Study and Reference Guide
for written examinations for the

Flight Instructor Rating
Helicopter

First Edition
2013
Please direct your comments, orders and inquiries to:

The Order Desk
MultiMedia Publishing Services
Transport Canada (AARA-MPS)
330 Sparks Street
Ottawa ON  K1A 0N8
Telephone:   1-888-830-4911 (in North America) 613-991-4071 (other countries)
Fax:  613-991-1653
E-Mail:  MPS@tc.gc.ca

© Her Majesty the Queen in Right of Canada, as represented by the Minister of Transport (2013)

Permission is granted by the Department of Transport, Canada, to copy and/or reproduce the contents of this publication in whole or in part provided that full acknowledgment is given to the Department of Transport, Canada, and that the material be accurately reproduced. While use of this material has been authorized, the Department of Transport, Canada, shall not be responsible for the manner in which the information is presented, nor for any interpretations thereof.

The information in this publication is to be considered solely as a guide and should not be quoted as or considered to be a legal authority. It may become obsolete in whole or in part at any time without notice.

Catalogue No. T52-4/86-2013E-PDF
TP 15216E (2013)
TC-1005069

You may reproduce this guide as required and it can be found at http://www.tc.gc.ca/CivilAviation/general/Exams/guides/menu.htm
# TABLE OF CONTENTS

**GENERAL INFORMATION** ........................................................................................................4
- EXAMINATION PREREQUISITES ..........................................................................................4
- EXAMINATION RULES ........................................................................................................4
- MATERIALS REQUIRED ......................................................................................................4
- TIME LIMIT ..........................................................................................................................4
- REWRITING OF EXAMINATIONS .........................................................................................5
- EXAMINATION FEEDBACK ................................................................................................5

**FLIGHT INSTRUCTOR KNOWLEDGE REQUIREMENTS** ..................................................5

**EXAMINATIONS** ..................................................................................................................6

**SUBJECTS** ................................................................................................................................7
- AIR LAW .................................................................................................................................7
- FUNDAMENTALS OF INSTRUCTING ..................................................................................11
- AERONAUTICAL SUBJECTS ...............................................................................................12
- FLIGHT TEST STANDARDS .................................................................................................12
- FLIGHT INSTRUCTOR RATING – INSTRUMENT INSTRUCTION EXAMINATION - HELICOPTER (FIREN) ........................................................................................................12

**REFERENCES** ....................................................................................................................13

**ENQUIRIES** ..........................................................................................................................14
GENERAL INFORMATION

EXAMINATION PREREQUISITES
Prior to taking a written examination, an applicant for a flight crew permit, licence or rating shall meet the prerequisites for the examination set out in the personnel licensing standards with respect to CAR 401.13(1):

a) medical fitness;

b) identification;

c) a recommendation from the flight instructor who is responsible for the training of the applicant; and

d) experience.

EXAMINATION RULES
CAR 400.02
(1) Except as authorized by an invigilator, no person shall, or shall attempt to, in respect of a written examination:

a) copy or remove from any place all or any portion of the text of the examination;

b) give to or accept from any person a copy of all or any portion of the text of the examination;

c) give help to or accept help from any person during the examination;

d) complete all or any portion of the examination on behalf of any other person; or

e) use any aid or written material during the examination.

(2) A person who commits an act prohibited under subsection (1) fails the examination and may not take any other examination for a period of one year.

MATERIALS REQUIRED
The examinations are generally delivered via computer however, we suggest bringing a pencil to execute calculations on scrap paper which will be provided prior the beginning of the examination. Electronic calculators are useful and are permitted if their memory is cleared before and after the examination. Computers capable of storing text are not approved. A list of approved electronic navigation computers is available at:

TIME LIMIT
The examination shall be completed during the 24-month period immediately preceding the date of the application for the rating.
REWRITING OF EXAMINATIONS

CAR 400.04

(1) Subject to subsections (2) and (6), a person who fails an examination or a section of a sectionalized examination required for the issuance of a flight crew permit, licence, rating or foreign licence validation certificate is ineligible to rewrite the examination or the failed section for a period of:

(a) in the case of a first failure, 14 days;
(b) in the case of a second failure, 30 days; and
(c) in the case of a third or subsequent failure, 30 days plus an additional 30 days for each failure in excess of two failures, up to a maximum of 180 days.

(2) to (4) Not applicable.

(5) Where a person requests to rewrite an examination, the Minister shall inform the person in writing of the date on which the person may rewrite the examination and whether the person is required to provide evidence of further study or instruction before rewriting the examination.

(6) If a person submits a request to the Minister to shorten the period between examination attempts, the Minister shall grant the request on receipt of confirmation that the person has reviewed their weak knowledge areas.

EXAMINATION FEEDBACK

Feedback statements on the results letter will inform the candidate where questions were answered incorrectly.

Example of Feedback Statement:

Identify the atmospheric conditions favourable to thunderstorm formation.

FLIGHT INSTRUCTOR KNOWLEDGE REQUIREMENTS

Applicants for the Flight Instructor Rating shall demonstrate their knowledge by writing Transport Canada multiple choice examinations on the subjects contained in this guide. Applicants must be able to read the examination questions in either English or French without assistance.

All subjects in this guide are considered to be important to applicants for the Flight Instructor Rating – Helicopter.

A Class 4 flight instructor must have sufficient understanding of Air Law applicable to flight training, fundamentals of instructing, and aeronautical subjects to guide students for a Private Pilot Licence, Commercial Pilot Licence and Night Rating.

In order to effectively supervise other instructors, a Class 2 or 1 flight instructor must have a greater understanding, than a class 4 or 3 instructor, of the subjects described in this guide and of the guidance materials introduced. Further, a Class 2 or 1 instructor must also demonstrate knowledge of administrative procedures involved with the function of the chief flight instructor.

A Class 1 instructor must be a subject matter expert. In addition to the requirements in the preceding paragraph, a Class 1 instructor must be able to transmit, to the candidate for a Flight
Instructor Rating, his or her knowledge and understanding of the learning process and be able to guide the candidate for a Flight Instructor Rating in structuring, delivering and evaluating candidates for a licence or rating.

KNOWLEDGE REQUIREMENTS FOR THE FLIGHT INSTRUCTOR RATING – INSTRUMENT INSTRUCTION EXAMINATION - HELICOPTER (FIREN)

Flight Instructors must have a good knowledge of the principles and operational use of flight instruments and radio aids. This examination is separate and required as part of the Class 4 Instructor Rating – Helicopter.

EXAMINATIONS

<table>
<thead>
<tr>
<th>Examination</th>
<th>Questions</th>
<th>Time Limit</th>
<th>Pass Mark</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flight Instructor Rating - Class 4 (HIRAF)</td>
<td>75</td>
<td>3 hours</td>
<td>70%</td>
</tr>
<tr>
<td>Flight Instructor Rating – Instrument Instruction (FIREN)</td>
<td>40</td>
<td>2 hours</td>
<td>70%</td>
</tr>
<tr>
<td>Flight Instructor Rating - Class 2 (HIRAT)</td>
<td>100</td>
<td>3 hours</td>
<td>70%</td>
</tr>
<tr>
<td>Flight Instructor Rating - Class 1 (HIRAT)</td>
<td>100</td>
<td>3 hours</td>
<td>80%</td>
</tr>
</tbody>
</table>

Class 4 Helicopter Flight Instructors must complete both the HIRAF and FIREN examinations.

There is no Class 3 Flight Instructor Rating examination.

Class 2 and Class 1 candidates write the same examination, however, a mark of 80% or higher is required to meet Class 1 standards.

An applicant for a Class 4 Flight Instructor Rating – Helicopter who holds or has held within the preceding 24 months, a Flight Instructor Rating – Aeroplane, shall be considered to have met the written examination requirement.
SUBJECTS

AIR LAW

Some Canadian Aviation Regulations (CARs) refer to their associated standards. Questions from the CARs may test knowledge from the regulation or the standard.

PART IV - PERSONNEL LICENSING AND TRAINING

401- FLIGHT CREW PERMITS, LICENCES AND RATINGS

DIVISION I - GENERAL

401.03 Requirement to Hold a Flight Crew Permit, Licence or Rating or a Foreign Licence Validation Certificate
401.04 Flight Crew Members of Aircraft Registered in Contracting States Other Than Canada
401.05 Recency Requirements
401.06 Issuance and Endorsement of Flight Crew Permits, Licences and Ratings
401.07 Validation of Foreign Licences
401.08 Personal Logs
401.09 Credits Towards Requirements for a Flight Crew Permit, Licence or Rating

DIVISION II - TESTING

401.13 Examination Prerequisites
401.14 Flight Test Prerequisites
401.15 Conduct of a Flight Test
401.16 Failure of a Flight Test
401.17 Failure of a Flight Test for a Rating Renewal

DIVISION III - STUDENT PILOT PERMITS

401.19 Privileges

DIVISION VI - PRIVATE PILOT LICENCE

401.27 Helicopters - Privileges
401.28 Aeroplanes and Helicopters - Reimbursement of Costs Incurred in Respect of a Flight

DIVISION VII - COMMERCIAL PILOT LICENCE

401.31 Helicopters - Privileges and Requirements

DIVISION VIII - AIRLINE TRANSPORT PILOT LICENCE

401.35 Helicopters - Privileges
DIVISION XI - AIRCRAFT TYPE RATINGS

401.40 Blanket and Individual Type Ratings
401.41 Privileges

DIVISION XII - NIGHT RATING

401.42 Rating
401.43 Privileges

DIVISION XIII - VFR OVER-THE-TOP RATING

401.44 Rating
401.45 Privileges

DIVISION XVII - FLIGHT INSTRUCTOR RATINGS - AEROPLANE AND HELICOPTER

401.61 Rating
401.62 Class 4 Supervision Requirement
401.63 Class 1 or 2 - Supervision of the Holder of a Class 4 Flight Instructor Rating
401.64 Class 4 - Record Keeping
401.65 Period of Validity
401.66 Renewal of Flight Instructor Rating
401.67 Flight Test Records

DIVISION XIX - FLIGHT INSTRUCTOR RATING – HELICOPTER

401.77 Class 4 - Privileges
401.78 Class 3 - Privileges
401.79 Class 2 - Privileges
401.80 Class 1 - Privileges

404 - MEDICAL REQUIREMENT

DIVISION II - MEDICAL CERTIFICATE

404.03 Requirement to Hold a Medical Certificate
404.04 Issuance, Renewal and Validity Period of Medical Certificate
404.05 Medical Standards Flexibility - Limitations and Restrictions
404.06 Prohibition Regarding Exercise of Privileges

DIVISION III - MEDICAL CERTIFICATE REQUIREMENTS

404.10 Medical Certificate Requirements for Personnel Licences

DIVISION IV - MEDICAL FITNESS

404.11 Minister's Assessment
404.12 Reconsideration of Assessment
405 – FLIGHT TRAINING

DIVISION I – GENERAL

DIVISION II - FLIGHT TRAINING PROGRAM

405.11 Flight Training Program
405.12 Flight Training Program Approval
405.13 Flight Training Program Outline
405.14 Flight Training Program Requirements

DIVISION III - PERSONNEL AND AIRCRAFT

405.21 Qualifications of Flight Instructors
405.22 Aircraft Familiarization
405.23 Training Aircraft Requirements
405.24 Flight Training at Aerodrome

DIVISION IV - FLIGHT TRAINING OPERATIONS

405.31 Training Flight Briefings
405.32 Authorization of Training Flight
405.33 Pilot Training Record

406 – FLIGHT TRAINING UNITS

DIVISION I - GENERAL

406.01 Interpretation
406.02 Application
406.03 Requirement to Hold a Flight Training Unit Operator Certificate
406.04 Eligibility to Hold a Flight Training Unit Operator Certificate
406.05 Notification Requirement

DIVISION II - CERTIFICATION

406.11 Issuance or Amendment of a Flight Training Unit Operator Certificate
406.12 Contents of a Flight Training Unit Operator Certificate
406.13 General Conditions of a Flight Training Unit Operator Certificate
406.14 Quality Assurance Program — Integrated Course

DIVISION III - PERSONNEL

406.19 Duties of Certificate Holder in Respect of Maintenance
406.21 Appointment of Chief Flight Instructor
406.22 Requirements for Chief Flight Instructor
406.22.1 Requirements for Assistant Chief Flight Instructor
406.22.2 Appointment of Check Instructor
406.22.3 Requirements for Check Instructor
406.23 Appointment of Flight Instructors
406.24 Requirements for Ground Instructors
406.25 Operational Personnel Records
406.26 Aircraft Familiarization
DIVISION IV - AIRCRAFT

406.31 Aircraft Registration Requirements
406.32 Aircraft Flight Authority
406.33 Safety Belt and Shoulder Harness Requirements
406.34 Checklists
406.35 Maintenance Control System
406.36 Person Responsible for Maintenance Control System
406.37 Maintenance Personnel and Facilities
406.38 Maintenance Control Manual
406.39 Maintenance Arrangements
406.40 Technical Dispatch Procedures
406.41 Defect Recording, Rectification and Control Procedures
406.42 Service Difficulty Reporting
406.43 Elementary Work
406.44 Servicing
406.45 Training Program
406.46 Maintenance Personnel Records
406.47 Quality Assurance Program

DIVISION V - FLIGHT TRAINING OPERATIONS

406.50 Operational Control System
406.51 Aircraft Operations Requirements
406.52 Facilities at Base of Operations
406.53 Dispatch of Aircraft
406.54 Aircraft Operating over Water
406.55 Solo Cross-country Routes
406.56 Daily Flight Record
406.57 Journey Log Entries
406.58 Flight Training at a Satellite Base

DIVISION VI - MANUALS AND COURSE CERTIFICATES

406.61 Flight Training Operations Manual
406.62 Training Manual
406.63 Certificate of Enrolment
406.64 Course Completion Certificate

DIVISION VII - TRAINING

406.71 Operational Personnel Training Program

DIVISION VIII - INTEGRATED COURSE

406.75 Requirements
406.76 Prerequisite
406.77 Transfer
FUNDAMENTALS OF INSTRUCTING

LEARNING FACTORS
1. Readiness
2. Primacy
3. Relationship
4. Exercise
5. Intensity
6. Effect
7. Recency

FACTORS THAT AFFECT LEARNING
1. Attitude and behavior of instructors
2. Attitude and behavior of Students
3. Learning Curves
4. Personality differences
5. Problem/Suggested Action with different personality
6. Characteristics of adult learners
7. Emotion
   • Mild emotion
   • Strong Emotion
   • Disruptive emotion
   • Use of Emotional Escape Mechanisms
8. Memory
9. Retention of learning

PREPARATION
1. Learning objectives
2. Lesson Plan
3. Preparation of the classroom
4. Visual aids
5. Threshold knowledge test

PRESENTATION
1. Lecture method
2. Developmental teaching/ guided discussion
3. Demonstration – performance method
4. Computer-based training

CRITIQUE
1. Characteristics of an effective critique
2. Rules for critiquing

EVALUATION METHODS
1. Question – characteristics of effective questions/oral quizzes
2. Written test
3. Practical test
4. Self-evaluation

TECHNIQUES AND METHODS OF FLIGHT INSTRUCTION
1. Positive exchange of flight controls
2. Pre-flight briefing
3. Post-flight briefing
4. Preparatory Ground Instruction
5. Demonstration – performance method
6. Maneuvers-based training
7. Scenario-based training
8. Role Playing
9. Instruction using simulators and training devices

FLIGHT INSTRUCTION (AIR EXERCICES)
1. As per the Helicopter Flight Training Manual (TP 9982)
2. As per the Flight Instructor Guide - Helicopter (TP 4818)

INTEGRATING HUMAN FACTORS INTO INSTRUCTION
1. The role of the instructor
2. Techniques to integrate Human Factors into instruction
3. Assessing Human Factors Knowledge – Skills – Attitudes
4. Teaching the decision-making process
5. Evaluating Student Decision Making

COMMUNICATION
1. Good communication style
2. Indicators of good communication
3. Developing communication skills
4. Barriers to effective communication
AERONAUTICAL SUBJECTS

THREAT AND ERROR MANAGEMENT
1. Threat and error management model
2. Threats
3. Errors
4. Undesired aircraft states
5. Countermeasures
6. Crew Resource Management
7. Single Pilot Resource Management

Mastery of the subjects included in the following Study and Reference Guide is important to applicants for the Flight Instructor Rating:

Study and Reference Guide Private and Commercial Pilot Licences – Helicopter (TP 2476E)

FLIGHT TEST STANDARDS
Applicant for the Flight Instructor Rating shall be familiar with the following Flight Test Guide. They shall demonstrate their knowledge about the techniques, procedures and the marking criteria to be used by Civil Aviation Inspectors and Pilot Examiners for the conduct of the Flight Test.

Flight Test Guide – Private and Commercial Pilot Licences – Helicopter (TP 3077E)

FLIGHT INSTRUCTOR RATING – INSTRUMENT INSTRUCTION EXAMINATION - HELICOPTER (FIREN)
Mastery of the following subjects included in the following Study and Reference Guide is important to applicants for the Flight Instructor Rating and will form part of the Instrument Instruction examination:

Study and Reference Guide Private and Commercial Pilot Licence – Helicopters (TP 2476E)
• Section 5 (Instruments);
• Section 7 (Radio Aids); and
• Section 8 (Human Factors).

Also, the applicant for the Flight Instructor Rating shall be familiar with the Procedures and Marking Criteria to be used by Civil Aviation Inspectors and Pilot Examiners for the conduct of the Flight Test. The following procedures and marking criteria are included in the following Flight Test Guide, and will form part of the Instrument Instruction examination:

Flight Test Guide Private and Commercial Pilot Licence – Helicopters (TP 3077E), exercise #30
REFERENCES

- Flight Instructor Guide - Helicopter TP 4818E


- Instructor Guide – GPS (January 1997) TP 12878E


- Study and References Guide - Private and Commercial Pilot Licences – Helicopter (TP 2476E

- Helicopter Flight Training Manual TP 9982

- How to start a Flight Training Unit (1999) TP 12862E

- When In Doubt…TP 10643E

- Human Factors for Aviation - Basic Handbook (TP 12863E)
- Human Factors for Aviation - Advanced Handbook (TP 12864E)
- Human Factors for Aviation - Instructor's Guide (TP 12865E)
  http://www.tc.gc.ca/eng/civilaviation/publications/menu.htm#training

- Canadian Aviation Regulations (CARs)
  http://www.tc.gc.ca/eng/civilaviation/regserv/cars/menu.htm

- TC A.I.M. Aeronautical Information Manual (TP 14371E)

- Safety Management Systems (TP 14135E)
  http://www.tc.gc.ca/eng/civilaviation/publications/menu.htm#training

- The Aviation Instructor’s Handbook. This book is used in pilot training in the United States and is available at:
  http://www.faa.gov/regulations_policies/handbooks_manuals/aviation/aviation_instructor_handbook/

- The JAR/EASA Instructor’s Handbook. This book and other training manual can be obtained at: http://www.nordian.net

• The ICAO Human Factors Training Manual (DOC 9683). This book and other publications produced by ICAO can be obtained at: [http://www.icao.int/Pages/default.aspx](http://www.icao.int/Pages/default.aspx)


Other information can be obtain via different websites such as:

• Information on the Transportation of Dangerous Goods is available from Transport Canada. [http://www.tc.gc.ca/tdg/menu.htm](http://www.tc.gc.ca/tdg/menu.htm)

• Information on Customs Requirements is available from the Canada Border Services Agency at: [http://www.cbsa-asfc.gc.ca/](http://www.cbsa-asfc.gc.ca/)


• Publications used in pilot training in the United States are available in the catalog of U.S. Government Publication at [http://catalog.gpo.gov/F](http://catalog.gpo.gov/F)

Information on textbooks and other publications produced by commercial publishers can be obtained through local flying training organization, bookstores and similar sources.

**ENQUIRIES**

Information concerning the location of pilot training organizations and matters pertaining to flight crew licensing may be obtained by contacting the appropriate Regional Offices. A complete listing may be found at: