Study and Reference Guide

for written examinations
for the

Private Pilot Licence

Aeroplane

Fifth Edition
November 2006
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GENERAL

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.

KNOWLEDGE REQUIREMENTS
All subjects in this guide are considered to be important to applicants for the Private Pilot Licence—Aeroplane and may appear on the exam. Subject areas identified by a bullet (•) are essential knowledge areas that will be emphasized on the written examination.

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.

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.
REWITING 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 which questions were answered incorrectly.

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

EXAMINATIONS

FULL EXAMINATION

Applicants for the Private 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.

<table>
<thead>
<tr>
<th>Examination</th>
<th>Questions</th>
<th>Time Limit</th>
<th>Pass Mark</th>
</tr>
</thead>
<tbody>
<tr>
<td>Private Pilot–Aeroplane (PPAER)</td>
<td>100</td>
<td>3 hours</td>
<td>60%</td>
</tr>
</tbody>
</table>

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                                      | Air Law and Procedures
NAVIGATION                                  | Navigation and Radio Aids
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 CARs 421.26.

SUPPLEMENTARY EXAMINATIONS

Applicants who obtain 60% or more on the main examination (PPAER), 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:

<table>
<thead>
<tr>
<th>Examination</th>
<th>Questions</th>
<th>Time Limit</th>
<th>Pass Mark</th>
</tr>
</thead>
<tbody>
<tr>
<td>AIR LAW (PALAW)</td>
<td>20</td>
<td>1 hour</td>
<td>60%</td>
</tr>
<tr>
<td>NAVIGATION (PANAV)</td>
<td>20</td>
<td>2 hours</td>
<td>60%</td>
</tr>
<tr>
<td>METEOROLOGY (PAMET)</td>
<td>30</td>
<td>1½ hours</td>
<td>60%</td>
</tr>
<tr>
<td>AERONAUTICS—GENERAL KNOWLEDGE (PAGEN)</td>
<td>30</td>
<td>1½ hours</td>
<td>60%</td>
</tr>
</tbody>
</table>

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 3 hours.

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 Private Pilot Licence—Aeroplane shall demonstrate their knowledge by writing the following Transport Canada multiple choice examination.

<table>
<thead>
<tr>
<th>Examination</th>
<th>Questions</th>
<th>Time Limit</th>
<th>Pass Mark</th>
</tr>
</thead>
<tbody>
<tr>
<td>Private Pilot Aeroplane—Alternate Category (PARAC)</td>
<td>35</td>
<td>1½ hours</td>
<td>60%</td>
</tr>
</tbody>
</table>

The PARAC examination is based on subjects contained in AIR LAW and AERONAUTICS—GENERAL KNOWLEDGE (Airframes, Engines and Systems, Theory of Flight, Flight Instruments and Flight Operations).
CONVERSION EXAMINATION, UNITED STATES OF AMERICA FAA PILOT CERTIFICATE – AEROPLANE

Pilots who hold an FAA Private Pilot Certificate, Commercial or Airline Transport Pilot Certificate – Aeroplane, shall demonstrate their knowledge by writing the following Transport Canada multiple choice examination:

<table>
<thead>
<tr>
<th>Examination</th>
<th>Questions</th>
<th>Time Limit</th>
<th>Pass Mark</th>
</tr>
</thead>
<tbody>
<tr>
<td>Conversion - Private Pilot Licence – Aeroplane, (FAAPA)</td>
<td>20</td>
<td>1 hour</td>
<td>60%</td>
</tr>
</tbody>
</table>

The FAAPA examination is based on subjects contained in the following sections of this guide: AIR LAW and PROCEDURES.
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

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

202.01 Requirements for Marks on Aircraft
202.26 Carrying Certificate of Registration on Board the Aircraft

PART III – AERODROMES AND AIRPORTS
300 – INTERPRETATION

300.01 Interpretation

301 – AERODROMES

301.01 Application
• 301.04 Markers and Markings
• 301.06 Wind Direction Indicator
301.07 Lighting
301.08 Prohibitions
301.09 Fire Prevention

302 – AIRPORTS

302.10 Prohibitions
302.11 Fire Prevention

PART IV – PERSONNEL LICENSING AND TRAINING
400 – GENERAL

400.01 Interpretation
401 – FLIGHT CREW PERMITS, LICENSES AND RATINGS

401.03 Requirement to Hold a Flight Crew Permit, Licence or Rating
401.04 Flight Crew Members of Aircraft Registered in Contracting States other than Canada
• 401.05 Recency Requirements
401.08 Personal Logs
• 401.26 Aeroplane - Privileges (Private Pilot Licence)
401.45 Privileges (Visual Flight Rules (VFR) Over-the-Top)

404 – MEDICAL REQUIREMENTS

404.03 Requirement to Hold a Medical Certificate
404.04 Issuance, Renewal and Validity Period of Medical Certificate
404.06 Prohibition Regarding Exercise of Privileges
404.18 Permission to Continue to Exercise the Privileges of a Permit, Licence or Rating

PART VI – GENERAL OPERATING AND FLIGHT RULES

600 – INTERPRETATION

600.01 Interpretation

601 – AIRSPACE STRUCTURE, CLASSIFICATION AND USE

601.01 Airspace Structure
601.02 Airspace Classification
• 601.03 Transponder Airspace
• 601.04 IFR or VFR 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
601.15 Forest Fire Aircraft Operating Restrictions
601.16 Issuance of NOTAM for Forest Fire Aircraft Operating Restrictions

602 – OPERATING AND FLIGHT RULES

GENERAL

602.01 Reckless or Negligent Operation of Aircraft
602.02 Fitness of Flight Crew Members
602.03 Alcohol or Drugs – Crew Members
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602.05 Compliance with Instructions
602.06 Smoking
602.07 Aircraft Operating Limitations
602.08 Portable Electronic Devices
602.09 Fuelling 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
• 602.31 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

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 – Flight over Water

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• 602.71 Pre-flight Information
• 602.72 Weather Information
• 602.73 Requirements 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

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• 602.86 Carry-on Baggage, Equipment and Cargo
• 602.88 Fuel Requirements
• 602.89 Passenger Briefings
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- 602.97 VFR and IFR Aircraft Operations at Uncontrolled Aerodromes within a MF Area (Mandatory Frequency Area)
- 602.98 General MF Reporting Requirements
- 602.99 MF Reporting Procedures before Entering Manoeuvring Area
- 602.100 MF Reporting Procedures on Departure
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- 602.102 MF Reporting Procedures when Flying Continuous Circuits
- 602.103 Reporting Procedures when Flying through an MF Area

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- 602.115 Minimum Visual Meteorological Conditions for VFR Flight in Uncontrolled Airspace
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- 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

605 – AIRCRAFT REQUIREMENTS

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- 605.03 Flight Authority
- 605.04 Availability of Aircraft Flight Manual
- 605.05 Markings and Placards
- 605.08 Unserviceable and Removed Equipment – General

AIRCRAFT EQUIPMENT REQUIREMENTS

- 605.14 Power-driven Aircraft – Day VFR
- 605.15 Power-driven Aircraft – VFR OTT (Over-the-Top)
- 605.16 Power-driven Aircraft – Night VFR
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- 605.22 Seat and Safety Belt Requirements
- 605.24 Shoulder Harness Requirements
- 605.25 General use of Safety Belts and Restraint Systems
- 605.28 Child Restraint System
605.29 Flight Control Locks
605.31 Oxygen Equipment and Supply
- 605.32 Use of Oxygen
- 605.35 Transponder and Automatic Pressure-altitude Reporting Equipment
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605.85 Maintenance Release and Elementary Work
605.86 Maintenance Schedule
605.88 Inspection after Abnormal Occurrences

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• 3 Protection of occurrence site

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• 1 Air Traffic Services and Advisory Services
• 2 Communication procedures
• 3 Radar service – clock position system
• 4 ATC clearances and instructions
• 5 Wake turbulence separation
• 6 Controlled and uncontrolled aerodrome operations
• 7 Mandatory (MF) and Aerodrome Traffic Frequencies (ATF)
• 8 VFR en route procedures
• 9 VFR holding procedures
• 10 Operations on intersecting runways including (LAHSO)
• 11 Procedures for the prevention of runway incursion
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NAVIGATION AND RADIO AIDS

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2 Prime Meridian
3 Longitude
4 Equator
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6 Rhumb Line/Great Circle
7 Variation
8 Isogonal
9 Agonic Line
10 Deviation
11 Track
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13 Airspeed
14 Ground Speed
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19 Drift

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1 VTA – Transverse Mercator Projection
2 VNC – Lambert Conformal Conic Projection
3 Topographical symbols
4 Elevation and contours (relief)
5 Aeronautical information
6 Scale and units of measurement
7 Locating position by latitude and longitude
8 Navigation aids

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1 Use of Aeronautical Charts
2 Measurement of track and distance
3 Map reading
4 Setting heading – visual angle of departure
5 Check-points and pin-points
6 Use of position lines to obtain a fix
7 Ground Speed checks and ETA revisions
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10 Determining drift by 10° lines
11 Double track error method to regain track
12 Opening and closing angles method
13 Visual alteration method of correcting to track
14 Diversion to alternate destination
15 Return to departure point (Reciprocal Track)
16 Low Level Navigation
17 Dead reckoning (DR navigation), triangle of velocity
18 In-flight log and mental calculations
19 Procedures when lost
20 True, magnetic and compass headings
21 Indicated airspeed, calibrated airspeed
22 True airspeed, ground speed
23 Compass errors
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2 Time Zones and relation to longitude
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• 2 Pressure, density and true altitudes
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• 2 Map preparation
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• 4 NOTAM
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• 7 Weight and balance
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• 10 Flight Plans, itineraries
• 11 Flight log forms
• 12 Aircraft serviceability

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• 1 Basic principles, use and limitations

OTHER RADIO AND RADAR AIDS – BASIC PRINCIPLES AND USE
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• 2 Emergency Locator Transmitter (ELT)
• 3 VHF Direction Finding (DF) assistance
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2 Frequency bands used in navigation and communication
3 Reception limitations

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2 Tuning and identifying
3 Serviceability check
• 4 Interpretation, orientation and homing
• 5 Voice feature

AUTOMATIC DIRECTION FINDER (ADF)
1 Aircraft equipment
2 Tuning and identifying
3 Serviceability check
4 Interpretation, orientation and homing
• 5 Voice feature
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3 Standard atmosphere
4 Density and pressure
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3 Sea level pressure
4 Pressure systems and their variations
5 Effects of temperature
6 Isobars

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• 2 Density altitude
• 3 Altimeter settings
• 4 Considerations when flying to/from high to low pressure or temperature areas

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• 2 Horizontal differences
• 3 Temperature variations with altitude
• 4 Inversions
• 4 Isothermal layers

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• 1 Relative humidity and dewpoint
• 2 Sublimation and condensation
• 3 Cloud formation
• 4 Precipitation
• 5 Saturated and dry adiabatic lapse rate

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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

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2 Formation and structure
• 3 Types and recognition
• 4 Associated precipitation and turbulence

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• 2 Fog types (including mist)
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• 4 Wind shear
• 5 Reporting criteria

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• 3 Deflection caused by the earth's rotation
• 4 Low level winds – variation in surface wind
• 5 Friction
• 6 Veer/back
• 7 Squall/gusts
• 8 Diurnal effects
• 9 Land and sea breezes
• 10 Katabatic and anabatic effects
• 11 Topographical effects
• 12 Wind shear – types, causes
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2 Formation and classification
3 Modification
4 Factors that determine weather
5 Seasonal and geographic effects
6 Air masses affecting North America

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3 Formation
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2 Hoar frost
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2 Structure and development
3 Types – air mass and frontal
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5 Squall lines

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1 Hazards

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1 Aviation Weather Information Services (AWIS)
2 Aviation Weather Briefing Service (AWBS)
3 Flight Service Stations (FSS) and Flight Information Centres
4 Pilot's Automatic Telephone Weather Answering Service (PATWAS)
5 Aviation Weather Web Site (AWWS)
6 Automatic Terminal Information Service (ATIS)

AVIATION WEATHER REPORTS
1 Aviation Routine Weather Report (METAR) – decoding
2 Automated Weather Observation Station (AWOS)
3 Pilot Reports (PIREP)

AVIATION FORECASTS
1 Times issued and period of coverage
2 Decoding
3 Graphical Area Forecast (GFA)
4 Terminal Area Forecast (TAF)
5 Upper Winds and Temperature Forecast (FD)
6 Airman’s Meteorological Advisory (AIRMET)
7 Significant In-flight Weather Warning Message (SIGMET)

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1 Times issued and period of coverage
2 Symbols and decoding
3 Surface weather map
4 Upper air charts – weather Information to 700 mb Level
5 Prognostic surface charts
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AIRFRAMES, ENGINES AND SYSTEMS

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1 Mechanical
2 Hydraulic
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2 Methods of cooling
3 Principle of the magneto
• 4 Dual ignition
5 Exhaust systems
• 6 Auxiliary controls
7 Turbo-charging
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9 Limitations and operations
10 Instruments

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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 Lighting
3 Ammeter and load meter
4 Bus bars
5 Circuit breakers and fuses
6 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 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
7 Fuel line – filters and drains
8 Induction manifold
• 9 Detonation – causes and effects
10 Vapour lock
11 Primers
12 Fuel management
• 13 Fuel handling – fuelling aircraft

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1 Oxygen
2 Vacuum
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#### Principles of Flight
- 1 Bernoulli’s Theorem
- 2 Newton’s Laws

#### Forces Acting on an Aeroplane
- 1 Lift
- 2 Drag – induced and parasite
- 3 Relationship of lift and drag to angle of attack
- 4 Thrust
- 5 Weight
- 6 Equilibrium
- 7 Centre of pressure
- 8 Centrifugal and centripetal
- 9 Forces acting on an aircraft during manoeuvres
- 10 Relationship of load factor to stalling speed
- 11 Structural limitations
- 12 Gust loads

#### 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 and variable pitch
- 3 Torque, slipstream, gyroscopic effect and asymmetric thrust

#### Design of the Wing
- 1 Wing planform
- 2 Area, span, chord
- 3 Aspect ratio
- 4 Streamlining
- 5 Camber
- 6 Laminar flow
- 7 Dihedral, anhedral
- 8 Wash in, wash out
- 9 Slots, slats
- 10 Wing fences, stall strips
- 11 Spoilers
- 12 Flaps
- 13 Canards

#### Stability
- 1 Longitudinal, lateral and directional stability
- 2 Inherent stability
- 3 Methods of achieving stability

#### Flight Controls
- 1 Airplane axes and planes of movement
- 2 Functions of controls
- 3 Relationship between effects of yaw and roll
- 4 Adverse yaw, aileron drag
- 5 Static and dynamic balancing of controls
- 6 Trim and trimming devices
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PITOT STATIC SYSTEM
• 1 Pitot
• 2 Static
  3 Anti-icing
  4 Alternate static – source, errors

AIRSPEED INDICATOR
  1 Principles of Operation
• 2 Errors
• 3 Markings
  4 Definitions (IAS/CAS/TAS)

VERTICAL SPEED INDICATOR
  1 Principles of operation
• 2 Errors
• 3 Lag

ALTIMETER/ENCODING ALTIMETER
  1 Principles of operation
• 2 Errors

MAGNETIC COMPASS
  1 Principles of operation
• 2 Magnetic dip
• 3 Turning, acceleration and deceleration errors
  4 Deviation
  5 Compass correction card
  6 Compass serviceability

GYROSCOPE
  1 Principles of operation
• 2 Inertia
• 3 Precession

HEADING INDICATOR
• 1 Principles of operation
• 2 Errors
• 3 Limitations
• 4 Power sources

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• 1 Principles of operations
• 2 Errors
• 3 Limitations
• 4 Power sources

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• 1 Principles of operations
• 2 Errors
• 3 Limitations
• 4 Power sources

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  1 Loss of visual reference
  2 The control and performance instruments
  3 Instrument scan and interpretation
  4 Aircraft control
  5 Unusual attitudes and recoveries
FLIGHT OPERATIONS

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2. Winter operations
3. Thunderstorms avoidance
4. Mountain flying operations
5. Collision avoidance – use of landing lights
6. Runway numbering
7. Airport rotating beacon
8. VASIS/PAPI
9. Obstruction marking and lighting
10. Units of measurements and conversion
11. Radio communications
12. Wheelbarrowing
13. Hydro-planning
14. Taxiing
15. Effects of wind and wind shear
16. Side-slips

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1. Take-off charts
2. Cross-wind charts
3. Canadian Runway Friction Index (CRFI)
4. Cruise charts
5. Fuel burn charts
6. Landing charts
7. Performance (V) speeds – Va, Vno, Vfe, Vlo, Vne, Vs, Vx, Vy
8. Effect of ice, snow, frost, slush, water on take-off and landing distance
9. Effect of various runway surfaces on take-off and landing distance
10. Upslope, downslope runway

AIRCRAFT PERFORMANCE
1. Effects of aircraft critical surface contamination
2. Lift/drag ratio
3. Effects of density altitude and humidity
4. Attitude plus power equals performance
5. Normal, short, soft and rough field take-offs and landing
6. Ground effect
7. Best angle of climb (Vx)
8. Best rate of climb (Vy)
9. Manoeuvring speed (Va)
10. Normal operating limit speed (Vno)
11. Never exceed speed (Vne)
12. Maximum flap speed (Vfe)
13. Maximum gear operating speed (Vlo)
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/speed vs rate/radius of turn
25. Effects of change of weight or centre of gravity (CG) on performance
26. Use of aircraft flight manual and approved operational information
27. Use of unapproved operational information
WEIGHT AND BALANCE
1 Terms – e.g. datum, arm and moment
• 2 Locating CG
• 3 CG limits
  4 Empty weight and gross weight
  5 Load adjustment
  6 Cargo tie-down and passenger loading
• 7 Normal and utility category

WAKE TURBULENCE
• 1 Causes
• 2 Effects
• 3 Avoidance

SEARCH AND RESCUE (SAR)
(AIM Canada – SAR Information)
1 Types of service available
• 2 ELT (exclude categories)
  3 Aircraft emergencies
  4 Survival – basic techniques

AIRCRAFT CRITICAL SURFACE CONTAMINATION
1 Clean aircraft concept
2 Frozen contaminants and removal techniques
3 Cold soaking phenomenon
4 Pre-take-off contamination inspection
5 De-ice/Anti-ice fluids - Type I, II, III, IV
6 Correct use of fluids
HUMAN FACTORS

AVIATION PHYSIOLOGY
• 1 Hypoxia and hyperventilation
  2 Gas expansion effects
  3 Decompression (including SCUBA diving)
• 4 Visual scanning techniques
  5 Hearing
• 6 Orientation and disorientation
  (Including visual and vestibular illusions)
  7 Positive and negative “G”
  8 Sleep and fatigue
  9 Anaesthetics
  10 Blood donations

THE PILOT AND THE OPERATING ENVIRONMENT
  1 Personal health and fitness
  2 Diet and nutrition
• 3 Medications (prescribed and over-the-counter)
  4 Substance abuse (alcohol and drugs)
  5 Pregnancy
  6 Heat and cold
  7 Noise and vibration
  8 Effects of smoking
• 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 Managing risk
  6 Attitudes
  7 Workload – attention and information processing

PILOT – EQUIPMENT/MATERIALS RELATIONSHIP
  1 Controls and displays – errors in interpretation and control
  2 Errors in the interpretation and use of maps and charts
  3 Correct use of check-lists and manuals

INTERPERSONAL RELATIONS
  1 Communications with maintenance personnel, air traffic services and passengers
  2 Operating pressures – family relationships and peer group
RECOMMENDED STUDY MATERIAL

- Sample Examination for Private Pilot Licence (TP 13014E)
- Student Pilot Permit or Private Pilot Licence for Foreign and Military Applicants, Air Regulations (PSTAR) (TP 11919E)
- When in Doubt... Small and Large Aircraft - Aircraft Critical Surface Contamination Training (TP 10643E)
- Air Command Weather Manual (TP 9352E)
- Air Command Weather Manual (Supplement) (TP 9353E)
- Flight Training Manual
- Human Factors for Aviation - Basic Handbook (TP 12863E)
- Aeronautical Information Manual (TC AIM) (TP 14371E)
- Canadian Aviation Regulations (CARs)
- VFR Navigation Charts (VNC) / VFR Terminal Area Charts (VTA)
- Canada Flight Supplement (CFS)


Information on textbooks and other publications produced by commercial publishers can be obtained through local flying training organizations, 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/CivilAviation/General/Exams/Centres.htm