



Transport
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Study and Reference Guide

Recreational Pilot Permit

Aeroplane

Fourth Edition

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Canada[®]

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<http://www.tc.gc.ca/CivilAviation/General/Exams/Guides.htm>

GENERAL

KNOWLEDGE REQUIREMENTS

All subjects in this guide are considered to be important to applicants for the Recreational Pilot Permit – 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.

EXAMINATIONS

Applicants for the Recreational Pilot Permit – Aeroplane 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
Recreational Pilot Permit – Aeroplane (RPPAE)	80	3 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 these areas. They are:

Mandatory Subjects	Related Study and Reference Guide Sections	Page
AIR LAW	Air Law and Procedures – Section 1	4
NAVIGATION	Navigation and Radio Aids – Section 2	10
METEOROLOGY	Meteorology – Section 3	12
AERONAUTICS AND GENERAL KNOWLEDGE ..	Airframes, Engines, and Systems – Section 4	14
	Theory of Flight – Section 5	15
	Flight Instruments – Section 6	16
	Flight Operations – Section 7	17
	Human Factors – Section 8	19

Questions fall under one of the four mandatory subjects 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 and Radio Aids – Section 2 may require knowledge on VFR fuel requirements under Air Law and Procedures – Section 1.

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 main examination (RPPAE), 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:

Recreational Pilot Permit

Examination	Questions	Time Limit	Pass Mark
AIR LAW (RALAW)	20	1 hour	60%
NAVIGATION (RANAV)	20	1½ hours	60%
METEOROLOGY (RAMET)	20	1 hour	60%
AERONAUTICS – GENERAL KNOWLEDGE (RAGEN)	20	1 hour	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 3 hours.

EXAMINATION RESULTS: FEEDBACK STATEMENTS

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

Example of a Feedback Statement

Identify the atmospheric conditions favorable for thunderstorm formation.

SECTION 1: 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 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 Requirements 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
- 401.22 Pilot Permit – Recreational – Aeroplane – Privileges
- 401.28 Reimbursement of Costs Incurred in Respect of a Flight

404 – MEDICAL REQUIREMENTS

- 404.03 Requirement to Hold a Medical Certificate (MC)
- 404.04 Issuance, Renewal and Validity Period of MC
- 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
- 602.04 Alcohol or Drugs – Passengers
- 602.05 Compliance with Instructions
- 602.06 Smoking
- 602.07 Aircraft Operating Limitations
- 602.08 Portable Electronic Devices
- 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
- 602.26 Parachute Descents
- 602.27 Aerobatic Maneuvers – Prohibited Areas and Flight Conditions
- 602.28 Aerobatic Maneuvers with Passengers
- 602.31 Compliance with Air Traffic Control Instructions and Clearances
- 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

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 Personal Flotation Devices

FLIGHT PREPARATION, FLIGHT PLANS AND FLIGHT ITINERARIES

- 602.70 Interpretation
- 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 Flight Itinerary
- 602.75 Filing of a Flight Plan or Flight Itinerary
- 602.76 Changes in the Flight Plan
- 602.77 Requirements to File an Arrival Report
- 602.78 Contents of an Arrival Report
- 602.79 Overdue Aircraft Reports

PRE-FLIGHT AND FUEL REQUIREMENTS

- 602.88 Fuel Requirements
- 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 a Mandatory Frequency (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

VISUAL FLIGHT RULES

- 602.114 Minimum Visual Meteorological Conditions for VFR Flight in VFR Flight in Controlled Airspace
- 602.115 Minimum Visual Meteorological Conditions for VFR Flight in Uncontrolled Airspace
- 602.117 Special VFR Flight

RADIOCOMMUNICATIONS

- 602.136 Continuous Listening Watch
- 602.138 Two-way Radio communication 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

GENERAL

- 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
- 605.22 Seat and Safety-Belt Requirements
- 605.24 Shoulder Harness Requirements
- 605.25 General use of Safety Belts and Restraints System
- 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
- 605.38 ELT
- 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 RECORD

- 605.92 Requirements to Keep Technical Records

- 605.93 Technical Records – General
- 605.94 Journey Log Requirements
- 605.95 Journey Log – Carrying on Board

606 – MISCELLANEOUS

- 606.02 Liability Insurance

A.I.P. CANADA

- 1 A.I.P Canada Supplements
- 2 Aeronautical Information Circulars
- 3 Aviation Notices

TRANSPORTATION SAFETY BOARD OF CANADA (TSB) – (A.I.P. GEN 3.0)

- 1 Definitions
- 2 Reporting an Aviation Occurrence
- 3 Protection of Occurrence Site

AIR TRAFFIC SERVICES AND PROCEDURES

- 1 Air Traffic and Advisory Services
- 2 Flight Service Stations/Flight Information Centers
- 3 Communications Procedures
- 4 Radar Service – Clock Position System
- 5 ATC Clearances and Instructions
- 6 Wake Turbulence Separation
- 7 Airport/Aerodrome Operations – Controlled
- 8 Airport/Aerodrome Operations – Uncontrolled
- 9 Mandatory (MF) and Aerodrome Traffic Frequencies (ATF)
- 10 VFR En Route Procedures
- 11 VFR Holding Procedures
- 12 VFR/IFR Traffic Mix at Uncontrolled Airports/ Aerodromes
- 13 Operations on Intersecting Runways including (LAHSO)
- 14 Procedures for the Prevention of Runway Incursion

SECTION 2: NAVIGATION AND RADIO AIDS**DEFINITIONS**

- 1 Longitude
- 2 Equator
- 3 Latitude
- 4 Great Circle
- 5 Variation
- 6 Isogonal
- 7 Agonic Line
- 8 Deviation
- 9 Track
- 10 Heading
- 11 Airspeed
- 12 Ground Speed
- 13 Ground Position
- 14 Wind Velocity
- 15 Drift

MAPS AND CHARTS

- 1 VTA – Transverse Mercator
- 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 Navigational Aids

TIME AND LONGITUDE

- 1 24 Hour System
- 2 Time Zones and Relation to Longitude
- 3 Conversion of UTC to Local and Vice Versa

PRE-FLIGHT PREPARATION

- 1 Factors Affecting Choice of Route
- 2 Map Preparation
- 3 Meteorological Information
- 4 NOTAM
- 5 Selection of Check-points
- 6 Fuel Requirements
- 7 Weight and Balance
- 8 Use of the Canada Flight Supplement
- 9 Documents to be carried in Aircraft
- 10 Flight Plans/Itineraries
- 11 Aircraft Serviceability

TRIANGLE OF VELOCITY

- 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 Altitudes
- 6 Time/Ground Speed/Distance
- 7 Fuel Consumption and Conversions

PILOT NAVIGATION

- 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 Ground Speed Checks and E.T.A. Revisions
- 7 Variation/Deviation
- 8 True Track/Magnetic Track
- 9 Track Made Good
- 10 Determining Drift by 10° Lines
- 11 Double Track Error Method to Regain Track
- 12 Sum of Opening and Closing Angles to Destination
- 13 Visual Alteration Method of Correction to Track
- 14 Diversion to Alternate
- 15 Return to Departure Point
- 16 Procedures When Lost
- 17 Indicated and Calibrated Airspeed (IAS, CAS)

OTHER RADIO AND RADAR AIDS – BASIC PRINCIPLES AND USE

- 1 Transponder
- 2 Emergency Locator Transmitter (ELT)
- 3 VHF Direction Finding (DF) Assistance
- 4 Airport Surveillance Radar (ASR) Primary/Secondary

RADIO THEORY

- 1 Characteristics of Very High Frequency Radio Waves
- 2 Frequency Bands Used in Navigation and Communications
- 3 Reception Limitations

GLOBAL NAVIGATION SATELLITE SYSTEM (GNSS/GPS)

- 1 Basic Principles, Use and Limitations

SECTION 3: METEOROLOGY**THE EARTH'S ATMOSPHERE**

- 1 The Standard Atmosphere
- 2 Density and Pressure
- 3 Mobility
- 4 Expansion and Compression

ATMOSPHERIC PRESSURE

- 1 Pressure Measurements
- 2 Station Pressure
- 3 Sea Level Pressure
- 4 Effects of Temperature
- 5 Isobars
- 6 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 Variations with Altitude
- 2 Inversions
- 3 Isothermal Layers

MOISTURE

- 1 Relative Humidity/Dew point
- 2 Sublimation and Condensation
- 3 Cloud Formation
- 4 Precipitation

STABILITY AND INSTABILITY

- 1 Characteristics of Stable and Unstable Air
- 2 Surface Heating and Cooling
- 3 Lifting Process

CLOUDS

- 1 Formation and Structure
- 2 Types and Recognition
- 3 Associated Precipitation and Turbulence

TURBULENCE

- 1 Convection
- 2 Mechanical
- 3 Orographic
- 4 Wind Shear

WIND

- 1 Pressure Gradient
- 2 Low Level Winds – Variation in Surface Wind
- 3 Veer and Back
- 4 Squalls and Gusts
- 5 Diurnal Effects
- 6 Land and Sea Breezes
- 7 Topographical Effects
- 8 Wind Shear – Types and Causes

AIR MASSES

- 1 Definition and Characteristics
- 2 Factors that Determine Weather
- 3 Seasonal and Geographic Effects
- 4 Air Masses Affecting North America

FRONTS

- 1 Structure
- 2 Types
- 3 Formation

FRONTAL WEATHER

- 1 Cold Front
- 2 Warm Front
- 3 TROWAL and Upper Fronts

AIRCRAFT ICING

- 1 In-flight – Freezing Rain
- 2 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/Tornadoes
- 5 Squall Lines

SURFACE BASED LAYERS

- 1 Fog Formation
- 2 Fog Types
- 3 Haze/Smoke
- 4 Blowing Obstructions to Vision

**METEOROLOGICAL SERVICES
AVAILABLE TO PILOTS**

- 1 Aviation Weather Information Service (AWIS)
- 2 Aviation Weather Briefing Service (AWBS)
- 3 Flight Service Stations (FSS)/ Flight Information Centers
- 4 Pilots Automatic Telephone 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 WEATHER FORECASTS

- 1 Times Issued and Period of Coverage
- 2 Decoding
- 3 Graphical Area Forecast (GFA)
- 4 Aerodrome Forecasts (TAF)
- 5 Upper Level Winds and Temperature Forecasts (FD)
- 6 Airman's Meteorological Advisory (AIRMET)
- 7 Significant In-flight Weather Warning Message (SIGMET)

SECTION 4: AIRFRAMES, ENGINES, AND SYSTEMS

AIRFRAMES

- 1 Types of Construction

LANDING GEAR, BRAKES AND FLAPS

- 1 Mechanical
- 2 Hydraulic
- 3 Electric

ENGINES

- 1 Two/Four Stroke Cycle
- 2 Methods of Cooling
- 3 Dual Ignition
- 4 Exhaust Systems
- 5 Ancillary Controls
- 6 Effect of Density Altitude/Humidity
- 7 Limitations and Operations
- 8 Instruments

CARBURATION

- 1 Mixture Controls
- 2 Carburetor Icing
- 3 Use of Carb Heat and it's Effect on Mixture

ELECTRICAL SYSTEM

- 1 Generator/Alternator/Battery
- 2 Master/Alternator/Generator Switches
- 3 Ammeter/Load Meter
- 4 Circuit Breakers/Fuses
- 5 Grounding/Bonding

LUBRICATING SYSTEMS AND OILS

- 1 Types Viscosity/Grades/ Seasonal Use
- 2 Purposes
- 3 Venting
- 4 Filters

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 Lines – Filters/Drains
- 8 Detonation – Causes/Effects
- 9 Vapour Lock
- 10 Primers
- 11 Fuel Management – Ground/Air
- 12 Fuel Handling – Fuelling Aircraft

SECTION 5: 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/ 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
- 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 Fixed Pitch
- 2 Torque/Slipstream/Gyroscopic Effect/Asymmetric Thrust

DESIGN OF THE WING

- 1 Area/Span/Chord
- 2 Aspect Ratio
- 3 Camber
- 4 Laminar Flow
- 5 Dihedral/Anhedral
- 6 Wash In/Wash Out
- 7 Slots/Slats
- 8 Stall Strips
- 9 Spoilers
- 10 Flaps
- 11 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

FLIGHT CONTROLS

- 1 Aeroplane Axes and Planes of Movement
- 2 Functions of Controls
- 3 Relationship Between Yaw and Roll
- 4 Adverse Yaw/Aileron Drag
- 5 Static/Dynamic Balancing of Controls
- 6 Trim/Trimming Devices

SECTION 6: FLIGHT INSTRUMENTS**PITOT STATIC SYSTEM**

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

AIRSPPEED 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

DIRECT READING MAGNETIC COMPASS

- 1 Reading the Compass
- 2 Magnetic Dip
- 3 Turning and Acceleration Errors
- 4 Compass Serviceability Checks
- 5 Compass Correction Card
- 6 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
- 3 Limitations
- 4 Power Sources

ATTITUDE INDICATOR

- 1 Principles of Operations
- 2 Errors
- 3 Limitations
- 4 Power Sources

TURN AND BANK INDICATOR/ TURN CO-ORDINATOR

- 1 Principles of Operations
- 2 Errors
- 3 Limitations
- 4 Power Sources

SECTION 7: FLIGHT OPERATIONS**GENERAL**

- 1 Pilot-In-Command Responsibilities
- 2 Winter Operations
- 3 Thunderstorm Avoidance
- 4 Mountain Flying Operations
- 5 Collision Avoidance – Use of Landing Lights
- 6 Runway Numbering
- 7 VASIS/PAPI
- 8 Units of Measurements and Conversion
- 9 Radio Communications
- 10 Aerodrome Operations (Including Procedures for the Prevention of Runway Incursions)
- 11 Wheelbarrowing
- 12 Hydroplaning
- 13 Taxiing
- 14 Effects of Wind
- 15 Sideslips

USE OF PERFORMANCE CHARTS

- 1 Take-off Charts
- 2 Cross-wind Charts
- 3 Cruise Charts
- 4 Fuel Burn Charts
- 5 Landing Charts
- 6 Effect of Ice/Snow/Frost/Slush/Water on Take-off and Landing Run
- 7 Effect of Various Runway Surfaces on Take-off and Landing Run
- 8 Upslope/Downslope Runway

AIRCRAFT PERFORMANCE

- 1 Effects of Aircraft Critical Surface Contamination
- 2 Effects of Density Altitude/Humidity
- 3 Normal/Short/Soft and Rough Field Take-offs and Landing
- 4 Ground Effect
- 5 Best Angle of Climb (V_x)
- 6 Best Rate of Climb (V_y)
- 7 Manoeuvring Speed (V_a)
- 8 Safe Operating Speed (V_{no})
- 9 Never Exceed Speed (V_{ne})
- 10 Maximum Flap Speed (V_{fe})
- 11 Gliding for Range
- 12 Flying for Range
- 13 Flying for Endurance
- 14 Slow Flight
- 15 Stalls
- 16 Indicated and True Stalling Speed
- 17 Stall Speed vs Altitude
- 18 Spins
- 19 Spirals
- 20 Recommended Safe Recovery Altitudes
- 21 Effects of Change of Weight or Centre of Gravity (C of G) on Performance
- 22 Use of Aircraft Flight Manual and Approved Operational Information
- 23 Use of Unapproved Operational Information

WEIGHT AND BALANCE

- 1 Terms – e.g. Datum/Arm/ Moment
- 2 Locating C of G
- 3 C of G 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) (A.I.P.
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
- 3 Cold Soaking Phenomenon
- 4 Pre-take-off Inspection

SECTION 8: HUMAN FACTORS

AVIATION PHYSIOLOGY

- 1 Hypoxia/Hyperventilation
- 2 Gas Expansion 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 Sleep/Fatigue
- 9 Anesthetics/Blood Donations

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 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 Correct Use of Check-lists and Manuals

INTERPERSONAL RELATIONS

- 1 Communications with – Maintenance Personnel/Air Traffic Services/Passenger
- 2 Operating Pressures – Family Relationships/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)
- Aircraft Critical Surface Contamination Examination Questions (TP 10615E) - Questions that are appropriated to the licence sought may appear on written examination
- Air Command Weather Manual (TP 9352E)
- Air Command Weather Manual (Supplement) (TP 9353E)
- Flight Training Manual (TP1102E)
- Human Factors for Aviation - Basic Handbook (TP 12863E)
- Aeronautical Information Publication (A.I.P. Canada) (TP 2300E)
- *Canadian Aviation Regulations* (CARs)
- VFR Navigation Charts (VNC)/VFR Terminal Area Charts (VTA)
- Canada Flight Supplement

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

Information on text books and other publications produced by commercial publishers can be obtained through local flying training organizations, 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>).

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>