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TP 15216E
(Revised and issued as a
separate document 2013)

Study and Reference Guide

for written examinations for the

Flight Instructor Rating

Helicopter

First Edition
2013

TC-1005069



Canada

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ISBN 978-1-100-22233-2
Catalogue No. T52-4/86-2013E-PDF
TP 15216E (2013)
TC-1005069

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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:

<http://www.tc.gc.ca/eng/civilaviation/standards/general-exams-computers-2179.htm>

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

| Examination | Questions | Time Limit | Pass Mark |
|---|------------------|-------------------|------------------|
| Flight Instructor Rating - Class 4 (HIRAF) | 75 | 3 hours | 70% |
| Flight Instructor Rating – Instrument Instruction (FIREN) | 40 | 2 hours | 70% |
| Flight Instructor Rating - Class 2 (HIRAT) | 100 | 3 hours | 70% |
| Flight Instructor Rating - Class 1 (HIRAT) | 100 | 3 hours | 80% |

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 EXERCISES)

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
<http://www.tc.gc.ca/eng/civilaviation/publications/tp4818-menu-4340.htm>
- Flight Test Guide – Private and Commercial Pilot Licences – Helicopter TP 3077E
<http://www.tc.gc.ca/eng/civilaviation/publications/tp3077-6389.htm>
- Instructor Guide – GPS (January 1997) TP 12878E
<http://www.tc.gc.ca/eng/civilaviation/publications/tp12878-menu-1746.htm>
- Instructor Guide – VFR OTT (1996) TP 12775E
<http://www.tc.gc.ca/eng/civilaviation/publications/tp12775-menu-1641.htm>
- Study and References Guide - Private and Commercial Pilot Licences – Helicopter (TP 2476E <http://www.tc.gc.ca/eng/civilaviation/publications/tp2476-menu-3581.htm>)
- Helicopter Flight Training Manual TP 9982
<http://www.tc.gc.ca/eng/civilaviation/publications/tp9982-menu-976.htm>
- How to start a Flight Training Unit (1999) TP 12862E
<http://www.tc.gc.ca/eng/civilaviation/publications/tp12862-menu-1666.htm>
- When In Doubt...TP 10643E
<http://www.tc.gc.ca/eng/civilaviation/publications/tp10643-menu-1118.htm>
- 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)
<http://www.tc.gc.ca/eng/civilaviation/publications/tp14371-menu-3092.htm>
- 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_instructors_handbook/
- The JAR/EASA Instructor's Handbook. This book and other training manual can be obtained at: <http://www.nordian.net>
- The Flight Instructor Manual – Jeppesen. This book and other training manual can be obtained at: <http://www.jeppesen.com/wlcs/index.jsp>

- 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>
- The Study Guide For The Radiotelephone Operator's Restricted Certificate (Aeronautical). This book is available free of charge from district offices of Industry Canada - Examinations and Radio Licensing at: <http://www.strategis.gc.ca>

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>
- Information on Customs Requirements is available from the Canada Border Services Agency at: <http://www.cbsa-asfc.gc.ca/>
- Information on the Canada Labour Code is available from Social Development Canada at: <http://www.sdc.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>

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:

<http://www.tc.gc.ca/eng/civilaviation/standards/general-exams-centres-2178.htm>