Transport Canada Transports Canada

TP 12881E
(Revised 04/2026)

Study and Reference Guide

for written examinations
for the

Commercial Pilot Licence

Aeroplane

Seventh Edition
August 2026

TC-1003554

Canada

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
Teletypewriter (TTY): 1-888-675-6863
E-Mail: mps-psm@tc.gc.ca

© His Majesty the King in Right of Canada, as represented by the Minister of Transport, 2026.

Cette publication est aussi disponible en français sous le titre: Guide d'étude et de référence pour les examens écrits pour la licence de pilote privé – avion.

Transport Canada grants permission to copy and/or reproduce the contents of this publication for personal and public non-commercial use. Users must reproduce the materials accurately, identify Transport Canada as the source and not present theirs as an official version, or as having been produced with the help or the endorsement of Transport Canada.

To request permission to reproduce materials from this publication for commercial purposes, please complete the following web form:
https://tc.canada.ca/en/corporate-services/application-crown-copyright-clearance
Or contact TCcopyright-droitdauteurTC@tc.gc.ca

T52-4/96-2026E-PDF
ISBN 978-0-662-40883-3

TP 12881^{E} (RDIMS 13732626)
TP 12881^{F} (RDIMS 13732937)
(04/2026)

You may reproduce this guide as required and it can be found at
https://tc.canada.ca/en/aviation/licensing-pilots-personnel/flight-crew-licences-permits-ratings/study-reference-guides-sample-examinations

Table of Contents

General 1
Purpose of This Guide 1
Knowledge Requirements 1
Examination Prerequisites 1
Exemptions to the Canadian regulations (CARs) 2
Examination Rules 2
Materials Required 2
Time Limits 2
How to Book a Flight Crew Exam 2
List of Authorized Examination Invigilators (AEI) 2
Book an Exam at a Transport Canada Center 3
Rewriting of Examinations 3
Examination Feedback 4
Examinations 4
Full Examinations 4
Supplementary Examinations 5
Helicopter to Aeroplane Examination 5
Canadian Forces Pilots 6
United States of America Pilot Certificate to Canadian Commercial Pilot Licence - Aeroplane 6
Air Law 7
Air Law and Procedures 7
Navigation 19
Navigation and Radio Aids 19
Meteorology 22
Aeronautics - General Knowledge 25
Airframes, Engines and Systems 25
Theory of Flight 27
Flight Instruments 28
Flight Operations 29
Human Factors 31
Recommended Study Material 32
Recommended Study Material for the FAA Conversion Examination 34
Enquiries 35
Letter of Recommendation for the Commercial Pilot Licence (Aeroplane) Written Examination 36

Letter of Recommendation for the Commercial Pilot Licence (Aeroplane) Supplementary Written Examination 37

General

Purpose of This Guide

TP 12881 is meant to provide guidance to help individuals prepare for the written exam required for a Canadian Commercial Pilot Licence (CPL - A) as per CAR 421.30(3). The guide covers topics in the sections of Air Law, Navigation, Meteorology, and Aeronautics - General Knowledge. The topics listed are not meant to be a detailed and exhaustive list, it is important for candidates to be knowledgeable in all these areas to ensure they are well-prepared and capable of successfully passing the written examination and achieving their goal of becoming safe licensed commercial pilots.

Knowledge Requirements

All subjects in this guide are considered to be important to applicants for the Commercial Pilot Licence - Aeroplane. Some of the subjects appeared in the Private Pilot study guide. Additional subjects, and those where more depth of understanding is required at the commercial level, are shaded (this paragraph is an example). Subjects marked with a bullet (✈) are considered essential knowledge for the commercial applicant.

Examination Prerequisites

CAR 401.13

(1) 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

(a) medical fitness

(b) identification

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

(d) experience.

(2) The applicant for a flight crew permit, licence or rating must be sufficiently competent in one of the official languages to be able to read the examination questions and to write the answers without assistance.

Exemptions to the Canadian regulations (CARs)

https://tc.canada.ca/en/aviation/reference-centre/exemptions-canadian-aviation-regulations-cars

Examination Rules

CAR 400.02

(1) Except as authorized by an invigilator, no person shall, or shall attempt to, in respect of an 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

A pencil is required for rough work. 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. Navigation tools (ruler/scale, protractor, flight computer) are required for the navigation questions. A list of accepted electronic computers for flight crew examinations is available at: https://tc.canada.ca/en/aviation/licensing-pilots-personnel/flight-crew-licences-permits-ratings/accepted-electronic-computers-flight-crew-examinations

Time Limits

Examinations, including all sections of a sectionalized examination, that are required for the issuance of a permit or licence or for the endorsement of a permit or licence with a rating shall be completed during the 24-month period immediately preceding the date of the application for the permit, licence or rating.

How to Book a Flight Crew Exam

https://tc.canada.ca/en/aviation/licensing-pilots-personnel/flight-crew-licences-permits-ratings/how-book-flight-crew-exam

List of Authorized Examination Invigilators (AEI)

https://tc.canada.ca/en/aviation/licensing-pilots-personnel/flight-crew-licences-permits-ratings/how-book-flight-crew-exam#find_an_aei

Book an Exam at a Transport Canada Center

If the exam can't be administered by an AEI, use Transport Canada's online exam booking tool.

1) Have your pilot licence or file number ready. The file number will begin with "5802".
2) Once on the exam booking webpage, choose your exam, location, and date, provide your contact information and attest that you meet the required eligibility criteria.
3) Follow the prompts to submit your payment.

Once a booking is confirmed through payment, you'll receive confirmation by email. You will also get an email reminder 3 business days before the exam date.

Book online: https://examens-aviation-exams.tc.canada.ca/en/schedule/step1

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) A person who fails the Student Pilot Permit or Private Pilot Licence for Foreign and Military Applicants, Aviation Regulations (PSTAR) examination is eligible to rewrite the examination at any time after the person has received notice of the failure and has reviewed their weak knowledge areas.

(3) A person who fails an examination required for the issuance of an aircraft maintenance engineer (AME) licence or rating is eligible to rewrite the examination in accordance with the criteria specified in Chapter 566 of the Airworthiness Manual.

(4) A person who passes a sectionalized examination but fails one or more sections of that examination shall rewrite the failed section or sections in one sitting.

(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 will be provided on the areas that need improvement.

Example of a Feedback Statement: Identify the atmospheric conditions favorable for thunderstorm formation.

Examinations

Full Examinations

Applicants for the Commercial Pilot Licence – Aeroplane Category shall demonstrate their knowledge by writing a Transport Canada multiple-choice examination on subjects contained in this guide. Applicants must be able to read the examination questions in either English or French without assistance.

Examination	Questions	Time Limit	Pass Mark
Commercial Pilot – Aeroplane (CPAER)	100	3½ hours	60%

This examination is sectionalized into four mandatory subject areas and requires an overall pass mark of 60%. As well, the candidate must achieve 60% in the following four subject areas:

Mandatory Subjects

Air Law	Regulations, Rules and Orders, Air Traffic Services, Practices and Procedures, and Licensing requirements relevant to the licence.
Navigation	Navigation, Radio Aids and Electronic theory
Meteorology	Meteorology
Aeronautics - General Knowledge	Airframes, Engines, and Systems, Theory of Flight, Flight Instruments, Flight Operations, Human Factors

Questions fall under one of the four mandatory subject areas. However, there may be occasions where knowledge from another section is required to arrive at the correct response. For example, a practical question on fuel calculations under Navigation may require knowledge of VFR fuel requirements under Air Law.

Applicants who obtain less than 60% on the overall examination will, for licensing purposes, be required to rewrite the complete exam, as specified in Standard 421.30.

Supplementary Examinations

Applicants who obtain 60% or more on the main examination (CPAER), but who fail one or more mandatory subject areas will be assessed a partial pass. During one sitting, they will be required to write supplementary examinations for each subject area failed. Details on the mandatory subject area supplementary examinations are as follows:

Examination	Questions	Time Limit	Pass Mark
Air Law (CALAW)	20	1 hour	60%
Navigation (CANAV)	25	2 hours	60%
Meteorology (CAMET)	25	1½ hours	60%
Aeronautics – General Knowledge (CAGEN)	35	1½ hours	60%

NOTE: When writing more than one supplementary examination, the maximum time allowed shall be the sum of the times indicated for each examination, not to exceed 3½ hours.

Although the overall and supplementary examinations contain questions related mostly to the sections shown under the above four mandatory subject areas, there may be occasions where knowledge from another subject area is required to arrive at the correct response. For example, a practical question on fuel calculations under Navigation and Radio Aids may require knowledge of VFR fuel requirements under Air Law and Procedures.

Helicopter to Aeroplane Examination

Pilots who hold a valid Private, Commercial or Airline Transport Pilot Licence in the Helicopter Category and who wish to apply for a Commercial Pilot Licence – Aeroplane shall demonstrate their knowledge by writing the following Transport Canada multiple choice examination.

Examination	Questions	Time Limit	Pass Mark
Commercial Pilot Aeroplane – Alternate Category (CARAC)	35	1½ hours	60%

The CARAC examination is based on subjects contained in the following sections of this Guide: Air Law and Procedures; Meteorology – Upper Level Charts; Airframes, Engines and Systems; Theory of Flight; Flight Instruments; Flight Operations; and Human Factors.

Canadian Forces Pilots

Canadian Forces pilots who are qualified to wings standards shall demonstrate their knowledge by writing the following Transport Canada multiple choice examination:

Examination	Questions	Time Limit	Pass Mark
Air Law, Air Traffic Rules and Procedures (ARPCO) – Alternate Category (CARAC)	30	1 hours	60%

The ARPCO examination is based on subjects contained in the following sections of this Guide: Air Law and Procedures; Navigation and Radio Aids – Pre-Flight Preparation; Navigation and Radio Aids – Other Radio, Radar Aids, and Surveillance Services – Basic Principles and Use; Flight Operations – General; and Flight Operations – Aircraft Critical Surface Contamination.

United States of America Pilot Certificate to Canadian Commercial Pilot Licence - Aeroplane

Pilots who hold a United States of America FAA Commercial Pilot Certificate, or Airline Transport Pilot Certificate – Aeroplane, that has not been “Issued on the basis...” of another foreign licence, shall demonstrate their knowledge by writing the following Transport Canada multiple choice examination:

Examination	Questions	Time Limit	Pass Mark
Commercial Pilot Licence – Aeroplane for conversion from United States of America Pilot Certificate (FAACA)	20	1 hour	60%

The FAACA examination is based on the differences between FAA and TC air law and communication procedures. Candidates should read the Recommended Study Material for the FAA Conversion Examination section of this guide below.

Air Law

Air Law and Procedures

Canadian Aviation Regulations (CARs)

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

Part I – General Provisions

101 – Interpretation

- 101.01 Interpretation

103 – Administration and Compliance

Compliance

- 103.02 Inspection of Aircraft, Requests for Production of Documents and Prohibitions
- 103.03 Return of Canadian Aviation Documents
- 103.04 Record Keeping

Part II – Aircraft Identification and Registration and Operation of a Leased Aircraft by A Non-Registered Owner

202 – Aircraft Marking and Registration

Aircraft Marks

- 202.01 Requirements for Marks on Aircraft

Aircraft Registration

- 202.13 Registration of Aircraft – General
- 202.15 Qualifications of Be Registered Owner of a Canadian Aircraft
- 202.17 Types of Registration

Certificates of Registration

- 202.26 Carrying Certificate of Registration on Board the Aircraft

Transfer of Legal Custody and Control

- 202.35 General
- 202.36 Interim Registration

Cancellation of Certificate of Registration

- 202.57 Conditions Where Certificate of Registration is Cancelled

203 – Operation of a Leased Aircraft by a Non-Registered Owner

Operation of a Leased Aircraft by a Non-Registered Owner

- 203.02 Application
- 203.03 Leasing Operations – General

Part III – Aerodromes, Airports and Heliports

300 – Interpretation
- 300.01 Interpretation

301 – Aerodromes
- 301.01 Application
- 301.04 Markers and Markings
- 301.07 Lighting
- 301.08 Prohibitions
- 301.09 Fire Prevention

302 – Airports

General
- 302.10 Prohibitions
- 302.11 Fire Prevention

Part IV – Personnel Licensing and Training

400 – General
- 400.01 Interpretation

401 – Flight Crew Permits, Licences and Ratings

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
- 401.08 Personal Logs

Private Pilot Licence
- 401.28 Aeroplanes and Helicopters - Reimbursements of Costs Incurred in respect of a Flight

Commercial Pilot Licence
- ✈ 401.30 Aeroplanes - Privileges and Requirements

VFR Over-the-Top Rating
- 401.44 Rating
- 401.45 Privileges

404 – Medical Requirements

Medical Certificate
- 404.03 Requirement to Hold a Medical Certificate
- 404.04 Issuance, Renewal, Validity Period and Extension of a Medical Certificate
- 404.06 Prohibition Regarding Exercise of Privileges

Medical Certificate Requirements
- 404.10 Medical Certificate Requirements for Personnel Licences

Medical Examiners
- 404.18 Examination for Renewal of a Medical Certificate or for Permission to Continue to Exercise the Privileges of a Permit, Licence or Rating

406 – Flight Training Units
- 406.02 Application
- 406.03 Requirement to Hold a Flight Training Unit Operator Certificate

Part VI – General Operating and Flight Rules

600 – Interpretation
- 600.01 Interpretation

601 - Airspace

Airspace Structure, Classification and Use
- 601.01 Airspace Structure
- ✈ 601.02 Airspace Classification
- 601.03 Transponder Airspace
- ✈ 601.04 Flight in Class F Special Use Restricted Airspace or Class F Special Use Advisory Airspace
- 601.06 VFR Flight in Class A Airspace
- ✈ 601.07 VFR Flight in Class B Airspace
- ✈ 601.08 VFR Flight in Class C Airspace
- ✈ 601.09 VFR Flight in Class D Airspace

Aircraft Operating Restrictions and Hazards to Aviation Safety
- 601.14 Interpretation
- 601.15 Forest Fire Aircraft Operating Restrictions
- 601.16 Issuance of NOTAM for Forest Fire Aircraft Operating Restrictions
- 601.17 Exceptions
- 601.19 Hand-held Lasers
- 601.20 Projection of Directed Bright Light Source at an Aircraft

602 – Operating and Flight Rules

General

602.01.1 Reckless or Negligent Operation of Aircraft
602.01.2 Responsibility of Pilot-in-command
602.01.3 Operation of Aircraft — Requirements
✈ 602.02 Fitness of Flight Crew Members
602.03 Alcohol or Drugs – Crew Members
602.04 Alcohol or Drugs – Passengers
602.05 Compliance with Instructions
602.06 Prohibition Against Smoking
602.07 Aircraft Operating Limitations
602.08 Portable Electronic Devices
602.09 Fueling with Engines Running
602.10 Starting and Ground Running of Aircraft Engines
✈ 602.11 Aircraft Icing
602.12 Overflight of Built-up Areas or Open-Air Assemblies of Persons during Take-offs, Approaches and Landings
602.13 Take-offs, Approaches and Landings within Built-up Areas of Cities and Towns
602.14 Minimum Altitude and Distances
602.15 Permissible Low Altitude Flight
602.19 Right of Way – General
602.20 Right of Way – Aircraft Manoeuvring on Water
602.21 Avoidance of Collision
602.22 Towing
602.23 Dropping of Objects
602.24 Formation Flight
602.25 Entering or Leaving an Aircraft in Flight
602.26 Parachute Descents
602.27 Aerobatic Manoeuvres – Prohibited Areas and Flight Conditions
602.28 Aerobatic Manoeuvres with Passengers
602.30 Fuel Dumping
602.31 Compliance with Air Traffic Control Instructions and Clearances
✈ 602.32 Airspeed Limitations
✈ 602.34 Cruising Altitudes and Cruising Flight Levels
✈ 602.35 Altimeter-setting and Operating Procedures in the Altimeter-setting Region
✈ 602.36 Altimeter-setting and Operating Procedures in the Standard Pressure Region
✈ 602.37 Altimeter-setting and Operating Procedures in Transition between Regions
602.40 Landing at or Take-off from an Aerodrome at Night
602.46 Refusal to Transport
602.47 Suitable Accommodation

Operational and Emergency Equipment Requirements

602.58 Prohibition
602.59 Equipment Standards
✈ 602.60 Requirements for Power-driven Aircraft
✈ 602.61 Survival Equipment – Flights over Land
✈ 602.62 Life Preservers and Flotation Devices
✈ 602.63 Life Rafts and Survival Equipment – Flights over Water

Flight Preparation, Flight Plans and Flight Itineraries

602.70 Interpretation
602.71 Pre-flight Information
602.72 Weather Information
✈ 602.73 Requirement to File a Flight Plan or a Flight Itinerary
602.74 Contents of a Flight Plan or a Flight Itinerary
602.75 Filing of a Flight Plan or a Flight Itinerary
✈ 602.76 Changes in the Flight Plan
✈ 602.77 Requirement to File an Arrival Report
602.78 Contents of an Arrival Report
602.79 Overdue Aircraft Report

Pre-Flight and Fuel Requirements

602.86 Carry-on Baggage, Equipment and Cargo
602.87 Crew Member Instructions
✈ 602.88 Fuel Requirements – Sub-sections (1), (2), (3) and (5)
602.89 Passenger Briefings

Operations at or in the Vicinity of an Aerodrome

602.96 General
✈ 602.97 VFR and IFR Aircraft Operations at Uncontrolled Aerodromes within an MF Area
✈ 602.98 General MF Reporting Requirements
✈ 602.99 MF Reporting Procedures before Entering Manoeuvring Area
✈ 602.100 MF Reporting Procedures on Departure
✈ 602.101 MF Reporting Procedures on Arrival
✈ 602.102 MF Reporting Procedures When Flying Continuous Circuits
✈ 602.103 Reporting Procedures When Flying through an MF Area
602.105 Noise Operating Criteria
602.106 Noise-restricted Runways

Visual Flight Rules

✈ 602.114 Minimum Visual Meteorological Conditions for VFR Flight in Controlled Airspace
✈ 602.115 Minimum Visual Meteorological Conditions for VFR Flight in Uncontrolled Airspace
✈ 602.116 VFR Over-the-Top
✈ 602.117 Special VFR Flight

Radiocommunications
- 602.133 Language Used in Aeronautical Radiocommunications
- 602.134 Request for Air Traffic Services
- 602.136 Continuous Listening Watch
- 602.138 Two-way Radiocommunication Failure in VFR Flight

Emergency Communications and Security
- 602.143 Emergency Radio Frequency Capability
- 602.144 Interception Signals, Interception of Aircraft and Instructions to Land
- ✈ 602.145 ADIZ
- 602.146 ESCAT Plan

603 – Special Flight Operations

Special Aviation Events
- 603.01 Certification Requirements for Special Aviation Events

Parachuting
- 603.36 Application
- 603.37 Certification Requirements for Parachute Operations

Miscellaneous Special Flight Operations
- 603.65 Application
- 603.66 Certification Requirements

604 – Private Operators

General Provisions
- 604.01 Interpretation
- 604.02 Application
- 604.03 Prohibition

Flight Operations
- 604.25 Operational Control System
- 604.26 Designation of Pilot-in command and Second-in-command

Flight Operations - Documents
- 604.36 Checklist
- 604.37 Aircraft Operating Manual
- 604.38 Operational Flight Data Sheet

Flight Operations - Passengers
- 604.82 Cabin Safety
- 604.83 Fueling with Passengers on Board
- 604.84 Fueling with Passengers on Board and Engine Running
- 604.85 Briefing of Passengers

604.86 Safety Features Card

Flight Time and Flight Duty Period
✈ 604.98 Flight Time Limits
✈ 604.99 Flight Duty Period Limits and Rest Periods
✈ 604.100 Split Flight Duty Period
✈ 604.101 Extension of Flight Duty Period
✈ 604.102 Unforeseen Operational Circumstances
✈ 604.103 Delayed Reporting Time
✈ 604.104 Time with no Assigned Duties
604.105 Rest Period – Flight Crew Member Positioning
604.106 Controlled Rest on the Flight Deck

Maintenance
604.128 Maintenance, Elementary Work and Servicing

Personnel Requirements
604.139 Validity Periods
604.143 Flight Crew Member Qualifications and Training

Operations Manual
604.198 Distribution

Safety Management System
604.205 Duties of Personnel

605 – Aircraft Requirements

Aircraft Requirements - General
605.03 Flight Authority
605.04 Availability of Aircraft Flight Manual
605.05 Markings and Placards
✈ 605.06 Aircraft Equipment Standards and Serviceability
605.07 Minimum Equipment List
605.08 Unserviceable and Removed Equipment – General
605.09 Unserviceable and Removed Equipment – Aircraft with a Minimum Equipment List
605.10 Unserviceable and Removed Equipment – Aircraft without a Minimum Equipment List

Aircraft Equipment Requirements
605.14 Power-driven Aircraft – Day VFR
605.15 Power-driven Aircraft – VFR OTT
605.16 Power-driven Aircraft – Night VFR
605.17 Use of Position and Anti-collision Lights
605.22 Seat and Safety Belt Requirements

605.23 Restraint System Requirements
605.24 Shoulder Harness Requirements
605.25 General Use of Safety Belts and Restraint Systems
605.26 Use of Passenger Safety Belts and Restraint Systems
605.27 Use of Crew Member Safety Belts
605.28 Child Restraint System
605.29 Flight Control Locks
605.30 De-icing or Anti-icing Equipment
✈ 605.31 Oxygen Equipment and Supply
605.32 Use of Oxygen
605.35 Transponder and Automatic Pressure-Altitude Reporting Equipment
605.38 ELT
605.39 Use of ELTs.
✈ 605.40 ELT Activation

Aircraft Maintenance Requirements
605.84 Aircraft Maintenance – General
605.85 Maintenance Release and Elementary Work
605.86 Maintenance Schedule
605.88 Inspection after Abnormal Occurrences

Technical Records
605.92 Requirement to Keep Technical Records – Sub-section (1) and (2)
605.93 Technical Records – General
605.94 Journey Log Requirements
605.95 Journey Log – Carrying on Board
605.97 Transfer of Records

606 – Miscellaneous
606.01 Munitions of War
606.02 Liability Insurance
606.03 Synthetic Flight Training Equipment

Part VII – Commercial Air Services

General
700.02 Requirements for Air Operator Certificate

Portable Electronic Device
700.12 Portable Electronic Device

Flight Crew Member Fatigue Management
700.19 Non-application and Interpretation
700.20 Monitoring System and Records
700.26 Fitness for Duty
✈ 700.27 Maximum Flight Time

✈ 700.28 Maximum Flight Duty Period
700.29 Maximum Number of Hours of Work
700.36 Home Base
700.37 Nutrition Break
✈ 700.40 Rest Periods – General
700.41 Disruptive Schedules
700.42 Rest Periods – Time Zone Differences
700.43 Rest Period - Positioning
✈ 700.50 Split Flight Duty
700.51 Consecutive Flight Duty Periods
700.52 Delayed Reporting Time
700.63 Unforeseen Operational Circumstances – Flight Duty Period and Rest Period
700.64 Unforeseen Operational Circumstances – Split Flight Duty
700.70 Flight Crew Member on Reserve
700.71 Flight Crew Member on Standby
700.72 Controlled Rest on Flight Deck

NOTE: Maximum Flight Duty Period tables required to answer questions will be provided within the examination appendix.

Flight Crew Member Fatigue Management – Medical Evacuation Flights
700.100 Application and Interpretation
700.101 Monitoring System and Records
700.102 Fitness for Duty
✈ 700.103 Maximum Flight Time
✈ 700.104 Maximum Flight Duty Period
✈ 700.116 Rest Period – General
700.117 Rest Period – Positioning
✈ 700.118 Split Flight Duty
✈ 700.119 Time Free from Duty
700.120 Consecutive Flight Duty Periods
700.121 Delayed Reporting Time
700.133 Unforeseen Operational Circumstances
700.134 Flight Crew Member on Reserve

702 – Aerial Work

General
702.01 Application

Flight Operations
702.11 Operating Instructions – Sub-section (2)
702.13 Flight Authorization
702.14 Operational Flight Plan
702.16 Carriage of Persons

702.17 VFR Flight Minimum Flight Visibility – Uncontrolled Airspace
702.18 Night, VFR OTT and IFR Operations
702.20 Aircraft Operating over Water
702.23 Briefing of Persons Other Than Flight Crew Members
702.24 Operation of Aircraft in Icing Conditions

Aircraft Equipment Requirements
✈ 702.42 Night and IMC Flights – Sub-section (1)
702.44 Shoulder Harnesses
✈ 702.45 External Load Equipment

Personnel Requirements
702.64 Designation of Pilot-in-command and Second-in-command
✈ 702.65 Flight Crew Member Qualifications – Sub-sections (a), (c) and (d)
702.67 Validity Period – Sub-sections (1) and (2)

Training
702.76 Training Program – Sub-sections (1) and (2)

Manuals
702.83 Distribution of Company Operations Manual
702.84 Standard Operating Procedures

Flight Time, Flight Duty Period Limitations and Rest Periods
702.91 Monitoring System
✈ 702.92 Maximum Flight Time
✈ 702.93 Maximum Flight Duty Period and Rest Periods
✈ 702.94 Unforeseen Operational Circumstances
702.95 Delayed Reporting Time
702.96 Time Free from Duty
702.97 Flight Crew Member Positioning

NOTE: Maximum Flight Duty Period tables required to answer questions will be provided within the examination appendix.

703 – Air Taxi Operations

General
703.01 Application

Flight Operations
703.14 Operating Instructions – Sub-section (2)
703.16 Operational Control System
703.17 Flight Authorization
703.18 Operational Flight Plan
703.19 Maintenance of Aircraft

- ✈ 703.20 Fuel Requirements
- ✈ 703.22 Transport of Passengers in Single-engined Aircraft
- 703.23 Aircraft Operating over Water
- 703.24 Number of Passengers in Single-engined Aircraft
- 703.25 Carriage of External Loads
- 703.26 Simulation of Emergency Situations
- 703.27 VFR Flight Obstacle Clearance Requirements
- 703.28 VFR Flight Minimum Flight Visibility – Uncontrolled Airspace
- 703.29 VFR Flight Weather Conditions
- 703.33 VFR OTT Flight
- 703.34 Routes in Uncontrolled Airspace
- 703.37 Weight and Balance Control – Sub-section (1)
- 703.39 Briefing of Passengers
- 703.42 Operation of Aircraft in Icing Conditions

Aircraft Equipment Requirements

- 703.64 Night and IMC Flight – Sub-section (2)
- ✈ 703.66 Additional Equipment for Single-pilot Operations
- 703.69 Shoulder Harnesses

Personnel Requirements

- 703.87 Designation of Pilot-in-command and Second-in-command
- ✈ 703.88 Flight Crew Member Qualifications – Sub-sections (1) and (3)
- 703.91 Validity Period – Sub-section (1)

Training

- 703.98 Training Program – Sub-sections (1) and (2)

Manuals

- 703.106 Distribution of Company Operations Manual
- 703.107 Standard Operating Procedures

706 – Aircraft Maintenance Requirements for Air Operators

- ✈ 706.02 Maintenance Control System
- 706.09 Maintenance Arrangements
- 706.10 Elementary Work
- 706.11 Servicing

Transportation Safety Board of Canada (TSB) – (TC-AIM GEN 3.0)

1 Definitions
2 Reporting and Aviation Occurrence
3 Keeping and Preservation of Evidence

Air Traffic Services and Procedures – (TC-AIM RAC)

1 Air Traffic Services and Information Services
2 Flight Service Stations (FSS), Flight Information Centers
3 Communication Procedures
4 ATS Surveillance Service
5 ATC Clearances/Instructions/ Mandatory Readback Procedures
6 Wake Turbulence Separation
✈ 7 Aerodrome Operations - Controlled and Uncontrolled
✈ 8 Mandatory (MF) and Aerodrome Traffic Frequencies (ATF)
✈ 9 Common Frequency Areas (CFA)
10 VFR Enroute Procedures
11 VFR Holding Procedures
✈ 12 Operations on Intersecting Runways Including LAHSO
13 Procedures for the Prevention of Runway Incursion
14 ESCAT Plan

International Flight Procedures

1 Entry, Transit and Departure of Aircraft (AIP Canada Part 1, GEN 1.2)
2 Canada Transportation Act Part II - Air Transportation, Section 57 Prohibitions
Air Transportation Regulations Part I and VII
3 Canada Labor Code Part II - Occupational Safety & Health, Employee Rights & Duties (sections 124, 125 and 126) and TC AIM – GEN 2.1
4 Transportation of Dangerous Goods by Air
(TC AIM - RAC 12.3)

Navigation

Navigation and Radio Aids

Definitions

1 Meridian
2 Prime Meridian
3 Longitude
4 Equator
5 Latitude
6 Rhumb Line
7 Great Circle
8 Variation
9 Isogonal
10 Agonic Line
11 Deviation
12 Track
13 Heading
14 Airspeed
15 Ground Speed
16 Air Position
17 Ground Position
18 Bearing
19 Wind Velocity
20 Drift

Maps and Charts

1 Characteristics of Projections
2 VTA – Transverse Mercator Projection
3 VNC – Lambert Conformal Conic Projection
4 Topographical Symbols
5 Elevation and Contours (Relief)
6 AIP Canada Supplements (SUP)
7 Scale and Units of Measurement
8 Locating Position by Latitude and Longitude
✈ 9 Navigation Aids
✈ 10 Enroute Low Altitude Charts

Time and Longitude

1 24-hour System
2 Time Zones and Relation to Longitude
3 Conversion of UTC to Local and Vice Versa
4 Morning and Evening Twilight Charts

Pilot Navigation

1 Use of Aeronautical Charts
2 Measurement of Track and Distance
3 Map Reading
4 Setting Heading – Visual Angle of Departure
5 Checkpoints and Pinpoints
✈ 6 Use of Position Lines to Obtain a Fix
7 Ground Speed Checks and ETA Revisions
8 Track Made Good
9 Determining Drift by 10^{o} Lines
10 1 in 60 Rule
✈ 11 Double Track Error Method to Regain Track
✈ 12 Sum of Opening and Closing Angles to Destination
13 Visual Alteration Method of Correcting to Track
14 Diversion to Alternate
15 Return to Departure Point (Reciprocal Track)
16 Low Level Navigation
17 Deduced (Dead) Reckoning (DR Navigation)
18 In-flight Log and Mental Calculations
19 Procedures When Lost
20 Air and Ground Position
21 Variation/Deviation

22 True Track/Magnetic Track
23 True/Magnetic/Compass Headings
24 Indicated/Calibrated Airspeed (IAS/CAS)
25 True Airspeed/Ground Speed (TAS, GS)
26 Compass Errors
27 Radio Communications (as per Section 1.)

Triangle of Velocities

1 True Airspeed and Heading
2 Wind Velocity
3 Ground Speed and Track

Navigation Computers

1 Heading and True Airspeed
✈ 2 Applying the Wind
3 True Track and Ground Speed
4 Magnetic Heading and Magnetic Track
✈ 5 Pressure/Density and True Altitudes
✈ 6 Indicated/Calibrated/True Airspeed
✈ 7 Time/Ground Speed/Distance
✈ 8 Fuel Consumption and Conversions
✈ 9 Climbs/Descents

Pre-Flight Preparation

1 Factors Affecting Choice of Route
2 Map Preparation
✈ 3 Meteorological Information
✈ 4 NOTAM
✈ 5 AIP Supplements
6 Selection of Checkpoints
✈ 7 Fuel Requirements
✈ 8 Weight and Balance
✈ 9 Use of Canada Flight Supplement
10 Documents to be Carried in Aircraft
11 Flight Plans and Itineraries
✈ 12 Flight Log Forms
✈ 13 Aircraft Serviceability

Radio Theory

1 Characteristics of Low/High and Very High Frequency Radio Waves
2 Frequency Bands Used in Navigation and Communication
✈ 3 Operational Limitations

VHF Omnidirectional Range (VOR)

1 Principles of Operation
2 Aircraft Equipment
3 Tuning and Identifying
4 Serviceability Check
✈ 5 Interpretation/Orientation/Homing
✈ 6 Intercepting Predetermined Radials and Tracking
✈ 7 Position Lines and Fixes
8 Time and Distance Formula
9 VHF (VOR) Airways and Air Routes

Automatic Direction Finder (ADF)

1 Principles of Operation
2 Aircraft Equipment
3 Tuning and Identifying
4 Serviceability Check
5 Interpretation/Orientation/Homing
✈ 6 Intercepting Predetermined Tracks and Tracking
✈ 7 Position Lines and Fixes
✈ 8 Relative Bearings/Conversion to Magnetic/True Bearings
9 Time and Distance Formula
10 Inaccuracies/Limitations
11 LF/MF (NDB) Airways and Air Routes

Radio Magnetic Indicator (RMI)

1 Basic Principles, Uses and Limitations

Global Navigation Satellite System (GNSS/GPS)

1 Principles of Operation
2 Aircraft Equipment
3 Serviceability Checks
✈ 4 Interpretation, Orientation and Tracking
5 T-routes (TC-AIM RAC 2.7.1)

Other Radio, Radar Aids, and Surveillance Services – Basic Principles and Use

✈ 1 Distance Measuring Equipment (DME)
✈ 2 Transponder
3 Automatic Dependent Surveillance – Broadcast (ADS-B)
4 Emergency Locator Transmitter (ELT)
5 Primary and Secondary Surveillance Radars (PSR, SSR)
6 Traffic Alert and Collision Avoidance System (TCAS)

Electronic Flight Bag & Portable Electronic Devices

✈ 1 Basic Principles, Use and Limitations
✈ 2 Power Sources, and Backup
✈ 3 Distraction Management
4 Fire Hazards

Meteorology

The Earth's Atmosphere

1 Composition and Physical Properties
2 Vertical Structures
3 Standard Atmosphere
4 Density and Pressure
5 Mobility
6 Expansion and Compression

Atmospheric Pressure

1 Pressure Measurements
2 Station Pressure
3 Sea Level Pressure
4 Pressure Systems and Their Variations
5 Effects of Temperature
6 Isobars
7 Horizontal Pressure Differences

Meteorological Aspects of Altimetry

✈ 1 Pressure Altitude
✈ 2 Density Altitude
3 Altimeter Settings
✈ 4 Considerations when Flying to/from High to Low Pressure or Temperature Areas, and Vice Versa

Temperature

1 Temperature Scale – Fahrenheit/Celsius
2 Heating and Cooling of the Atmosphere – Convection, Advection, and Radiation
3 Horizontal Differences
4 Temperature Variations with Altitude
5 Inversions
6 Isothermal Layers

Moisture

1 Relative Humidity and Dewpoint
2 Change of State
3 Sublimation and Condensation
4 Cloud Formation
5 Precipitation
✈ 6 Saturated and Dry Adiabatic Lapse Rate

Stability and Instability

1 Lapse Rate and Stability
2 Modification of Stability
✈ 3 Characteristics of Stable and Unstable Air
4 Surface Heating and Cooling
✈ 5 Lifting Processes
✈ 6 Subsidence and Convergence

Clouds

1 Classification
2 Formation and Structure
3 Types and Recognition
✈ 4 Associated Precipitation and Turbulence

Surface Based Layers

✈ 1 Fog Formation
2 Fog Types (including mist)
3 Haze and Smoke
4 Blowing Obstruction to Vision

Turbulence

1. Convection
2. Mechanical
3. ✈ Orographic
4. ✈ Wind Shear
5. Clear Air Turbulence
6. Reporting Criteria

Wind

1. Definition
2. Pressure Gradient
3. Deflection Caused by the Earth's Rotation
4. ✈ Low Level Winds – Variation in Surface Wind
5. Friction
6. Centrifugal Force
7. ✈ Veer/Back
8. ✈ Squall/Gusts
9. Diurnal Effects
10. Land and Sea breezes
11. Katabatic and Anabatic Effects
12. Topographical Effects
13. ✈ Wind Shear – Types and Causes
14. Jet Stream – Composition, Altitude and Seasonal Variance

Air Masses

1. Definition and Characteristics
2. ✈ Formation and Classification
3. Modification
4. Factors that Determine Weather
5. Seasonal and Geographic Effects
6. Air Masses Affecting North America

Fronts and Frontal Weather

1. Structure
2. Types
3. Formation
4. ✈ Cross-sections
5. Frontogenesis, Frontolysis
6. ✈ Cold Front
7. ✈ Warm Front
8. ✈ Trowal and Upper Front

Aircraft Icing

1. ✈ Formation
2. In-flight – Freezing rain
3. Hoar Frost
4. ✈ Impact of Icing (Engine)

Thunderstorms

1. ✈ Requirements for Development
2. Structure and Development
3. Types – Air Mass and Frontal
4. ✈ Hazards – Updrafts, Downdrafts, Gust Fronts, Downbursts, Microbursts, Hail and Lightning
5. Squall Lines

Other Hazards

1. Hurricane
2. Tornado
3. Forest fires
4. Dust/Sand Whirls (Dust Devils)
5. Eclipse

Meteorological Services Available to Pilots

1. Aviation Weather Services
2. Collaborative Flight Planning Services (CFPS)
3. Weather Information from Air Traffic Service (ATS)
4. Flight Service Stations (FSS) and Flight Information Centers (FIC)

Aviation Weather Reports

1. Decoding
2. Aerodrome Routine Meteorological Reports (METAR)
3. Automated Equipment: Automated Weather Observation Systems (AWOS), Limited Weather Information System (LWIS) and Automatic Reports (AUTO).
4. Pilot Weather Report (PIREP)

Aviation Forecasts

1. Times Issued and Validity Periods
2. Decoding
3. Graphic Area Forecast (GFA)
4. Aerodrome Forecasts (TAF)
5. Upper-Level Wind and Temperature Forecasts (FB)
6. Airman's Meteorological Advisory (AIRMET)
7. Significant In-flight Weather Warning Message (SIGMET)

Weather Maps and Prognostic Charts

1. Times Issued and Validity Period
2. Symbols and Decoding
3. Surface Analysis Chart
4. Upper Air Analysis Charts – Weather Information to 500 hPa Level
5. Significant Weather Prognostic Chart (Upper Air) 700-400 hPa

Aeronautics - General Knowledge

Airframes, Engines and Systems

Airframes

1 Types of Construction
2 Handling, Care and Securing

Landing Gear, Brakes and Flaps

1 Mechanical
2 Hydraulic
3 Electrical

Engines

1 Two and Four Stroke Cycle
2 Methods of Cooling
3 Principle of the Magneto
4 Dual Ignition
5 Exhaust Systems
6 Ancillary Controls
✈ 7 Turbocharging
✈ 8 Effects of Density Altitudes and Humidity
9 Limitations and Operations
10 Instruments
11 Principles of Diesel Engines
12 Principles of Turbine Engines
13 Engine Handling and Care
14 Full Authority Digital Engine Control (FADEC)

Electric Propulsion

1 Principle of Operations for Electric Motors
2 Principle of Electronic Magneto
3 Principle of Operations and Considerations for Charging
4 Types of Batteries for Electrical Systems
5 Limitations and Operations

Carburation

✈ 1 Theory of Operation
2 Fuel-air Mixture
3 Mixture Controls
✈ 4 Carburettor Icing
✈ 5 Use of Carb Heat and its Effects on Mixture

Fuel Injection

1 Principle and Operation
2 Icing
3 Alternate Air

Electrical System

1 Generator, Alternator, and Battery
2 Master, Alternator and Generator Switches
3 Lighting
4 Ammeter and Load Meter
5 Bus Bars
6 Circuit Breakers and Fuses
7 Grounding and Bonding

Lubricating Systems and Oils

1 Types, Viscosity, Grades, and Seasonal Use
2 Purposes
3 Methods of Lubrication
4 Venting
5 Filters
6 Pressure Relief
7 Oil Cooler

Fuel System and Fuels

- ✈ 1 Types – Colour and Properties
- 2 Density and Weight
- 3 Additives
- 4 Contamination and Deterioration
- 5 Tank Location
- 6 Venting and Baffling
- 7 Fuel Line – Filters and Drains
- 8 Induction Manifold
- 9 Detonation and Pre-ignition – Causes and Effects
- 10 Vapour Lock
- 11 Fuel Heater
- 12 Primers
- 13 Fuel Management – Ground and Air
- ✈ 14 Fuel Handling – Fuelling Aircraft
- ✈ 15 Grounding and Bonding
- 16 Winter Considerations

Other Aircraft Systems

- 1 Oxygen
- 2 Vacuum
- 3 Pressurization
- 4 De-icing and Anti-icing Systems
- 5 Environmental Systems

Theory of Flight

Principles of Flight

1 Bernoulli's Theorem
2 Newton's Laws

Forces Acting on an Aeroplane

1 Lift
2 Drag – Induced, Parasite and Profile
✈ 3 Relationship of Lift and Drag to Angle of Attack
4 Thrust
5 Weight
6 Equilibrium
✈ 7 Centre of Pressure
8 Centrifugal and Centripetal Forces
✈ 9 Forces Acting on an Aircraft During Manoeuvres
10 Roll Upset

Aerofoils

1 Pressure Distribution about an Aerofoil
✈ 2 Relative Airflow and Angle of Attack
3 Aerodynamic Effects of Airborne Icing
4 Downwash
5 Wing Tip Vortices
6 Angle of Incidence

Propellers

1 Propeller Efficiency at Various Speeds
✈ 2 Fixed and Variable Pitch Propellers
3 Torque, Slipstream, Gyroscopic Effect and Asymmetric Thrust
4 Propeller Handling and Care

Design of the Wing

1 Wing Planform
2 Area, Span and Chord
3 Aspect Ratio
4 Streamlining
5 Camber
6 Laminar Flow
7 Sweepback
8 Dihedral and Anhedral
9 Wash-in and Wash-out
10 Slots and Slats
11 Wing Fences and Stall Strips
12 Spoilers
13 Flaps
14 Vortex Generators
15 Winglets
16 Canards

Load Factor

1 Centrifugal Force and Weight
2 Load Factor – Linear and Turns
✈ 3 Relationship of Load Factor to Stalling Speed
4 Structural Limitations
5 Gust Loads

Stability

1 Longitudinal, Lateral and Directional Stability
2 Inherent Stability
3 Methods of Achieving Stability, Effect of CG Position

Flight Controls

1 Aeroplane Axes and Planes of Movement
2 Functions of Controls
3 Relationship Between Effects of Yaw and Roll
4 Adverse Yaw and Aileron Drag
5 Static and Dynamic Balancing of Controls
6 Trim and Trimming Devices
7 Autopilots – Axes and Modes of Control Available

Flight Instruments

Pitot Static System

1 Pitot
2 Static
3 Anti-icing
4 Alternate Static – Source and Errors

Airspeed Indicator

1 Principles of Operation
✈ 2 Errors and Malfunctions
3 Markings
4 Definitions – IAS, CAS, TAS

Vertical Speed Indicator

1 Principles of Operation
✈ 2 Errors and Malfunctions
3 Lag

Altimeter/Encoding Altimeter

1 Principles of Operation
✈ 2 Errors and Malfunctions

Radio/Radar Altimeter

1 Principles of Operation
2 Limitations

Magnetic Compass

1 Principles of Operation
2 Magnetic Dip
3 Variation
4 Factors Adversely Affecting Compass Operation
5 Reading the Compass
6 Deviation
7 Compass Correction Card
8 Turning and Acceleration Errors
9 Compass Serviceability Checks
10 Compass Swinging – Frequency/Basic Methods
11 Checking Compass Heading on the Ground and in Flight

Gyroscope

1 Principles of Operation
2 Inertia
3 Precession

Heading Indicator

1 Principles of Operation
✈ 2 Errors and Malfunctions
3 Limitations
4 Power Sources
5 Slaved Compass System / Slaved HSI/RMI

Attitude Indicator

1 Principles of Operations
✈ 2 Errors and Malfunctions
3 Limitations
4 Power Sources

Turn and Bank Indicator/Turn Co-Ordinator

✈ 1 Principles of Operations
✈ 2 Errors and Malfunctions
3 Limitations
4 Power Sources

Electronic Flight Instrument System (EFIS)

1 Principles of Operations
2 Errors
3 Limitations
4 Power Sources

Instrument Flying

1 Loss of Visual Reference
2 The Control and Performance Instruments
3 Instrument Scan and Interpretation
4 Aircraft Control
5 Partial Panel
6 Unusual Attitudes and Recoveries

Flight Operations

General

	1	Pilot-In-Command Responsibilities
	2	Aircraft Defects and Minimum Equipment List
	3	Winter Operations
	4	Thunderstorms Avoidance
	5	Mountain Flying Operations
	6	Wildlife Hazards
	7	Wildlife Conservation
	8	Collision Avoidance – Use of Landing Lights
✈	9	Runway Surface Condition (RSC) and Canadian Runway Friction Index (CRFI)
	10	Runway Numbering
✈	11	Displaced Threshold
	12	Airport Rotating Beacon
	13	Visual Approach Slope Indicator Systems (VASIS): VASI, AVASI, PAPI, and APAPI
	14	Approach, Runway and Aerodrome Markings and Lighting
	15	Obstruction Marking and Lighting
	16	Aerodrome Operations (Including Marshalling Signals and Procedures for the Prevention of Runway Incursions)
	17	Units of Measurements and Conversion
	18	Radio Communications
	19	Wheelbarrowing
✈	20	Porpoising
	21	Hydroplaning
	22	Taxiing
✈	23	Effects of Wind and Wind Shear
	24	Sideslips
	25	Radio/Electronic Interference and Portable Electronic Devices

Aircraft Performance

	1	Lift/drag Ratio
✈	2	Effects of Density Altitude and Humidity
	3	Attitude Plus Power Equals Performance – Climb, Descent, Level Flight
	4	Normal, Short, Soft, and Rough Field Take-offs and Landing
	5	Ground Effect
	6	Best Angle of Climb (V_x)
	7	Best Rate of Climb (V_y)
	8	Manoeuvring Speed (Va)
	9	Normal Operating Limit Speed (V_{no})
	10	Never Exceed Speed (V_{ne})
	11	Maximum Flap Speed (V_{fe})
✈	12	Reference Landing Speed (V_{ref})
	13	Maximum Gear Operating Speed (V_{lo})
	14	Gliding for Range
✈	15	Flying for Range
✈	16	Flying for Endurance
	17	Slow Flight
	18	Stalls
	19	Indicated and True Stalling Speed
	20	Stall Speed vs Altitude
	21	Spins
	22	Spirals
	23	Recommended Safe Recovery Altitudes
	24	Bank and Speed vs Rate and Radius of Turn
✈	25	Effects of Change of Weight or Centre of Gravity (CG) on Performance
	26	Use of Aircraft Flight Manual and Approved and Unapproved Operational Information
	27	External Loads (e.g. Miniature Cameras)

Use of Performance Charts

- ✈ 1 Take-off Charts
- ✈ 2 Crosswind Charts
- 3 Climb/Descent Charts
- ✈ 4 Cruise Charts
- ✈ 5 Fuel Burn Charts
- ✈ 6 Landing Charts
- ✈ 7 Performance (V) Speeds – V_a, V_{no}, V_{fe}, V_{lo}, V_{ne}, V_s, V_x, V_y
- ✈ 8 Effect of Ice, Snow, Frost, Slush and Water on Takeoff and Landing Distance
- 9 Effect of Various Runway Surfaces on Take-off and Landing Distance
- 10 Upslope, Downslope Runway
- 11 Runway Surface Condition (RSC) and Canadian Runway Friction Index (CRFI)

Weight and Balance

- 1 Terms – e.g. Datum, Arm, Moment and MAC
- ✈ 2 Standard Weights
- ✈ 3 Segmented Weights
- ✈ 4 Locating CG
- ✈ 5 CG Limits
- 6 Weights – e.g. Empty Weight, Gross Weight and Maximum Landing Weight
- ✈ 7 Load Adjustment
- ✈ 8 Cargo Tie-down and Passenger Loading
- 9 Normal and Utility Category
- 10 Zero Fuel Calculation
- 11 Maximum Zero Fuel Weight

Wake Turbulence

- 1 Causes
- 2 Effects
- 3 Avoidance

Search and Rescue (SAR) (TC AIM – SAR Information)

- 1 Types of Service Available, Request for Assistance and Aiding Persons in Distress
- ✈ 2 Use of ELT
- 3 Aircraft Emergency Assistance
- 4 Survival – Basic Techniques

Aircraft Critical Surface Contamination

- ✈ 1 Effects of Aircraft Critical Surface Contamination on Performance
- 2 Frozen Contaminants and Removal Techniques
- 3 Cold-Soaking Phenomenon
- ✈ 4 Pre-takeoff Contamination Inspection
- ✈ 5 Practices for Pilots to Ensure a Clean Aircraft
- 6 Types of Ice
- 7 De-Icing/Anti-Icing Fluids - Type I, II, III, IV
- 8 Correct Uses of De-icing and Anti-icing Fluids

Human Factors

Aviation Physiology

- ✈ 1 Hypoxia and Hyperventilation
- 2 Gas Expansion and Trapped Gasses Effects
- 3 Decompression (Including Scuba Diving)
- 4 Visual Scanning Techniques and Visual References
- 5 Hearing
- 6 Orientation and Disorientation (Including Visual and Vestibular Illusions)
- 7 Positive and Negative “G”
- 8 Airsickness
- 9 Body Rhythms and Jet Lag
- 10 Sleep and Fatigue
- 11 Anaesthetics
- 12 Blood Donation

The Pilot and the Operating Environment

- 1 Individual Health and Fitness
- 2 Diet, Nutrition and Fasting
- ✈ 3 Medications (Prescribed and over the Counter)
- ✈ 4 Substance Use (Alcohol, Drugs, and Intoxicants)
- 5 Pregnancy
- 6 Heat and Cold
- 7 Noise and Vibration
- 8 Effects of Smoking and Vaping
- ✈ 9 Toxic Hazards (Including Carbon Monoxide)

Aviation Psychology

- 1 The Decision-Making Process
- ✈ 2 Factors that Influence Decision-Making
- 3 Situational Awareness
- 4 Stress
- 5 Risk Management
- 7 Hazardous Attitudes
- ✈ 8 Workload - Attention and Information Processing

Pilot – Equipment and Materials Relationship

- 1 Controls and Displays – Errors in Interpretation and Control
- 2 Standard Operating Procedures – Rationale and Benefits
- 3 Maps and Charts - Errors in the Interpretation and Use
- 4 Interaction with Automation, Electronic Flight Bags, GNSS/GPS Moving Maps
- 5 Correct Uses of Checklists and Manuals

Interpersonal Relations

- 1 Communications with Flight Crew, Ground Personnel, Maintenance Personnel, Air Traffic Services, and Passengers
- 2 Family Relationships and Peer Group Pressures and Goal Conflicts
- 3 Operating Pressures - Employer

Threat and Error Management (TEM)

- 1 Sources, Contributors
- 2 Countermeasures
- ✈ 3 Undesired Aircraft State
- 4 Related to Crew Resource Management (CRM) / Single-pilot Resource Management (SPRM)

Recommended Study Material

- Flight Training Manual (TP 1102E)
- Aeronautical Information Manual (TC AIM) (TP 14371E)
- Canadian Aviation Regulations (CARs)
- Human Factors for Aviation - Basic Handbook (TP 12863E) and Advanced Handbook (TP12864E)
- Student Pilot Permit or Private Pilot Licence for Foreign and Military Applicants, Aviation Regulations (PSTAR) (TP 11919E)
- VFR Phraseology Guide by NAV CANADA https://www.navcanada.ca/en/vfr-phraseology.pdf
- Flight Crew Recency Requirements Self-Paced Study Program (on tc.gc.ca website)
- RCAF Weather Manual (TP 9352E) (Formerly known as *Air Command Weather Manual*)
- MANAB: Manual of Word Abbreviations
- Aviation Meteorology Reference (AVMET) by Nav Canada https://avmet.navcanada.ca/
- When in Doubt… Small and Large Aircraft, Aircraft Critical Surface Contamination Training (TP 10643E)
- Handbook for Civil Aviation Medical Examiners (TP 13312E)
- Canada Flight Supplement (CFS)
- VFR Navigation Charts (VNC) / VFR Terminal Area Charts (VTA)
- Enroute Charts - Low Altitude
- How to use NAV CANADA Aeronautical Information Products https://www.navcanada.ca/en/how-to-use-nav-canada-aeronautical-information-products.pdf
- AIP Canada: Part 1 GEN, Part 2 ENR, and Part 3 AD
- Aeronautical Information Circulars (AIC) published by NAV CANADA
- Designated Airspace Handbook (DAH) (TP – 1820E)
- Transportation of Dangerous Goods on TC website.
- Information on Air Transportation Licences is available from the Canadian Transportation Agency (https://otc-cta.gc.ca/)
- Customs Requirements from the Canada Border Services Agency (https://www.cbsa-asfc.gc.ca/)
- Information on the Canada Labour Code is available from Employment and Social Development Canada (http://laws-lois.justice.gc.ca/eng/acts/l-2/index.html).
- Aerodrome Standards and Recommended Practices (TP 312E)
- AC 700-065 – Potential for High Energy Fires Due to Lithium-Ion Batteries
- AC 500-004 – External Loads on Aeroplanes – Approval Process and Flight Test Considerations
- AC 700-020 – Electronic Flight Bags
- AC 700-031 – Prevention and Recovery from Aeroplane Stalls
- AC 700-057 – Global Reporting Format (GRF) for Runway Surface Conditions: Guidance for Flight Operations

- The Use of Automobile Gasoline (MOGAS) in Aviation (TP 10737E)
- Aviation Safety Letter (https://tc.canada.ca/en/aviation/publications/aviation-safety-letter)

The Study Guide (RIC-21) for the Restricted Operator Certificate with Aeronautical Qualification (ROC-A) is available free of charge from Innovation, Science and Economic Development Canada (https://ised-isde.canada.ca/). Information on textbooks and other publications produced by commercial publishers can be obtained through local flight training units, bookstores, and similar sources.

Recommended Study Material for the FAA Conversion Examination

Candidates attempting the examination for conversion from an FAA certificate to a Canadian Commercial pilot licence (FAACA examination) are encouraged to review the following references as they apply to aeroplanes in VFR operations:

CARs Part I, Subpart 1 — **General Provisions**

101.01 - Interpretation (definitions as needed)

CARs Part IV, Subpart 1 — **Flight Crew Permits, Licences and Ratings**

401.05 – Recency Requirements
401.30 – Commercial Pilot Licence, Aeroplanes – Privileges and Requirements

CARs Part IV, Subpart 4 — **Medical Requirements**

404.04 – Issuance, Renewal, Validity Period and Extension of a Medical Certificate

CARs Part VI, Subpart 1 — **Airspace**

Division I – Airspace Structure, Classification and Use
Division II – Aircraft Operating Restrictions and Hazards to Aviation Safety

CARs Part VI, Subpart 2 — **Operating and Flight Rules**

Division I – General
Division II – Operational and Emergency Equipment Requirements
Division III – Flight Preparation, Flight Plans and Flight Itineraries
Division IV – Pre-Flight and Fuel Requirements
Division V – Operations at or in the Vicinity of an Aerodrome
Division VI – Visual Flight Rules
Division VIII – Radiocommunications
Division IX – Emergency Communications and Security

CARs Part VI, Subpart 5 — **Aircraft Requirements**

Division I – Aircraft Requirements – General
Division II – Aircraft Equipment Requirements

CARs Part VII, Subpart 0 — **Commercial Air Services – General**

Division III – Flight Crew Member Fatigue Management
Division IV – Flight Crew Member Fatigue Management – Medical Evacuation Flights

CARs Part VII, Subpart 2 — **Aerial Work**

Division I – General
Division III – Flight Operations
Division V – Aircraft Equipment Requirements

	Division VII – Personnel Requirements Division IX – Manuals
CARs Part VII, Subpart 3	**Air Taxi Operations** Division I – General Division III – Flight Operations Division V – Aircraft Equipment Requirements Division VII – Personnel Requirements Division IX – Manuals
TC AIM – GEN	**General** 1.0 – General Information 3.0 – Transportation Safety Board of Canada (TSB)
TC AIM – AGA	**Aerodromes** 7.14 – Aerodrome Lightning – Aircraft Radio Control of Aerodrome Lightning (ARCAL)
TC AIM – COM	**Communications, Navigation and Surveillance** 1.7 – Voice Communications – Phone Use During a Radio Communications Failure
TC AIM – RAC	**Rules of the Air and Air Traffic Services** 2.0 – Airspace – Requirements and Procedures 3.6 – Flight Planning – Changes to the Information in a Flight Plan or Flight Itinerary 3.11 – Flight Planning - Closing a Flight Plan 4.0 – Airport Operations 5.0 – VFR En Route Procedures
TC AIM – SAR	**Search and Rescue** 3.9 – ELT – Schedule of Requirements
TC AIM – MAP	**Aeronautical Charts and Publications** 2.0– Aeronautical Publications 2.3 – *AIP Canada* Aeronautical Information Circulars
TC AIM – LRA	**Licensing, Registration and Airworthiness** 1.12 – Flight Crew Licensing – Recency Requirements
TC AIM – AIR	**Airmanship** 1.6 – General Information – Canadian Runway Friction Index (CRFI) 2.12 – Flight Operations – Flight Operations in Winter

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:
https://tc.canada.ca/en/aviation/civil-aviation-contacts-offices

Letter of Recommendation for the Commercial Pilot Licence (Aeroplane) Written Examination

Name of Candidate (Print)	File Number
Name of Recommending Flight Instructor, Licence Number, and Instructor Class (Print)	
Flight Training Unit Name and Number (if applicable). (Print)	

To Whom it may Concern,

This is to certify that the candidate has completed the ground school instruction, and has reached a sufficient level of knowledge to attempt the written examination for a commercial pilot licence – aeroplane. *(CAR 421.13 (3) (a))*

The requirements as per CAR Standard 421.13 have been reviewed and confirmed as having been met to qualify for the written examination, and this letter is signed by a flight instructor with a valid license and rating. *(CAR 401.05, 421.05, 421.66)*

Flight time *(CAR 421.13 (4) (f))*: _____

Yours truly,

_____

Signature, and date (within 60 days prior to the date of the written examination)

Note: *The candidate should present this letter, together with photo-ID, proof of medical fitness and training/experience, and the appropriate examination fee, to the invigilating officer at any Transport Canada authorized examination centre.*

Letter of Recommendation for the Commercial Pilot Licence (Aeroplane) Supplementary Written Examination

Name of Candidate (Print)	File Number
Name of Recommending Flight Instructor, Licence Number and Instructor Class (Print)	
Flight Training Unit Name and Number (if applicable). (Print)	

To Whom it may Concern,

This is to certify that the candidate has received additional training, and has reached a sufficient level of knowledge to re-attempt the written examination for a commercial pilot licence – aeroplane for the following supplementary examination(s): *(CAR 400.04)*

☐ Air Law ☐ Meteorology

☐ Navigation ☐ Aeronautics – General Knowledge

The requirements as per CAR Standard 421.13 have been reviewed and confirmed as having been met to qualify for the written examination. This letter is signed by a flight instructor with a valid license and rating. *(CAR 401.05, 421.05, 421.66)*

Flight time *(CAR 421.13 (4) (f))*: _____

Yours truly,

_____

Signature, and date (within 60 days prior to the date of the written examination)

Note: *The candidate should present this letter, together with photo-ID, proof of medical fitness and training/experience, and the appropriate examination fee, to the invigilating officer at any Transport Canada authorized examination centre.*