respect to wires, built-up areas, livestock, and rising ground.

### *Performance Criteria*

Assessment will be based on the candidate's ability to:

- (a) fly safely at low level avoiding the caution zones depicted on the manufacturer's height/velocity chart; and
- (b) comply with CAR section 602.14 and 602.15(2).

## **Ex. 23 Sloping Ground Operations**

### *Aim*

To determine the candidate's ability to operate the helicopter safely and efficiently when landing, taking-off, and manoeuvring over an area of sloping ground.

### *Description*

The candidate will be expected to manoeuvre, land on, and take-off from a suitable area of sloping ground.

### *Performance Criteria*

Assessment will be based on the candidate's ability to:

- (a) select a suitable area of sloping ground;
- (b) hover-taxi and manoeuvre safely over the area to select a landing spot;
- (c) co-ordinate the flight controls to make a smooth landing and take-off; and
- (d) perform an effective seating check.

## **Ex. 24 Advanced Take-Off and Landings**

### *Aim*

To determine the candidate's ability to take-off and land in an operational environment.

### *Description*

The candidate will be required to demonstrate:

- (a) a no-hover take-off or cushion take-off; and
- (b) an approach to a no-hover landing on a pre-determined spot.

The examiner may simulate conditions, including surface conditions and any obstacles to be cleared, for the take-offs and landings. This item can be assessed during Ex. 25 Confined Areas.

### *Performance Criteria*

Assessment will be based on the candidate's ability to safely take-off and land using the correct procedures.

## Ex. 25 Confined Areas

### *Aim*

To determine the candidate's ability to carry out safe and efficient confined area operations.

### *Description*

The candidate will demonstrate a reconnaissance, an approach to a hover within a confined area, manoeuvring, landing, take-off, departure, and a rejected departure. The rejected departure may be demonstrated outside the confined area, at the examiner's discretion, depending on conditions.

### *Performance Criteria*

Assessment will be based on the candidate's ability to:

- (a) for the reconnaissance:
  - (i) carry out the reconnaissance, at a safe altitude and airspeed, in a manner that allows a thorough inspection of the proposed landing area and its surroundings;
  - (ii) assess the wind velocity;
  - (iii) establish that there is sufficient power for the intended operation; and
  - (iv) selecting a suitable direction of approach, considering terrain, wind and weather conditions.
- (b) demonstrate a safe approach to a hover within a confined area by controlling forward speed and rate of descent so as to avoid abrupt changes of attitude and/or power.
- (c) demonstrate, when manoeuvring:
  - (i) correct technique; and
  - (ii) smooth and accurate use of controls.
- (d) carry out a safe and efficient departure by:
  - (i) completing a meaningful hover check; and
  - (ii) making appropriate use of terrain, wind, weather conditions, and aircraft performance.
- (e) demonstrate a rejected departure:
  - (i) carry out safe procedures without exceeding manufacturer's limitations; and
  - (ii) return the helicopter to a hover or landing as appropriate.

## Ex. 30 Instrument Flying

**Note:** *This item will require a suitable view-limiting device.*

### *Aim*

To determine that the Private or Commercial Pilot Licence applicant is able to control, and manoeuvre, the helicopter solely by reference to instruments.

### **A. Full Panel**

#### *Description*

The candidate will be required to fly the helicopter solely by reference to instruments using full panel.

#### **Private Pilot**

The candidate will be asked to:

- (a) maintain coordinated straight and level flight for 2 minutes;
- (b) carry out a level, rate-one turn through 180 degrees to a reciprocal compass heading; and
- (c) on completion, maintain straight and level flight for a further 2 minutes.

#### **Commercial Pilot**

At various specified airspeeds, the candidate will be asked to:

- (a) maintain coordinated straight and level flight;
- (b) carry out climbs and descents at various rates; and
- (c) conduct climbing, descending, and level rate-one turns to specific headings.

#### *Performance Criteria*

For a private pilot flight test, assessment will be based on the candidate's ability to control and manoeuvre the helicopter within:

- (a)  $\pm 20^\circ$  of the assigned heading;
- (b)  $\pm 200$  feet of the assigned altitude;
- (c)  $\pm 20$  knots of the assigned airspeed; and
- (d) an angle of bank not to exceed  $30^\circ$ .

For a commercial pilot flight test, assessment will be based on the candidate's ability to control and manoeuvre the helicopter within:

- (a)  $\pm 15^\circ$  of the assigned heading;
- (b)  $\pm 100$  feet of the assigned altitude;
- (c)  $\pm 15$  knots of the assigned airspeed;
- (d)  $\pm 200$  feet/minute of the required rate of climb or descent when established; and
- (e)  $\pm 10^\circ$  of the specified angle of bank.

## **B. Recovery from an Unusual Attitude**

### *Description*

Using full panel, the private pilot candidate will be required to promptly recover with minimum loss of altitude from one unusual attitude.

Using limited panel, without reference to the attitude indicator or the heading indicator, the commercial pilot candidate will be required to promptly recover with minimum loss of altitude from one unusual attitude.

### *Performance Criteria*

Assessment will be based on the candidate's ability to:

- (a) recognize promptly what the helicopter is doing by reference to available flight instruments;
- (b) take immediate and correct recovery action;
- (c) recover smoothly with minimum loss of altitude and without excessive airspeed fluctuations; and
- (d) maintain coordinated flight.

## **Ex. 31 Radio Communication**

### *Aim*

To determine that the candidate can communicate with Air Traffic Service facilities and obtain assistance from those facilities to permit the safe and efficient conduct of the flight.

### *Description*

The candidate must demonstrate:

- (a) or explain the correct procedures for the use of radio communication equipment available on board the aircraft;
- (b) the ability to obtain information relevant to the flight and to obtain, respond to, and act upon ATC clearances and instructions; and
- (c) the ability to obtain a Special VFR clearance, VHF DF steer, and radar assistance.

The examiner will also assess the candidate's ability to obtain information about weather, NOTAM or other details pertinent to the flight.

Where it is not possible to establish radio communication with an ATC unit, the examiner may use simulations to meet the aim of this item.

### *Performance Criteria*

Assessment will be based on the candidate's ability to:

- (a) use correct radio procedures;
- (b) correctly interpret and respond to clearances, instructions, and information provided by Air Traffic Services;
- (c) demonstrate, or explain, the correct procedure for obtaining DF steers, radar assistance and/or a Special VFR clearance;
- (d) demonstrate how to obtain information such as weather and NOTAM from a radio facility.



# RECOMMENDATION FOR FLIGHT TEST

## PRIVATE/COMMERCIAL PILOT LICENCE-HELICOPTER

|   |  |
|---|--|
| Name of Candidate                                   | Licence/Permit Number  |
| Flight Experience<br>Dual                      Solo | Flight Test<br><input type="checkbox"/> Private<br><input type="checkbox"/> Commercial |

I, the undersigned instructor, certify that the above named candidate meets the minimum experience requirements of section 421.14 of the *Personnel Licensing Standards* and certify having personally conducted a pre-test evaluation of all flight test items with the candidate.

I consider the candidate to have reached a sufficient level of competency to attempt the flight test for the issuance of the pilot licence sought and hereby recommend the candidate for the flight test.

I further certify that I am qualified through the privileges of my pilot licence to make this recommendation.

|   |       |                      |
|---|-------|----------------------|
| Name of Instructor Recommending Test<br>(Print) | Class | Licence Number       |
| Signature                                       | Date  | Flight Training Unit |

|   |                |
|---|----------------|
| Name of Supervising Instructor (if recommending instructor is Class 4)<br>(Print) | Licence Number |
| Signature   | Date           |





