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Study and Reference Guide
for written examinations
for the

Commercial Pilot Licence

Aeroplane

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GENERAL INFORMATION

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.

KNOWLEDGE REQUIREMENTS

Applicants for the Commercial Pilot Licence in the Aeroplane Category shall demonstrate their knowledge by writing a Transport Canada multiple choice examination 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 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 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

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 approved electronic navigation computers is available at: <http://www.tc.gc.ca/eng/civilaviation/opssvs/general-exams-computers-2011.htm>

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.

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.

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.

EXAMINATIONS

FULL EXAMINATION

Examination	Questions	Time Limit	Pass Mark
Commercial Pilot – Aeroplanes (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 each of the four mandatory subject areas.

They are:

Mandatory Subjects	Related Study and Reference Guide	Page
AIR LAW	Air Law and Procedures – Section 1	5
NAVIGATION	Navigation and Radio Aids – Section 2	15
METEOROLOGY	Meteorology – Section 3	17
AERONAUTICS - GENERAL KNOWLEDGE	Airframes, Engines, and Systems–Section 4	19
	Theory of Flight – Section 5	20
	Flight Instruments – Section 6	21
	Flight Operations – Section 7	22
	Human Factors – Section 8	24

Applicants who obtain less than 60% on the overall examination will, for licensing purposes, be required to rewrite the complete paper. The rewrite provisions detailed in the CARs, Part IV, apply.

SUPPLEMENTARY EXAMINATIONS

Applicants who obtain 60% or more on the overall 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 – Section 2 may require knowledge of VFR fuel requirements under Air Law and Procedures – Section 1.

HELICOPTER TO AEROPLANE EXAMINATION

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

Examination	Questions	Time Limit	Pass Mark
Commercial Pilot Aeroplane Rating – 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 Air 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)	30	1 hour	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 and Radar Aids; 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 a 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 references on pages 25 and 26 as they apply to aeroplanes in VFR operations.

AIR LAW

SECTION 1: AIR LAW AND PROCEDURES

CARs

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

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101 – INTERPRETATION

101.01 Interpretation (Definitions)

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

202 – AIRCRAFT MARKING AND REGISTRATION

AIRCRAFT MARKS

202.01 Requirements for Marks on Aircraft

CERTIFICATES OF REGISTRATION

202.26 Carrying Certificate of Registration on Board

TRANSFER OF LEGAL CUSTODY AND CONTROL

202.35 General

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301 – AERODROMES

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- 3 Communication Procedures
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SECTION 2: NAVIGATION AND RADIO AIDS

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- 2 Aircraft Equipment
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- 4 VHF Direction Finding (DF) Assistance
- 5 Surveillance Radar – Primary/Secondary

METEOROLOGY

SECTION 3: METEOROLOGY

THE EARTH'S ATMOSPHERE

- 1 Composition and Physical Properties
- 2 Vertical Structures
- 3 The 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 System 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 from High to Low Pressure and Temperature Areas, and vice versa

TEMPERATURE

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

MOISTURE

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

STABILITY AND INSTABILITY

- 1 Lapse Rate and Stability
- 2 Modification of Stability
- 3 Characteristics of Stable/Unstable Air
- 4 Surface Heating/Cooling
- 5 Lifting Processes
- 6 Subsidence/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/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/Sea Breezes
- 11 Katabatic/Anabatic Effects
- 12 Topographical Effects
- 13 Wind Shear – Types/ Causes
- 14 Jet Stream – Composition/Altitude/ Seasonal Variance

AIR MASSES

- 1 Definition and Characteristics
- 2 Formation/Classification
- 3 Modification
- 4 Factors that Determine Weather
- 5 Seasonal/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 Fronts

AIRCRAFT ICING

- 1 Formation
- 2 In-flight – Freezing Rain
- 3 Hoar Frost

THUNDERSTORMS

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

HURRICANES AND TORNADOES

- 1 Hazards

METEOROLOGICAL SERVICES

AVAILABLE TO PILOTS

- 1 Flight Information Centres (FIC)
- 2 Aviation Weather Web Site
- 3 Automatic Terminal Information Service (ATIS)
- 4 VOLMET (HF) Broadcast

AVIATION WEATHER REPORTS

- 1 Decoding
- 2 Aviation Routine Weather Report (METAR)
- 3 Automated Weather Observation Station (AWOS)
- 4 Limited Weather Information System (LWIS)

AVIATION FORECASTS

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

WEATHER MAPS AND PROGNOSTIC CHARTS

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

PILOT REPORTS

- 1 Pilot Reports (PIREP)

AERONAUTICS - GENERAL KNOWLEDGE

SECTION 4: AIRFRAMES, ENGINES AND SYSTEMS

AIRFRAMES

- 1 Types of Construction
- 2 Handling/Care/Securing

LANDING GEAR, BRAKES AND FLAPS

- 1 Mechanical
- 2 Hydraulic
- 3 Electrical

ENGINES

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

CARBURATION

- 1 Theory of Operation
- 2 Fuel-Air Mixture/Mixture Controls
- 3 Carburetor Icing
- 4 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/ Battery
- 2 Lighting
- 3 Master/Alternator/ Generator Switches
- 4 Ammeter/Load Meter
- 5 Bus Bars
- 6 Circuit Breakers/Fuses
- 7 Grounding/Bonding

LUBRICATING SYSTEMS AND OILS

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

FUEL SYSTEMS AND FUELS

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

OTHER AIRCRAFT SYSTEMS

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

SECTION 5: THEORY OF FLIGHT

PRINCIPLES OF FLIGHT

- 1 Bernoulli's Principle
- 2 Newton's Laws

FORCES ACTING ON AN AEROPLANE

- 1 Lift
- 2 Drag– Induced/Parasite/Profile
- 3 Relationship of Lift and Drag to Angle of Attack
- 4 Thrust
- 5 Weight
- 6 Equilibrium
- 7 Centre of Pressure (C of P)
- 8 Centrifugal/Centripetal Forces
- 9 Forces Acting on an Aircraft during Manoeuvres

AEROFOILS

- 1 Pressure Distribution about an Aerofoil
- 2 Relative Airflow and Angle of Attack
- 3 Downwash
- 4 Wing Tip Vortices
- 5 Angle of Incidence

PROPELLERS

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

DESIGN OF THE WING

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

LOAD FACTOR

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

STABILITY

- 1 Longitudinal, Lateral, Directional Stability
- 2 Inherent Stability
- 3 Methods of Achieving Stability, Effect of C of G 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/Aileron Drag
- 5 Static/Dynamic Balancing of Controls
- 6 Trim/Trimming Devices
- 7 Autopilots – axes and modes of control available

SECTION 6: FLIGHT INSTRUMENTS

PITOT STATIC SYSTEM

- 1 Pitot
- 2 Static
- 3 Anti-Icing
- 4 Alternate Static – Source/Errors

AIRSPEED INDICATOR

- 1 Principles of Operation
- 2 Errors/Malfunctions
- 3 Markings
- 4 Definitions – IAS/CAS/TAS

VERTICAL SPEED INDICATOR

- 1 Principles of Operation
- 2 Errors/Malfunctions
- 3 Lag

ALTIMETER/ENCODING ALTIMETER

- 1 Principles of Operation
- 2 Errors/Malfunctions

RADIO/RADAR ALTIMETER

- 1 Principles of Operation
- 2 Limitations

DIRECT READING 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/Malfunctions
- 3 Limitations
- 4 Power Sources
- 5 Slaved Compass System/
Slaved HSI/RMI

ATTITUDE INDICATOR

- 1 Principles of Operation
- 2 Errors/Malfunctions
- 3 Limitations
- 4 Power Sources

TURN AND BANK INDICATOR/ TURN CO-ORDINATOR

- 1 Principles of Operation
- 2 Errors/Malfunctions
- 3 Limitations
- 4 Power Sources

ELECTRONIC FLIGHT INSTRUMENT SYSTEM (EFIS)

INSTRUMENT FLYING

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

SECTION 7: FLIGHT OPERATIONS

GENERAL

- 1 Pilot-In-Command Responsibilities
- 2 Aircraft Defects/Minimum Equipment List
- 3 Winter Operations
- 4 Thunderstorm Avoidance
- 5 Mountain Flying Operations
- 6 Wildlife Hazards
- 7 Wildlife Conservation
- 8 Collision Avoidance – Use of Landing Lights
- 9 Canadian Runway Friction Index (CRFI)
- 10 Runway Numbering
- 11 VASIS/PAPI
- 12 Approach, Runway and Aerodrome Markings/Lighting
- 13 Obstruction Marking/Lighting
- 14 Units of Measurement and Conversion
- 15 Radio Communications (as per Section 1)
- 16 Aerodrome Operations (Including Marshalling Signals and Procedures for the Prevention of Runway Incursions)
- 17 Wheelbarrowing
- 18 Hydro-planing
- 19 Taxiing
- 20 Effects of Wind/Wind Shear
- 21 Side-slips
- 22 Radio/Electronic Interference, Portable Electronic Devices

AIRCRAFT PERFORMANCE

- 1 Lift/Drag Ratio
- 2 Effects of Density Altitude/ Humidity
- 3 Attitude Plus Power Equals Performance – Climb/ Descent/Level Flight
- 4 Normal/Short/Soft and Rough Field Take-offs and Landings
- 5 Ground Effect
- 6 Best Angle of Climb (V_x)
- 7 Best Rate of Climb (V_y)
- 8 Manoeuvring Speed (V_a)
- 9 Maximum Normal Operating Speed (V_{no})
- 10 Never Exceed Speed (V_{ne})
- 11 Maximum Flap Speed (V_{fe})
- 12 Maximum Gear Operating Speed (V_{lo})

- 13 Gliding for Range
- 14 Flying for Range
- 15 Flying for Endurance
- 16 Slow Flight
- 17 Stalls
- 18 Indicated and True Stalling Speed
- 19 Stall Speed vs Altitude
- 20 Spins
- 21 Spirals
- 22 Bank/Speed vs Rate/Radius of Turn
- 23 Effects of Change of Weight or Centre of Gravity (CG) on Performance
- 24 Use of Aircraft Flight Manual (Including Approved and Unapproved Operational Information)

USE OF PERFORMANCE CHARTS

- 1 Take-off Charts
- 2 Cross-wind 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/Water on Take-off and Landing Run
- 9 Effect of Various Runway Surfaces on Take-off and Landing Run
- 10 Upslope/Downslope Runway
- 11 CFRI Performance Tables and Charts

WEIGHT AND BALANCE

- 1 Terms – e.g. Datum/Arm/ Moment/MAC
- 2 Locating CG
- 3 CG Limits
- 4 Weights – e.g. Empty/Gross
- 5 Load Adjustment
- 6 Cargo Tie-down/Passenger Loading
- 7 Normal/Utility Category

WAKE TURBULENCE

- 1 Causes
- 2 Effects
- 3 Avoidance

SEARCH AND RESCUE (SAR)

(TC AIM – SAR)

- 1 Service Available, Request for Assistance, Aiding Persons in Distress
- 2 ELT (Exclude Categories)
- 3 Aircraft Emergency Assistance
- 4 Survival – Basic Techniques

AIRCRAFT CRITICAL SURFACE CONTAMINATION

- 1 Effects of Aircraft Critical Surface Contamination on Performance
- 2 Clean Aircraft Concept
- 3 Frozen Contaminants
- 4 Cold Soaking Phenomenon
- 5 Practices for Pilots to Ensure a Clean Aircraft
- 6 Pre-Take-Off Inspection

SECTION 8: HUMAN FACTORS

AVIATION PHYSIOLOGY

- 1 Hypoxia/Hyperventilation
- 2 Gas Expansion/Trapped Gasses, Effects
- 3 Decompression (Including SCUBA diving)
- 4 Vision/Visual Scanning Techniques
- 5 Hearing
- 6 Orientation/Disorientation (Including Visual/Vestibular Illusions)
- 7 Positive and Negative “G”
- 8 Airsickness
- 9 Body Rhythms/Jet Lag
- 10 Sleep/Fatigue
- 11 Anaesthetics/Blood Donations
- 12 Effects of Smoking

THE PILOT AND THE OPERATING ENVIRONMENT

- 1 Personal Health/Fitness
- 2 Diet/Nutrition
- 3 Medications (Prescribed and Over-the-counter)
- 4 Substance Abuse (Alcohol/ Drugs)
- 5 Pregnancy
- 6 Heat/Cold
- 7 Noise/Vibration
- 8 Toxic Hazards (Including Carbon Monoxide)

AVIATION PSYCHOLOGY

- 1 The Decision-Making Process
- 2 Factors That Influence Decision-Making
- 3 Situational Awareness
- 4 Stress
- 5 Managing Risk
- 6 Attitudes
- 7 Workload – Attention and Information Processing

PILOT – EQUIPMENT/MATERIALS RELATIONSHIP

- 1 Controls and Displays – Errors in Interpretation and Control
- 2 Standard Operating Procedures – Rationale/Benefits
- 3 Errors in the Interpretation and Use of Maps/Charts
- 4 Correct Use of Check-lists and Manuals
- 5 Automation and complacency

INTERPERSONAL RELATIONS

- 1 Communications with Flight Crew/Maintenance Personnel/Air Traffic Services/Passengers
- 2 Operating Pressures – Family Relationships/Peer Group
- 3 Operating Pressures – Employer

THREAT AND ERROR MANAGEMENT (TEM)

- 1 Sources, Contributors
- 2 Countermeasures
- 3 Undesired Aircraft State

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/opssvs/general-exams-centres-2010.htm>.

RECOMMENDED STUDY MATERIAL

- When in Doubt... Small and Large Aircraft - Aircraft Critical Surface Contamination Training Booklet (TP 10643)
- Aircraft Critical Surface Contamination Examination Questions (TP 10615).
- Air Command Weather Manual (TP 9352)
- Air Command Weather Manual (Supplement) (TP 9353)
- Human Factors for Aviation - Basic Handbook (TP 12863), and Advanced Handbook (TP 12864)
- Transport Canada Aeronautical Information Manual (TC AIM) (TP14371) <http://www.tc.gc.ca/eng/civilaviation/publications/tp14371-menu-3092.htm>
- *Canadian Aviation Regulations* (CARs) <http://laws-lois.justice.gc.ca/eng/regulations/SOR-96-433/index.html>
- VFR Navigation Charts (VNC)/VFR Terminal Area Charts (VTA)/World Aeronautical Charts (WAC)
- Canada Flight Supplement
- Enroute Low Altitude Charts

Transport Canada publications (TP) may be purchased from retailers, or at the following web site: <http://www.tc.gc.ca/eng/publications-order-605.html>

The Study Guide For The Radiotelephone Operator's Restricted Certificate - Aeronautical (RIC-21) is available free of charge from district offices of Industry Canada - Examinations and Radio Licensing (<http://www.strategis.gc.ca>).

Information on the Transportation of Dangerous Goods is available from Transport Canada. (<http://www.tc.gc.ca/eng/tdg/clear-menu-497.htm>)

Information on Air Transportation Licences is available from the Canadian Transportation Agency (<http://www.cta-otc.gc.ca/>).

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

Information on the Canada Labour Code is available from Social Development Canada (<http://laws-lois.justice.gc.ca/eng/acts/l-2/index.html>).

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

Publications used in pilot training in the United States are available through the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402 (<http://www.access.gpo.gov/index.html>).

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
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 Time and Flight Duty Time Limitations and Rest Periods
CARs Part VII, Subpart 2	AERIAL WORK OPERATIONS 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
TC AIM - AGA	AERODROMES 7.18 – Aerodrome Lighting – Aircraft Radio Control of Aerodrome Lighting (ARCAL)

TC AIM - COM	COMMUNICATIONS 1.15 – Radio Communications – Phone use during Radio Communications Failure
TC AIM - RAC	RULES OF THE AIR AND AIR TRAFFIC SERVICES 2.0 – Airspace – Requirements and Procedures 3.6 – Flight Planning – Flight Plans and Flight Itineraries (Opening) 3.12 – Closing 4.0 – Airport Operations 5.0 – VFR En Route Procedures
TC AIM - SAR	SEARCH AND RESCUE 3.9 – Emergency Locator Transmitter – Schedule of Requirements
TC AIM - MAP	AERONAUTICAL CHARTS AND PUBLICATIONS 2.3 – Aeronautical Information Circulars – General 2.5 – Aeronautical Information – VFR
TC AIM - LRA	LICENSING, REGISTRATION AND AIRWORTHINESS 1.12 – Pilot Licensing – Recency Requirements
TC AIM - AIR	AIRMANSHIP 1.6 – General Information – Canadian Runway Friction Index 2.12 – Flight Operations – Flight Operations in Winter

The above documents can be located on the Transport Canada web pages
<http://laws-lois.justice.gc.ca/eng/regulations/SOR-96-433/index.html>
and
<http://www.tc.gc.ca/eng/civilaviation/publications/tp14371-menu-3092.htm>